

ZONING BOARD OF APPEALS APPLICATION

Project Name, If Applicable: Pamela Lippe

Project Street Address: 9 Woodland Ave.

Section: _____ **Block:** _____ **Lot(s):** _____ **Zone:** _____

Applicant: Tri-State Solar Services

Address: 169 N. Route 9W

City: Congers **State:** NY **Zip:** 10920

Phone #: 845-267-8851 **Email:** matthew.sprake@tristatesolarservices.com

Owner: Pamela Lippe

Address: 9 Woodland Avenue

City: Bronxville **State:** NY **Zip:** 10708

Phone #: 917-678-0571 **Email:** plippe@e4inc.com

Application is for:

_____ An interpretation of the Zoning Law or a determination by the Superintendent of Buildings

Area variance(s) 310-22 F (3) B (2)
List Sections

_____ Use Variance _____
List Sections

_____ Special Permit Use _____
List Sections

Description of the proposed project and nature of the interpretation, variance(s) and/or special permit being sought:

We are proposing to complete a 50 panel installation that will cover 23% of the roof area. We have 23 panels that are currently installed and are seeking a variance to install a total of 50. Forty will be installed on the main side roof and ten will need to be installed on two small back roofs facing the road. The front facing roofs are located very far from the road and are much less visible than the panels on the side roof. Forty panels will not be enough to serve our home's electrical needs and our electric car.

When did present owner acquire title? August 1, 2002

Was the title acquired by purchase: (Yes or No), If so from whom? The Estate of Adelin Rosenfeld Conway

Are you seeking a variance from the provisions of the ordinance? (Yes or No)

If so, from which ordinance, from which provision thereof and to what extent? _____

We are seeking a variance from the Ordinance detailed in 310-22 F(3) B(2)

We are currently seeking relief from the limitation of the "lesser of 33% or 900sf" and that the panels "shall be located on a side or rear-facing roof."

If you are seeking a variance from the provisions of the ordinance, do you contend that the effect of the ordinance on the property to which this appeal pertains is different from its effect on other properties in the same zoning district? Yes or No) If so, in what respect and what is the cause of the difference?

The roof planes "Roof Area 2" & "Roof Area 3" are facing the street for good sun exposure, but cannot be seen from the street view.

Does the owner of the premises involved in this application own any contiguous property? (Yes or No)

If so, in what respect and what is the cause of the difference? _____

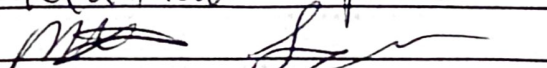
Owners Signature: *James J. Gore* Date: 2/17/2021

Zoning F.A.R. Calculation

	EXISTING	PROPOSED	SUB TOTAL
BASEMENT ^(b)	2448 sf	2448 sf	N/A Below Grade
1 ST FLOOR	2448 sf	2448 sf	2448 sf
2 ND FLOOR	900 sf	900 sf	900 sf
3 RD FLOOR ^(d)			
ATTIC ^(d)			
GARAGE ^(c)	392 sf	392 sf	N/A
ACTUAL TOTAL BUILDING FLOOR AREA =			3348
ACTUAL LOT AREA =			12196.8
PERMITTED F.A.R. (From Table, interpolate if necessary) =			.351
MAXIMUM PERMITTED BUILDING FLOOR AREA (ACTUAL LOT AREA X PERMITTED F.A.R.) =			4281.5

Floor Area Ratio (for a lot whose principal use is a one or two family dwelling): The ratio of the gross floor area of all buildings on a lot to the area of the lot on which the buildings are located. For the purpose of determining the floor area ratio (FAR), all floor areas of each floor of all principal and all accessory structures on the lot shall be included. Any interior space with a floor-to-ceiling height in excess of 14 feet shall be counted twice. Notwithstanding the preceding the following shall be excluded from the calculation of floor area:

- a) The aggregate area of all unroofed structures such as decks and patios and all spaces in unenclosed porches and porticos, except that existing unenclosed porches may be enclosed and the enclosed area excluded from the FAR calculation provided that the exterior walls of the unenclosed porch and the walls of the dwelling to which the porch is attached are not relocated closer to the lot lines of the subject property than the existing unenclosed porch.
- b) The aggregate area of any cellar regardless of its use or of any basement unless it is defined as a story. See Basement definition.
- c) The aggregate area of grade level garage parking (whether attached or detached) or basement level parking, in either case, up to a maximum of 400 square feet. In those instances where an additional story is provided above a garage (whether attached or detached) such floor area shall be subject to the attic and sloping roof limitations in (d) below.
- d) The aggregate area of all unfinished or finished space in an attic or under a sloping roof provided that the total exterior width of all dormers does not exceed 30% of the exterior linear width of the portion of the roof upon which they are situated. The exterior linear width of the roof shall be measured from end to end at the widest point of the roof. Where the linear width of the dormers exceeds the limitation above, the total area in the attic or under the sloping roof shall be included in the calculation of FAR, except where floor area between the top of the floor beams and the structural ceiling level is five (5) feet or less.

Calculations Prepared By: Name (Print): Matthew Spake
 Signature: 

ZONING COMPLIANCE ANALYSIS

ZONE: A

Notes: Information must be based on definitions in the current Zoning Law of the Village of Bronxville. If not applicable, leave box blank. Check box in far right column if variance is required (even if already approved by the ZBA).

	Existing	Required/	Proposed	Variance
LOT INFORMATION				
Lot Area (sf)	.28	.28	.28	
Lot Frontage (ft)				
Yard Setbacks (ft):				
Front Yard	20'9"	25	20'9"	
Rear Yard	8	30	8	
First Side Yard	8	15	8	
Second Side Yard	46	15	46	
Side Yard Adjoining Street				
PRINCIPAL BUILDING INFORMATION				
Gross Floor Area (sf)	3348		3348	
Building Height:	31.5'		31.5'	
Stories	2 1/2		2 1/2	
Height to Principal Eave (ft)	28'		28'	
Height to Highest Roof Ridge (ft)	31.5'		31.5'	
ACCESSORY STRUCTURES				
Detached Garage				
Setbacks:				
To Principal Building				
To Side Lot Line				
To Rear Lot Line				
Building Height:				
Height to Principal Eave (ft)				
Height to Highest Ridge (ft)				
Other Accessory Structure (indicate type of structure – shed, pool, etc.)				
Setbacks:				
To Principal Building				
To Side Lot Line				
To Rear Lot Line				
Building Height:				
Height to Principal Eave (ft)				
Height to Highest Ridge (ft)				
BUILDING COVERAGE				
Principal Building Coverage (sf)	427.4 Sq Ft	501.76 Sq Ft	929.16 Sq Ft	✓ ✓
Principal Building Coverage (%)	10%	12.78%	22.78%	
Accessory Building Coverage (sf)				
Accessory Building Coverage (%)				
USABLE OPEN SPACE				
Impervious Surface Coverage (sf)				
Impervious Surface Coverage both (%)				

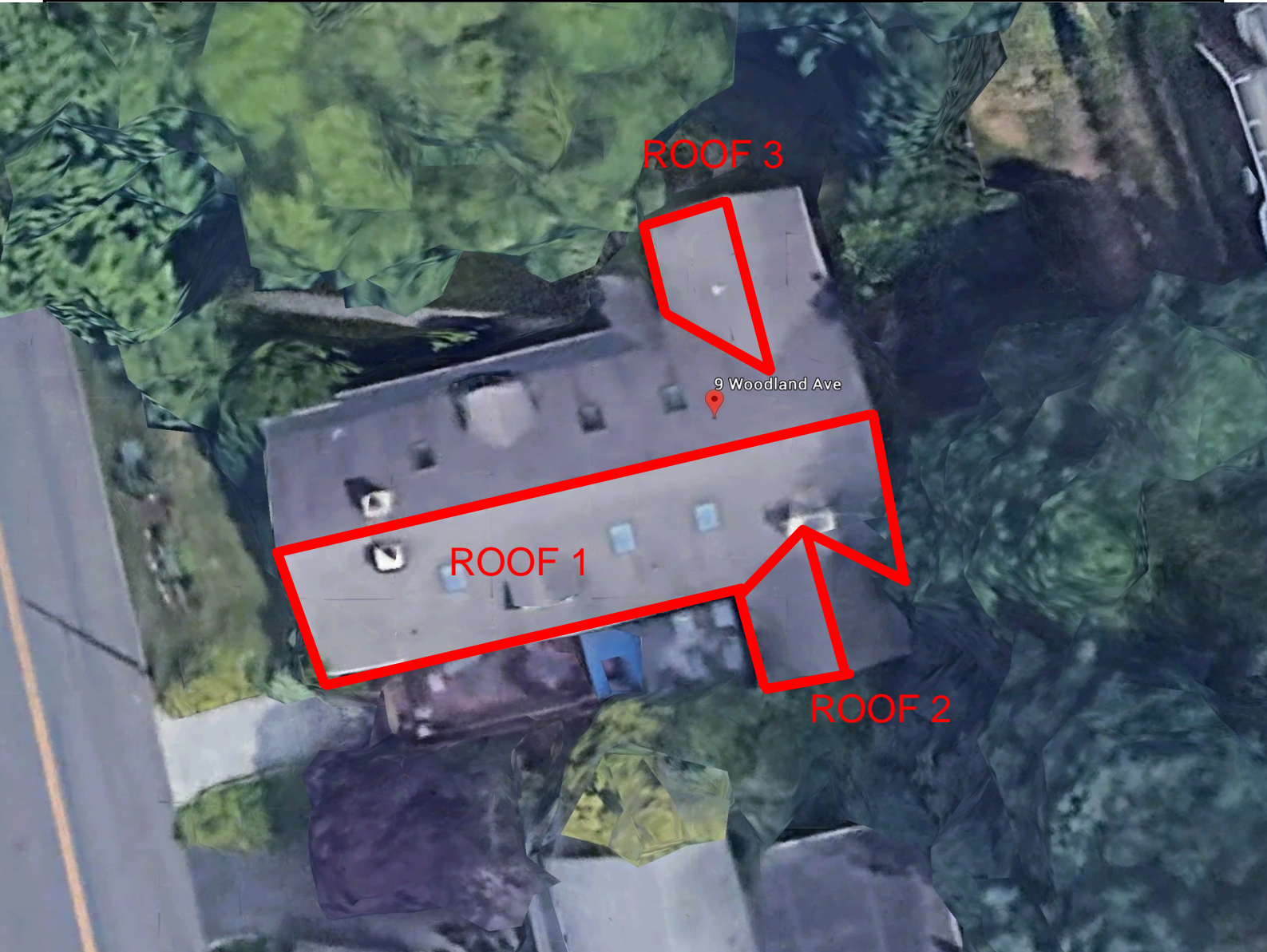
Are any variances required (or were any variances approved by the ZBA) that are not listed on the table above? Yes No

If yes, describe all additional variances: Looking for variance on 310-22 F(3) B(2), adding 27 solar panels to existing project

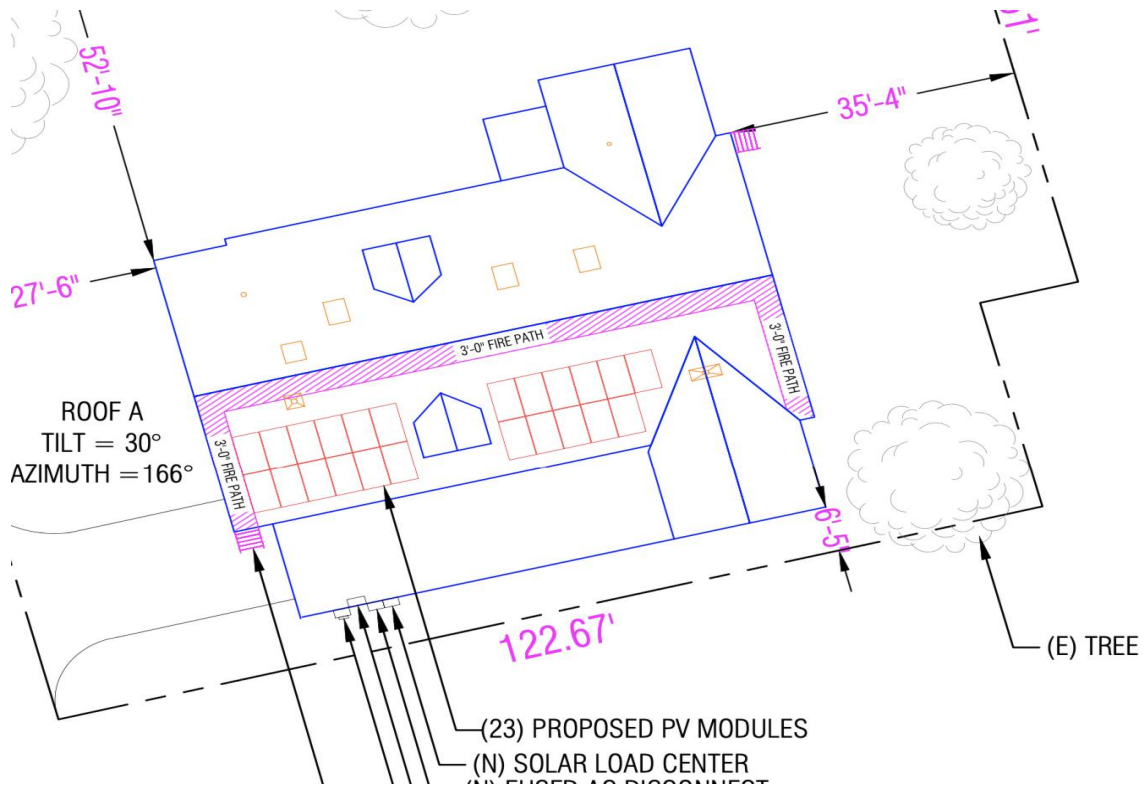
All applications for additions to submit complete detailed finished grade and FAR computation worksheet. Submission to be stamped by the design professional.

Form Prepared by Name (Please Print) Matthew Sprake
 Signature: [Handwritten Signature]

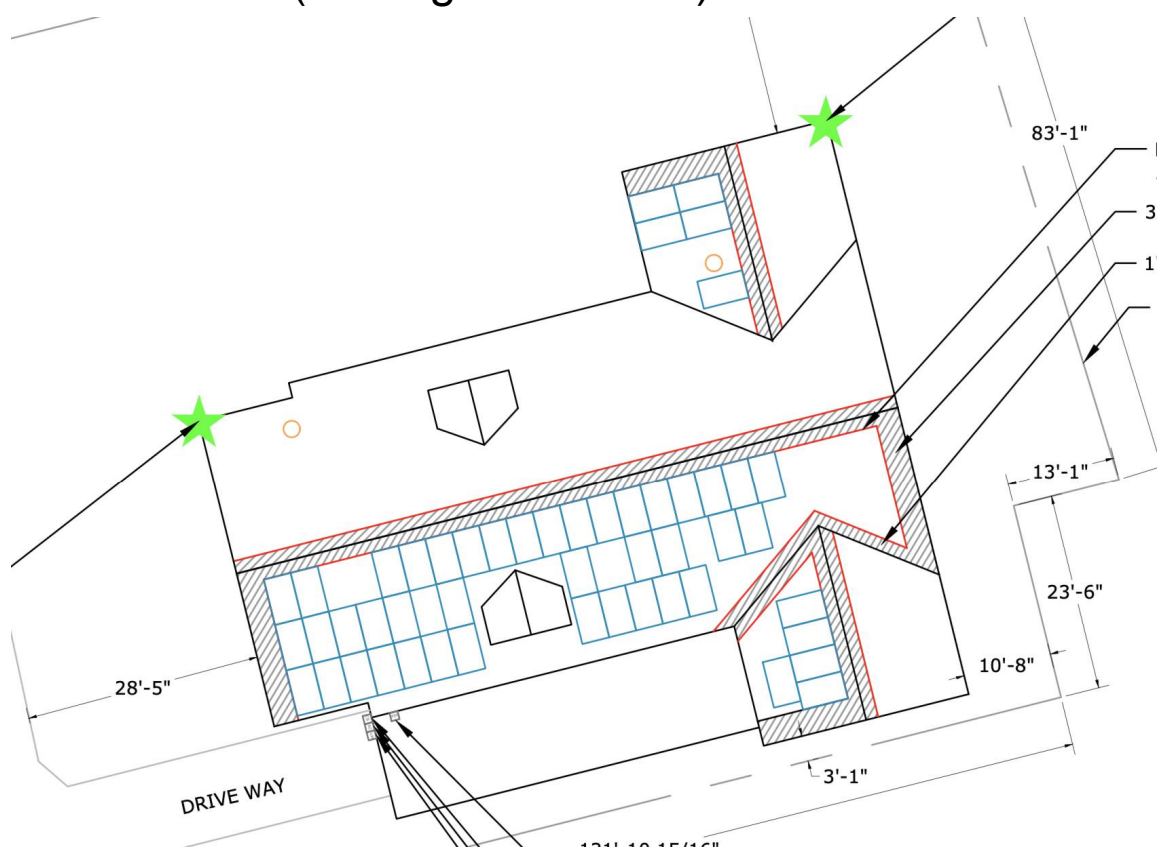
	Roof 1	Roof 2	Roof 3
Sq Ft of roof areas	1617.075 Sq Ft	211 Sq Ft	211 Sq Ft
Sq Ft / % of existing solar panels	427.34 Sq Ft 26% coverage (roof 1) 23 Panels	0 0% coverage (roof 2) 0 Panels	0 0% Coverage (roof 3) 0 Panels
Sq Ft / % of proposed solar panels (Total)	743.3 Sq Ft (roof 1) 45% coverage 40 Panels	92.9 Sq Ft (roof 2) 44% coverage 5 Panels	92.9 Sq Ft (roof 3) 44% coverage 5 Panels
Sq Ft / % of proposed solar panels (Added with Variance)	315.9 Sq Ft (roof 1) 19% coverage 17 Panels	92.9 Sq Ft (roof 2) 44% coverage 5 Panels	92.9 Sq Ft (roof 3) 44% coverage 5 Panels



Currently Installed - 23 Panels



Proposed with Variance - 50 Panels (Adding Roof 2 & 3)



Pamela Lippe and Guy Morris
9 Woodland Avenue
Bronxville, New York 10708
914-337-0407

September 28, 2020

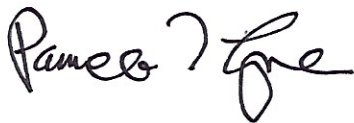
To whom it may concern:

We have reached out to all our neighbors who have a direct view of the solar panels on our roof to specifically ask them their views regarding our installation and our request to expand the number of panels to achieve our original design. They all support our request. None of our other neighbors can see the panels and so we would not anticipate any other comments.

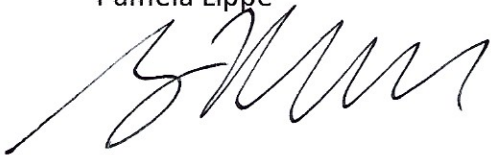
We hope that this enthusiastic support of our project from those neighbors most visually impacted will be sufficient to show that this project, in particular, and solar panels in general pose no aesthetic problem to the community and substantial environmental and economic benefits to Bronxville homeowners.

Thank you for your consideration in this regard.

Sincerely,



Pamela Lippe



Guy Morris

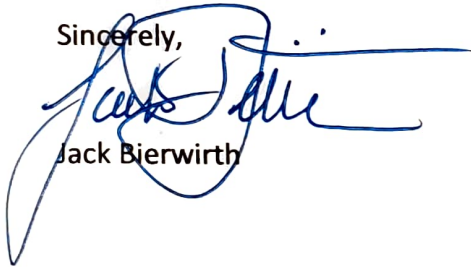
John E. Bierwirth
15 Woodland Ave
Bronxville NY 10708

September 24, 2020

To whom it may concern,

Jane and I support the Lippe-Morris request to expand their solar installation at 9 Woodland Avenue. We look directly at the current set-up from the north side of our house. It does not trouble us in the slightest. In fact, we hope that more of our neighbors are encouraged to install similar solar power panels by what the Lippe-Morris's have done.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jack Bierwirth", with a large, sweeping flourish extending to the right.

Jack Bierwirth

Eric Jensen

To whom it may concern -

We are the owners of 12 Woodland Ave for over 20 years. I am writing in support of our neighbors Pam and Gay at 9 Woodland Ave who wish to increase the number of solar panels on their roof. There would be no visual impact from the street or our home. Any opportunity to support the use of clean energy should be permitted. Thank you

Eric

September 25th 2020

To Whom It May Concern:

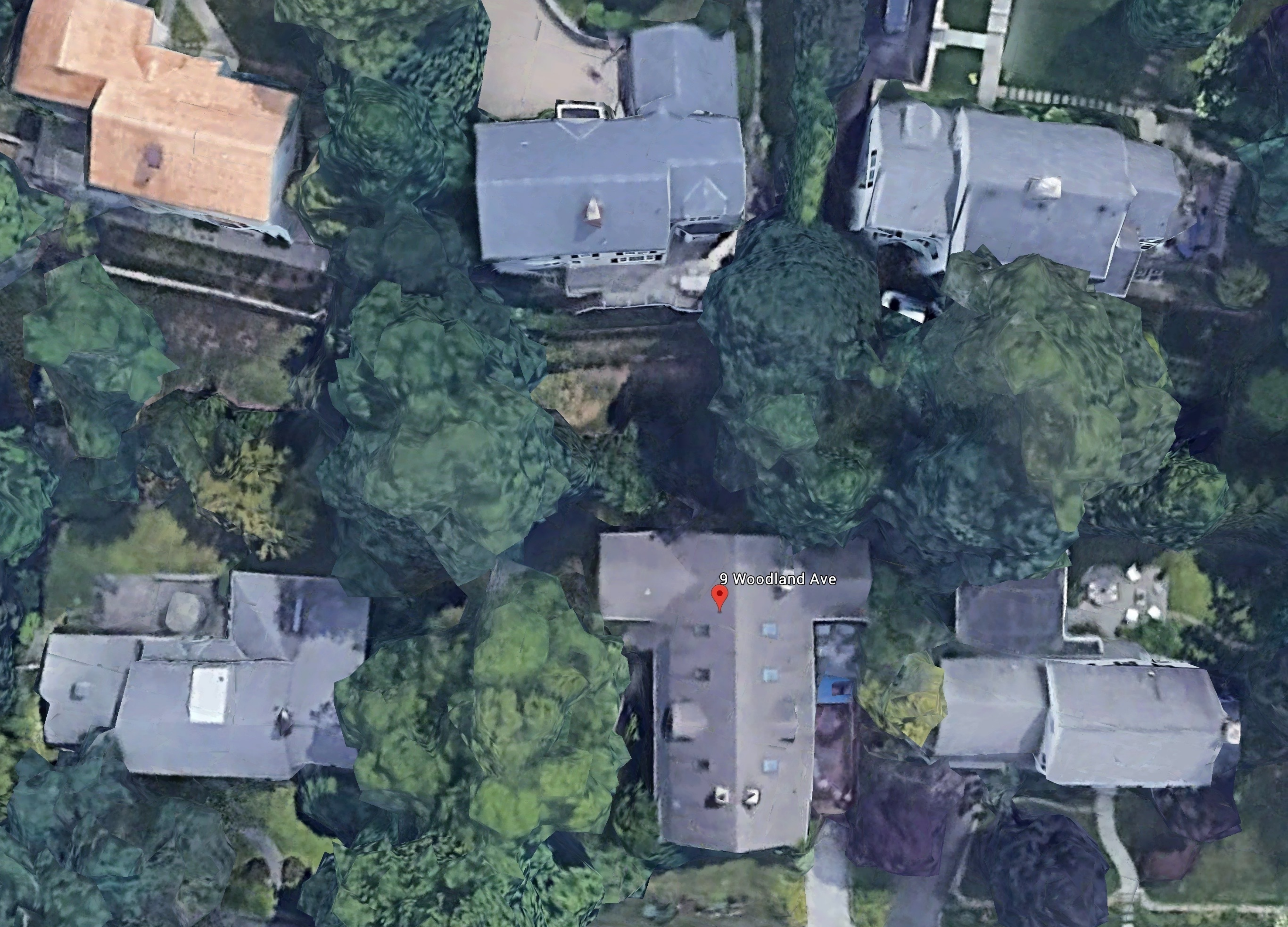
We currently live at 33 Summit Ave, directly "above" the home of Pamela Lippe and Guy ^{Morris}Wilson (9 Woodland Avenue) and we are in agreement with Ms. Lippe and Mr. ^{Morris}Wilson that solar panels should be made more accessible to residents in Bronxville. We applaud their efforts to support the climate change initiative with the installation of solar panels on their roof. We in no way object to this installation and are extremely supportive of their request for additional panels per their plans

Sincerely,



Ella & Michael Iannacone
33 Summit Avenue
Bronxville, NY 10708





9 Woodland Ave





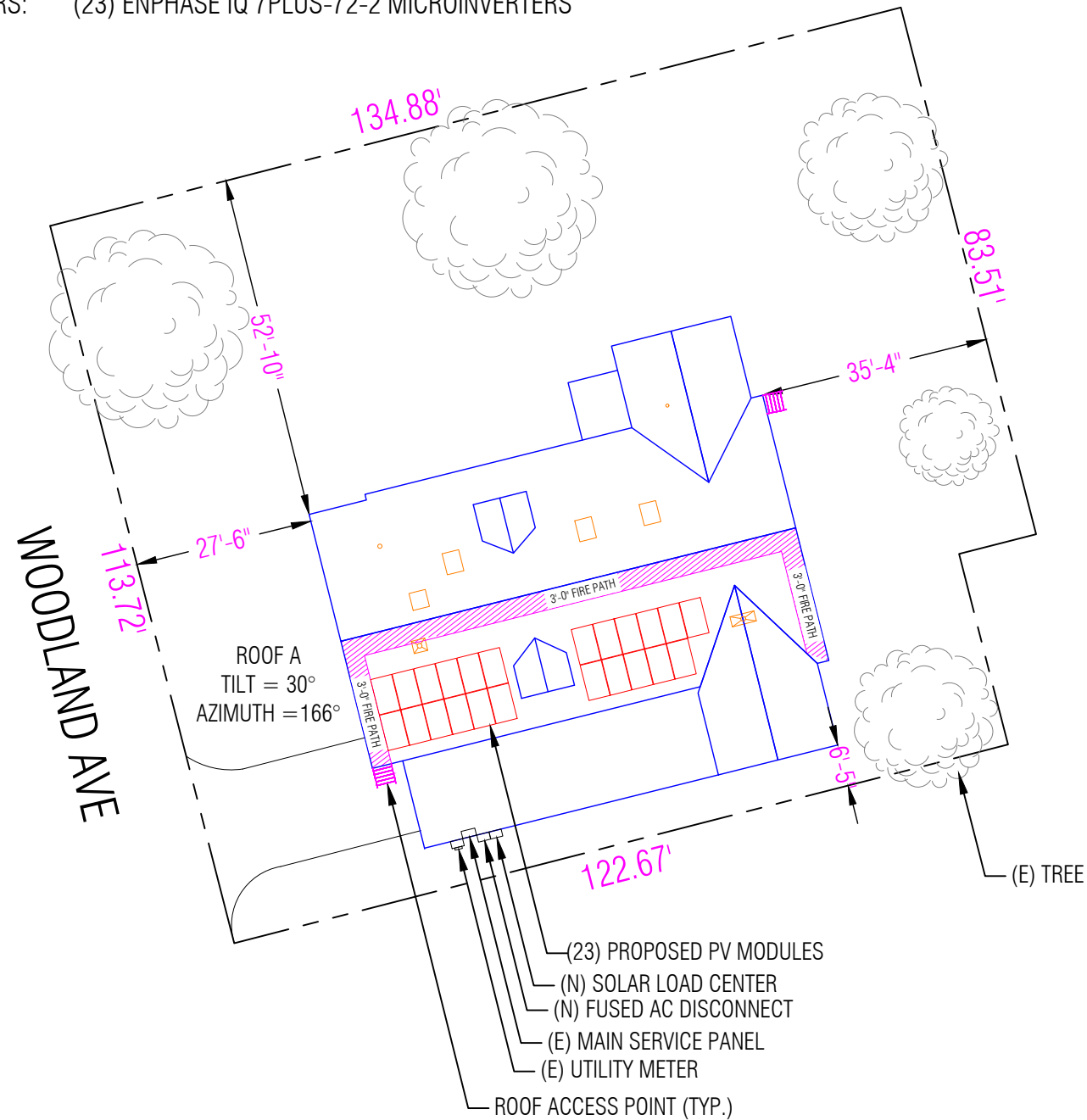




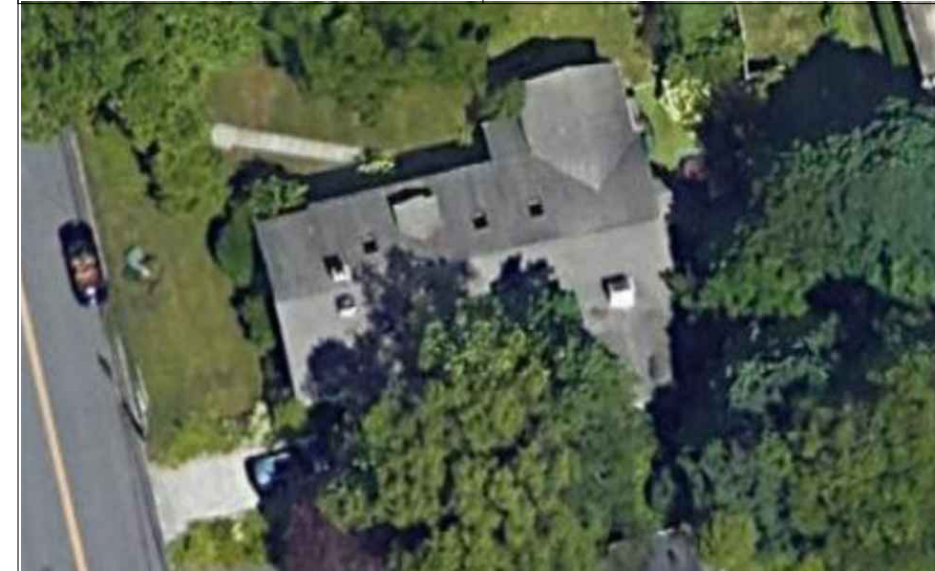
SYSTEM SUMMARY:

SYSTEM SIZE: 8.395 KW DC STC
 MODULES: (23) LG SOLAR LG365Q1C-A5 MODULES
 INVERTERS: (23) ENPHASE IQ 7PLUS-72-2 MICROINVERTERS

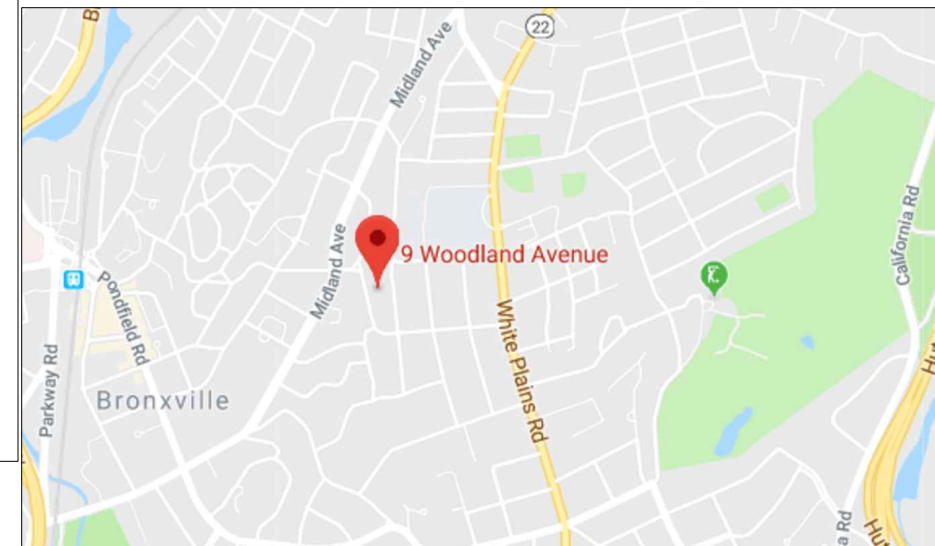
APPLICABLE CODES & STANDARDS
 BUILDING: IBC 2015 IRC 2015
 ELECTRICAL: NEC 2014
 FIRE: IFC 2016



SYSTEM DETAILS AND LOT DIAGRAM	A-100.00
LAYOUT DETAIL	A-200.00
ATTACHMENT DETAIL	A-200.01
THREE LINE DIAGRAM	E-000.00
ELECTRICAL LABEL	E-100.00
DIRECTORY LABEL	E-200.00
SPEC SHEET & PHOTOS	S-100.00
SPEC SHEET & PHOTOS	S-200.00



AERIAL MAP
 SCALE: NTS



VICINITY MAP
 SCALE: NTS

NOTE

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LOT DIAGRAM

SCALE: 1/25" = 1'-0"

ROOF MOUNTED SOLAR ARRAY:
 9 WOODLAND AVE, BRONXVILLE, NY 10708

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 DEPARTMENT OF BUILDING. *NO CHANGE TO USE, EGRESS OR OCCUPANCY.

Tri-State Solar Services
 COMPLETE SOLAR ROOFING SERVICES



169 N RT 9W | CONGERS, NY 10920

PHONE: 845-267-8851

GUY MORRIS/PAMELA LIPPE
 9 WOODLAND AVE, BRONXVILLE,
 NY 10708

SYSTEM DETAILS AND LOT DIAGRAM A-100.00

DATE 11/13/19

DRAWN BY DIN

SHEET: 1 OF 8

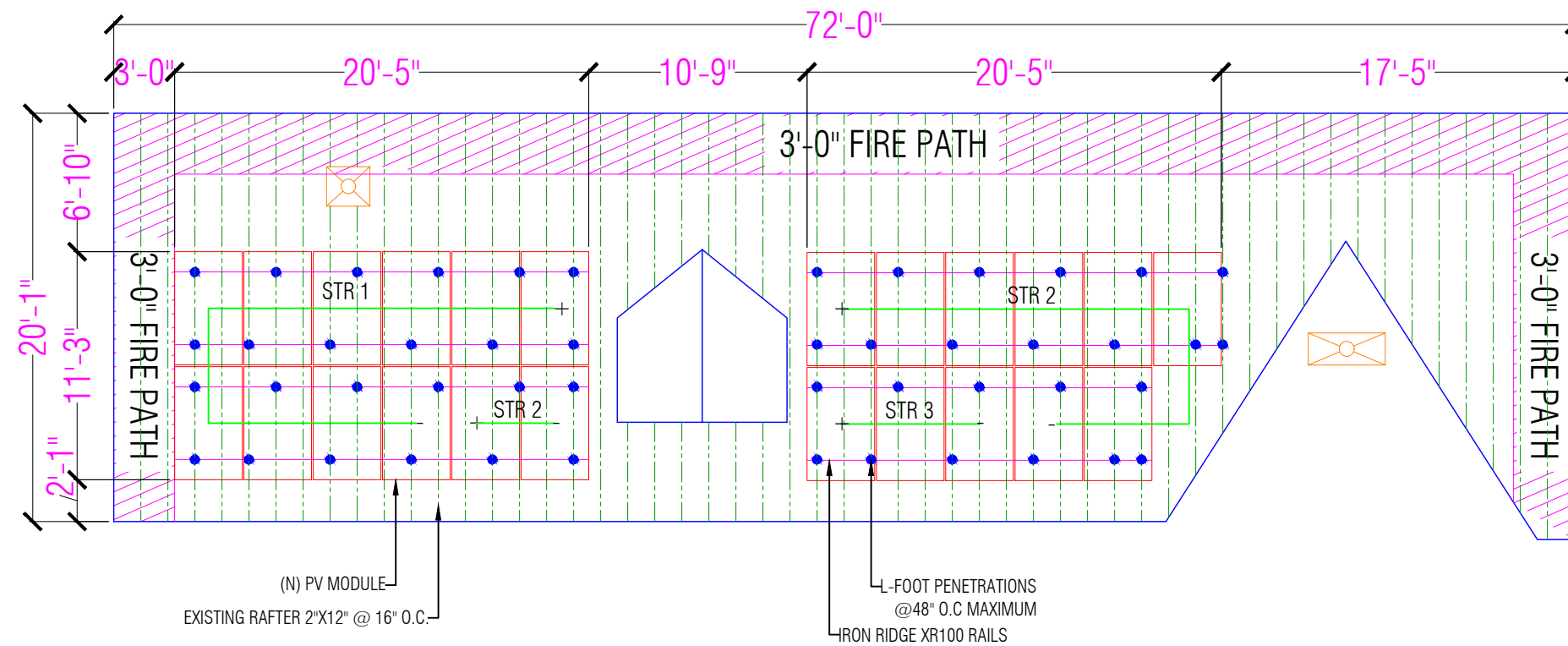
VERSION HISTORY

DIN-11/13/19 ORIGINAL

STATEMENT OF STRUCTURAL CERTIFICATION:

1. THE EXISTING ROOF STRUCTURE FOR THIS PROJECT, AS IS OR WITH THE STRUCTURAL REINFORCEMENT SPECIFIED HEREIN, HAS BEEN STRUCTURALLY ANALYZED AND HAS BEEN DETERMINED TO BE CAPABLE OF SUPPORTING THE LOADS IMPOSED BY THE INSTALLATION OF THE PROPOSED PV SOLAR PANEL SYSTEM AS DESCRIBED IN THESE DESIGN DOCUMENTS.
2. ALL PROPOSED WORK SHALL MEET THE STANDARDS SPECIFIED IN THE 2015 NEW YORK STATE RESIDENTIAL BUILDING CODE AND ALL OTHER APPLICABLE LOCAL AND STATE BUILDING AND FIRE CODES.
3. THIS INSTALLATION IS CAPABLE OF SUPPORTING SNOW LOADS EQUAL TO 40 PSF AND WIND LOADS EQUAL TO 115 MPH AS PER 2015 NYSRBC.
4. LAG SCREWS: $\frac{5}{16}$ " \times 5"L, STAINLESS STEEL, $2\frac{1}{2}$ " MIN. EMBEDMENT INTO TIMBER RAFTER. PROVIDE CHEMLINK M-1 SEALANT OR APPROVED EQUIVALENT AT LAG BOLT PENETRATION POINTS.
5. IT IS A VIOLATION OF ARTICLE 145, SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF THE LICENSED P.E. OF RECORD, TO ALTER ANY ITEM SPECIFIED OR OTHERWISE INCLUDED ON THIS DESIGN DRAWING IN ANY WAY


 SOUTH
 AZIMUTH: 166°
 ROOF PITCH: 30°



A ROOF LAYOUT
 SCALE: 1/8"=1'-0"



169 N RT 9W | CONGERS, NY 10920

PHONE: 845-267-8851

GUY MORRIS/PAMELA LIPPE
 9 WOODLAND AVE, BRONXVILLE,
 NY 10708

LAYOUT DETAIL	A-200.00
DATE	11/13/19
DRAWN BY	DIN
SHEET:	2 OF 8
VERSION HISTORY	
DIN-11/13/19	ORIGINAL

SHEET CATALOG

INDEX NO.	DESCRIPTION
T-1	COVER PAGE
M-1	MOUNTING DETAIL
M-2	STRUCTURAL DETAIL
E-1	SINGLE LINE DIAGRAM
PL-1	WARNING PLACARDS
SS	SPEC SHEET(S)

SCOPE OF WORK

GENERAL SYSTEM INFORMATION:
 SYSTEM SIZE:
 18250W DC, 14500W AC
 MODULES:
 (50) LG NEON LG365Q1C-V5
 INVERTER:
 (50) ENPHASE IQ7PLUS-72-2-US,
 BRANCH DETAILS:
 1X13, 1X13, 1X13 AND 1X11 ENPHASE BRANCHES

APPLICABLE CODES

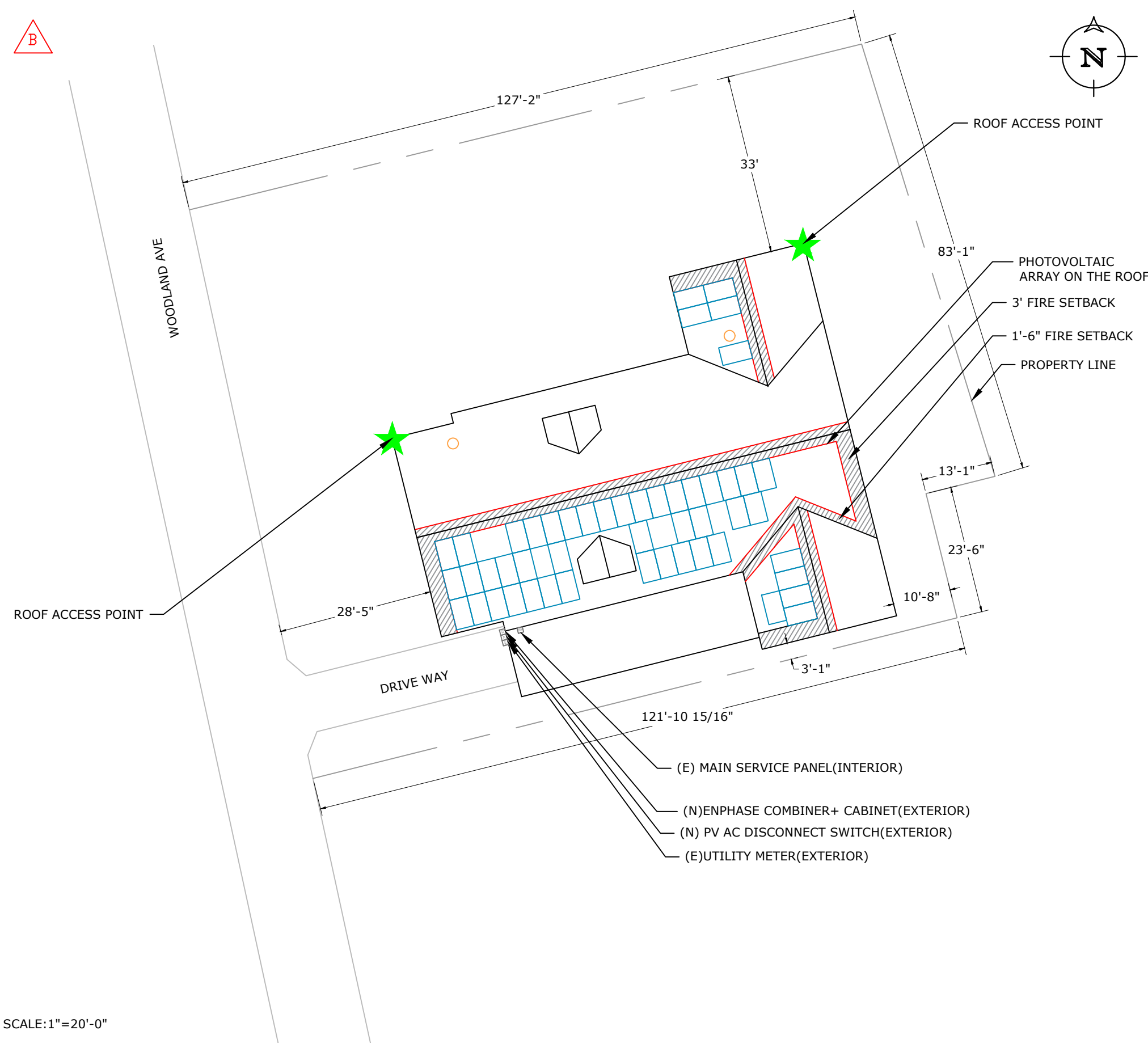
- ELECTRIC CODE: NEC 2017
- FIRE CODE: IFC 2018
- BUILDING CODE: IBC 2018
- RESIDENTIAL CODE: IRC 2018

GENERAL NOTES

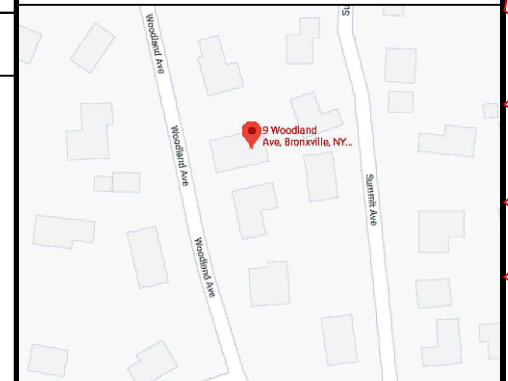
1. MODULES ARE LISTED UNDER UL 1703 AND CONFORM TO THE STANDARDS.
2. INVERTERS ARE LISTED UNDER UL 1741 AND CONFORM TO THE STANDARDS.
3. DRAWINGS ARE DIAGRAMMATIC, INDICATING GENERAL ARRANGEMENT OF THE PV SYSTEM AND THE ACTUAL SITE CONDITION MIGHT VARY.
4. WORKING CLEARANCES AROUND THE NEW PV ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26.
5. ALL GROUND WIRING CONNECTED TO THE MAIN SERVICE GROUNDING IN MAIN SERVICE PANEL/ SERVICE EQUIPMENT.
6. ALL CONDUCTORS SHALL BE 600V, 75°C STANDARD COPPER UNLESS OTHERWISE NOTED.
7. WHEN REQUIRED, A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
8. THE SYSTEM WILL NOT BE INTERCONNECTED BY THE CONTRACTOR UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND/OR THE UTILITY.
9. ROOF ACCESS POINT SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREES, WIRES OR SIGNS.
10. PV ARRAY COMBINER/JUNCTION BOX PROVIDES TRANSITION FROM ARRAY WIRING TO CONDUIT WIRING

PAMELA LIPPE - 18.250kW DC, 14.500kW AC

SITE PLAN LAYOUT



VICINITY MAP



LICENSE NUMBER & CLASS : HOME IMPROVEMENT/H-12588

CUSTOMER INFORMATION

NAME: PAMELA LIPPE

ADDRESS: 9 WOODLAND AVENUE, BRONXVILLE, NY 10708

40°56'27.2"N 73°49'29.3"W
 APN: 55-240-015-415

AHJ: NY-VILLAGE OF BRONXVILLE

UTILITY: O&R

PRN NUMBER: TSS-20763



COVER PAGE

DESIGNER /CHECKED BY: AJ/SR

PAPER SIZE: 17"X11"

SCALE: AS NOTED

REV: B

DATE: 2/5/2021

T-1

INSTALLATION NOTES

- STRUCTURAL ROOF MEMBER LOCATIONS ARE ESTIMATED AND SHOULD BE LOCATED AND VERIFIED BY THE CONTRACTOR WHEN LAG BOLT PENETRATION OR MECHANICAL ATTACHMENT TO THE STRUCTURE IS REQUIRED.
- ROOFTOP PENETRATIONS FOR SOLAR RACKING WILL BE COMPLETED AND SEALED WITH APPROVED SEALANT PER CODE BY A LICENSED CONTRACTOR.
- LAGS MUST HAVE A MINIMUM 2.5" THREAD EMBEDMENT INTO THE STRUCTURAL MEMBER.
- ALL PV RACKING ATTACHMENTS SHALL BE STAGGERED BY ROW BETWEEN THE ROOF FRAMING MEMBERS AS NECESSARY.
- ROOF MOUNTED STANDARD RAIL REQUIRES ONE THERMAL EXPANSION GAP FOR EVERY RUN OF RAIL GREATER THAN 40'.
- ALL CONDUCTORS AND CONDUITS ON THE ROOF SHALL BE MINIMUM 7/8" ABOVE THE ROOF SURFACE (INCLUDING CABLES UNDERNEATH MODULES AND RACKING).
- THE PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.

ROOF ACCESS PATHWAYS AND SETBACKS:
1204.2.1 SOLAR PHOTOVOLTAIC SYSTEMS FOR GROUP R-3 BUILDINGS. SOLAR PHOTOVOLTAIC SYSTEMS FOR GROUP R-3 BUILDINGS SHALL COMPLY WITH SECTIONS 1204.2.1.1 THROUGH 1204.2.1.3.

- EXCEPTIONS:**
- THESE REQUIREMENTS SHALL NOT APPLY TO STRUCTURES DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE INTERNATIONAL RESIDENTIAL CODE.
 - THESE REQUIREMENTS SHALL NOT APPLY TO ROOFS WITH SLOPES OF 2 UNITS VERTICAL IN 12 UNITS HORIZONTAL OR LESS.

1204.2.1.1 PATHWAYS TO RIDGE. NOT FEWER THAN TWO 36-INCH-WIDE (914 MM) PATHWAYS ON SEPARATE ROOF PLANES, FROM LOWEST ROOF EDGE TO RIDGE, SHALL BE PROVIDED ON ALL BUILDINGS. NOT FEWER THAN ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF. FOR EACH ROOF PLANE WITH A PHOTOVOLTAIC ARRAY, NOT FEWER THAN ONE 36-INCH-WIDE (914 MM) PATHWAY FROM LOWEST ROOF EDGE TO RIDGE SHALL BE PROVIDED ON THE SAME ROOF PLANE AS THE PHOTOVOLTAIC ARRAY, ON AN ADJACENT ROOF PLANE OR STRADDLING THE SAME AND ADJACENT ROOF PLANES

1204.2.1.2 SETBACKS AT RIDGE. FOR PHOTOVOLTAIC ARRAYS OCCUPYING 33 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 18 INCHES (457 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE. FOR PHOTOVOLTAIC ARRAYS OCCUPYING MORE THAN 33 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 36 INCHES (457 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.

1204.2.2 EMERGENCY ESCAPE AND RESCUE OPENINGS. PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS SHALL NOT BE PLACED ON THE PORTION OF A ROOF THAT IS BELOW AN EMERGENCY ESCAPE AND RESCUE OPENING. A PATHWAY OF NOT LESS THAN 36 INCHES (914 MM) WIDE SHALL BE PROVIDED TO THE EMERGENCY ESCAPE AND RESCUE OPENING

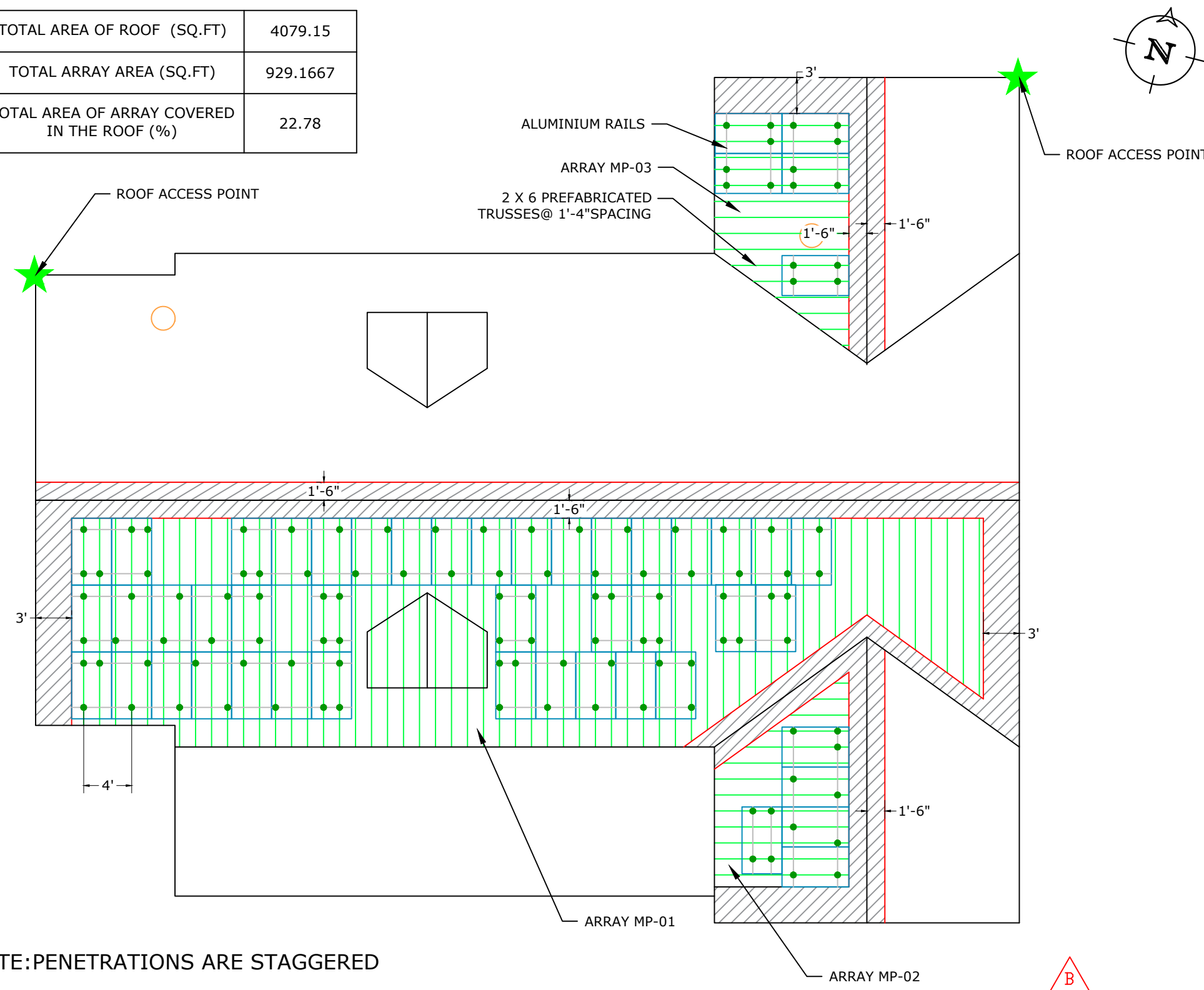
1204.2.1.3 ALTERNATIVE SETBACKS AT RIDGE. WHERE AN AUTOMATIC SPRINKLER SYSTEM IS INSTALLED WITHIN THE DWELLING IN ACCORDANCE WITH SECTION 903.3.1.3, SETBACKS AT THE RIDGE SHALL CONFORM TO ONE OF THE FOLLOWING:

- FOR PHOTOVOLTAIC ARRAYS OCCUPYING 66 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 18 INCHES (457 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.
- FOR PHOTOVOLTAIC ARRAYS OCCUPYING MORE THAN 66 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 36 INCHES (914 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.

SITE INFORMATION - WIND SPEED: 115 MPH AND SNOW LOAD: 25 PSF

SR. NO	AZIMUTH	PITCH	NO. OF MODULES	ARRAY AREA (SQ. FT.)	ROOF TYPE	ATTACHMENT	ROOF EXPOSURE	FRAME TYPE	FRAME SIZE	FRAME SPACING	MAX RAIL SPAN	OVER HANG
MP-01	166°	20°	40	743.3	COMPOSITION SHINGLE	FLASH FOOT	ATTIC	PREFABRICATED TRUSSES	2 X 6	1'-4"	4'-0"	2'-0"
MP-02	256°	20°	5	92.9	COMPOSITION SHINGLE	FLASH FOOT	ATTIC	PREFABRICATED TRUSSES	2 X 6	1'-4"	4'-0"	2'-0"
MP-03	256°	20°	5	92.9	COMPOSITION SHINGLE	FLASH FOOT	ATTIC	PREFABRICATED TRUSSES	2 X 6	1'-4"	4'-0"	2'-0"

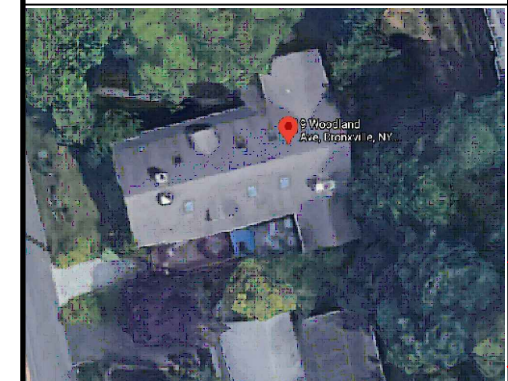
TOTAL AREA OF ROOF (SQ.FT)	4079.15
TOTAL ARRAY AREA (SQ.FT)	929.1667
TOTAL AREA OF ARRAY COVERED IN THE ROOF (%)	22.78



NOTE: PENETRATIONS ARE STAGGERED

SCALE: 1"=10'-0"

AERIAL VIEW



LICENSE NUMBER & CLASS : HOME IMPROVEMENT/H-12588

CUSTOMER INFORMATION

NAME: PAMELA LIPPE
 ADDRESS: 9 WOODLAND AVENUE, BRONXVILLE, NY 10708
 40°56'27.2"N 73°49'29.3"W
 APN: 55-240-015-415
 AHJ: NY-VILLAGE OF BRONXVILLE
 UTILITY: O&R
 PRN NUMBER: TSS-20763



MOUNTING DETAIL

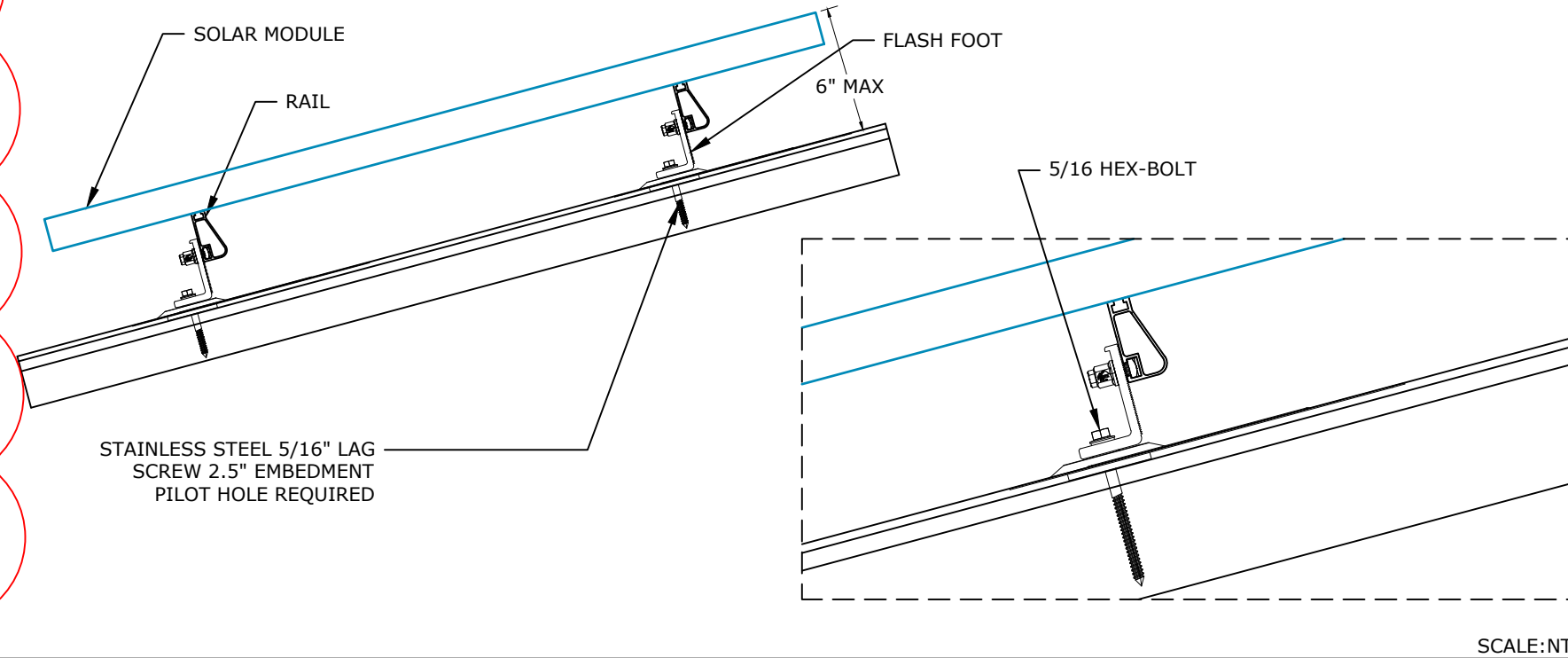
DESIGNER /CHECKED BY: AJ/SR	PAPER SIZE: 17"X11"
SCALE: AS NOTED	REV: B
DATE: 2/5/2021	M-1

DEAD LOAD CALCULATIONS

BOM	QUANTITY	LBS/UNIT	TOTAL WEIGHT (LBS)
MODULES	50	39.67	1983.50
MID-CLAMP	72	0.050	3.60
END-CLAMP	56	0.050	2.80
RAIL LENGTH	339	0.680	230.52
SPLICE BAR	12	0.360	4.32
FLASH FOOT	118	1.88	221.84
MICRO-INVERTER	50	2.38	119.00
TOTAL WEIGHT OF THE SYSTEM (LBS)			2565.58
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			929.17
WEIGHT PER SQ. FT.(LBS)			2.76
WEIGHT PER PENETRATION (LBS)			21.74

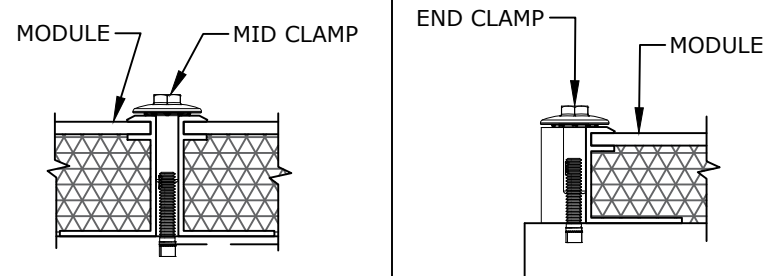


ATTACHMENT DETAIL-FLASH FOOT

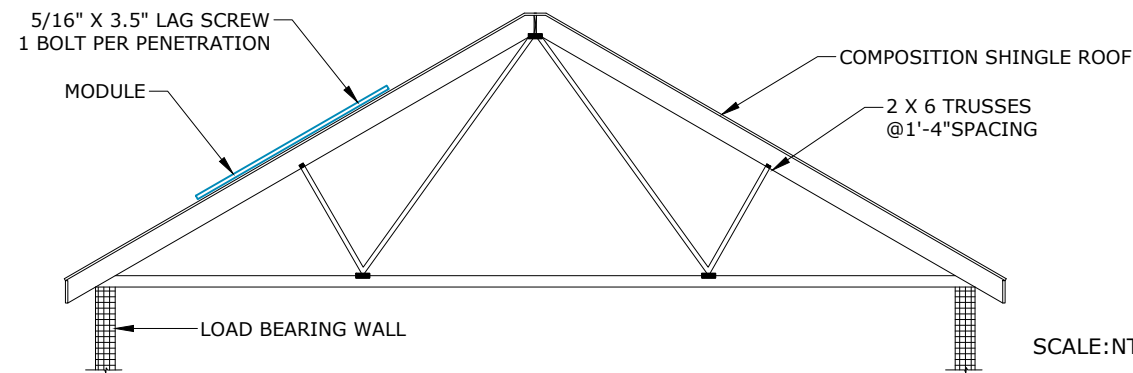


SCALE:NTS

MID-CLAMP AND END-CLAMP ANATOMY



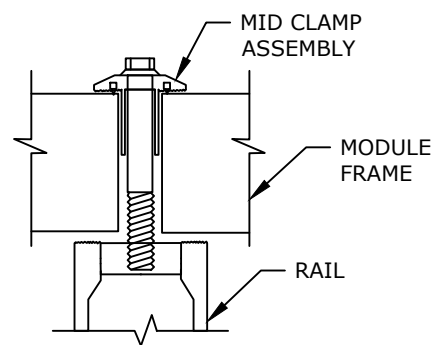
ROOF FRAMING DETAILS



SCALE:NTS

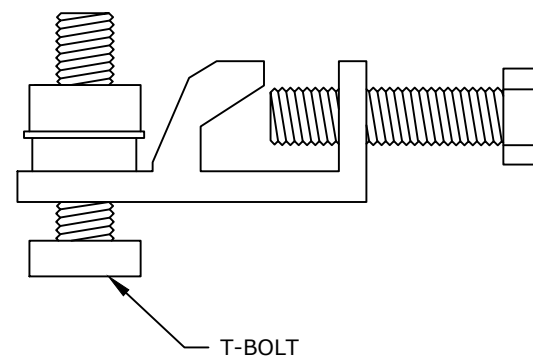
GROUNDING DETAILS

MODULE TO MODULE & MODULE TO RAIL

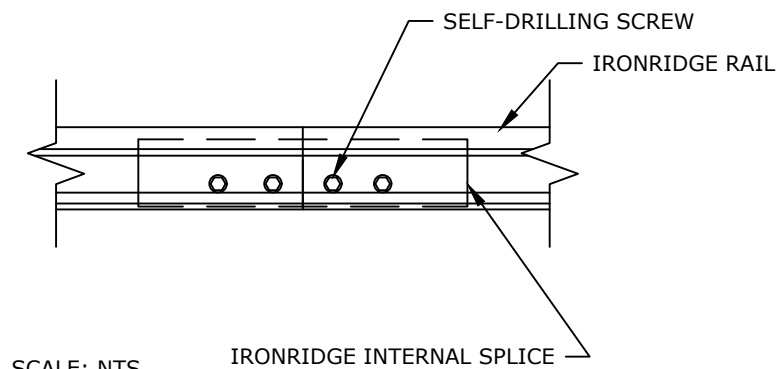


GROUNDING MID-CLAMP
SCALE: NTS

GROUNDING LUG



RAIL TO RAIL



SCALE: NTS

MODULES DATA

LG NEON LG365Q1C-V5	
MODULE DIMS	66.9"x40"x1.57"
LAG SCREWS	5/16"x3.5":2.5"MIN EMBEDMENT



LICENSE NUMBER & CLASS : HOME IMPROVEMENT/H-12588

CUSTOMER INFORMATION

NAME:PAMELA LIPPE

ADDRESS:9 WOODLAND AVENUE,
BRONXVILLE, NY 10708

40°56'27.2"N 73°49'29.3"W
APN:55-240-015-415

AHJ:NY-VILLAGE OF BRONXVILLE

UTILITY:O&R

PRN NUMBER:TSS-20763



STRUCTURAL DETAIL

DESIGNER /CHECKED BY: AJ/SR	PAPER SIZE:17"X11"
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SCALE:AS NOTED	REV:B
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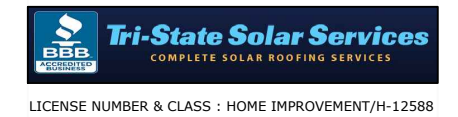
DATE:2/5/2021	M-2
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SINGLE LINE DIAGRAM: DC SYSTEM SIZE - 18250W, AC SYSTEM SIZE - 14500W

ELECTRICAL NOTES

MICRO INVERTER SPECIFICATIONS		MODULE SPECIFICATION	
MODEL	ENPHASE IQ7PLUS-72-2-US	MODEL	LG NEON LG365Q1C-V5
POWER RATING	290W	MODULE POWER @ STC	365W
MAX OUTPUT CURRENT	1.21A	OPEN CIRCUIT VOLTAGE: Voc	42.8V
CEC WEIGHTED EFFICIENCY	97%	MAX POWER VOLTAGE: Vmp	36.7V
MAX NO OF MICRO INVERTERS/BRANCH	13	SHORT CIRCUIT VOLTAGE: Isc	10.80A
MAX DC VOLTAGE	60V	MAX POWER CURRENT: Imp	9.95A

- 1.CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC 310.10(D).
- 2.CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC 310.10(C).
- 3.MAXIMUM DC/AC VOLTAGE DROP SHALL BE NO MORE THAN 2%.
- 4.ALL CONDUCTORS SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.
- 5.BREAKER/FUSE SIZES CONFORMS TO NEC 240.6 CODE SECTION.
- 6.AC GROUNDING ELECTRODE CONDUCTOR SIZED PER NEC 250.66.
- 7.AMBIENT TEMPERATURE CORRECTION FACTOR IS BASED ON NEC 690.31(C).
- 8.AMBIENT TEMPERATURE ADJUSTMENT FACTOR IS BASED ON NEC 310.15(B)(2).
- 9.MAX. SYSTEM VOLTAGE CORRECTION IS PER NEC 690.7.
- 10.CONDUCTORS ARE SIZED PER WIRE AMPACITY TABLE NEC 310.15(B)(16).



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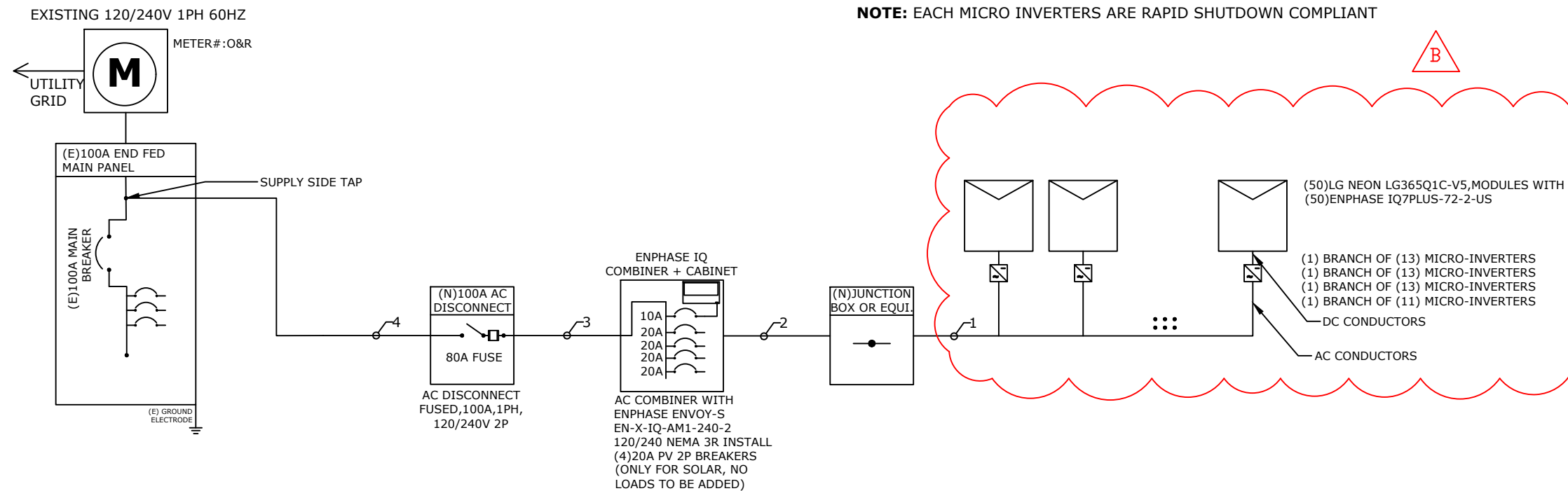
SINGLE LINE DIAGRAM

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DATE:2/5/2021 E-1

NOTE: EACH MICRO INVERTERS ARE RAPID SHUTDOWN COMPLIANT



CONDUIT SCHEDULE

TAG ID	CONDUIT SIZE	CONDUCTOR	NEUTRAL	GROUND
1	NONE	(2) 12AWG ENPHASE Q CABLE PER BRANCH CIRCUIT	NONE	(1) 12AWG ENPHASE Q CABLE
2	3/4"EMT OR EQUIV	(8) 10AWG THHN/THWN-2	NONE	(1) 10AWG THHN/THWN-2
3	1"EMT OR EQUIV	(2) 3AWG THHN/THWN-2	(1)3 AWG THHN/THWN-2	(1) 8AWG THHN/THWN-2
4	1"EMT OR EQUIV	(2) 3AWG THHN/THWN-2	(1)3 AWG THHN/THWN-2	(1) 8AWG THHN/THWN-2

NOTE:

MAIN PANEL RATING:100A, MAIN BREAKER RATING:100A
LINE SIDE TAP: 100% ALLOWABLE BACKFEED IS =100A

OCPD CALCULATIONS:

INVERTER OVERCURRENT PROTECTION= INVERTER O/P I X CONTINUOUS LOAD(1.25)
=1.21x1.25x50=75.63A=>PV BREAKER = 80A
TOTAL REQUIRED PV BREAKER SIZE / FUSE SIZE=>80A PV BREAKER

ELECTRICAL CALCULATIONS

AC WIRE SIZING CALCULATIONS BASED OF FOLLOWING EQUATIONS >>
 •REQUIRED CONDUCTOR AMPACITY: INVERTER OUTPUT CURRENT X #OF INVERTERSXMAX CURRENT PER 690.8(A)(3)X125% PER 690.8(B)(2)(A)
 •CORRECTED AMPACITY CALCULATIONS:AMPACITY X TEMPERATURE DERATE FACTOR X CONDUIT FILL DERATE = DERATED CONDUCTOR AMPACITY
 •DERATED CONDUCTOR AMPACITY CHECK: MAX CURRENT PER 690.8(B)(2)(2) < DERATED CONDUCTOR AMPACITY

AC WIRE CALCULATIONS:- MATERIAL:COPPER & TEMPERATURE RATING:90°C

TAG ID	REQUIRED CONDUCTOR AMPACITY								CORRECTED AMPACITY CALCULATION								DERATED CONDUCTOR AMPACITY CHECK			
1	1.21	X	13	=	15.73	X	1.25	=	19.66A	30	X	0.87	X	1	=	26.10A	19.66A	<	26.10A	
2	1.21	X	13	=	15.73	X	1.25	=	19.66A	40	X	0.87	X	1	=	34.80A	19.66A	<	34.80A	
3	1.21	X	50	=	60.50	X	1.25	=	75.63A	115	X	0.87	X	1	=	100.05A	75.63A	<	100.05A	
4	1.21	X	50	=	60.50	X	1.25	=	75.63A	115	X	0.87	X	1	=	100.05A	75.63A	<	100.05A	

WARNING PLACARD

⚠ WARNING

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

LABEL LOCATION
DC DISCONNECT, INVERTER
[PER CODE: NEC 690.41]]
[To be used when inverter is ungrounded]

⚠ WARNING

ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION
AC DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC 690.13(B)]

⚠ WARNING

ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION
AC DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC 690.13(B)]

⚡ WARNING-ELECTRIC SHOCK HAZARD
NO USER SERVICEABLE PARTS INSIDE
CONTACT AUTHORIZED SERVICE
PROVIDE FOR ASSISTANCE

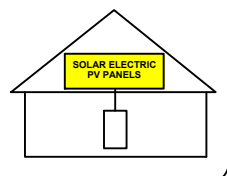
LABEL LOCATION
INVERTER, JUNCTION BOXES (ROOF),
AC DISCONNECT
[PER CODE: NEC 690.13]

⚠ WARNING: PHOTOVOLTAIC
POWER SOURCE

LABEL LOCATION
CONDUIT, COMBINER BOX
[PER CODE: NEC 690.31(G)(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 THE ARRAY



LABEL LOCATION
AC DISCONNECT, DC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.56(C)(1)(A))

PHOTOVOLTAIC SYSTEM AC DISCONNECT SWITCH
RATED AC OPERATING CURRENT 60.50 AMPS AC
AC NOMINAL OPERATING VOLTAGE 240 VAC

LABEL LOCATION
AC DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC 690.54]

⚠ WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVER-CURRENT DEVICE

LABEL LOCATION
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(b)(2)(3)(b))
[Not Required if Panel board is rated not less than sum of ampere ratings of all overcurrent devices supplying it]

CAUTION: SOLAR CIRCUIT

LABEL LOCATION
MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUNCTION BOXES.
(PER CODE: IFC605.11.1.4)

SOLAR DISCONNECT

LABEL LOCATION
DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: NEC 690.13(B)]

⚠ WARNING
DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

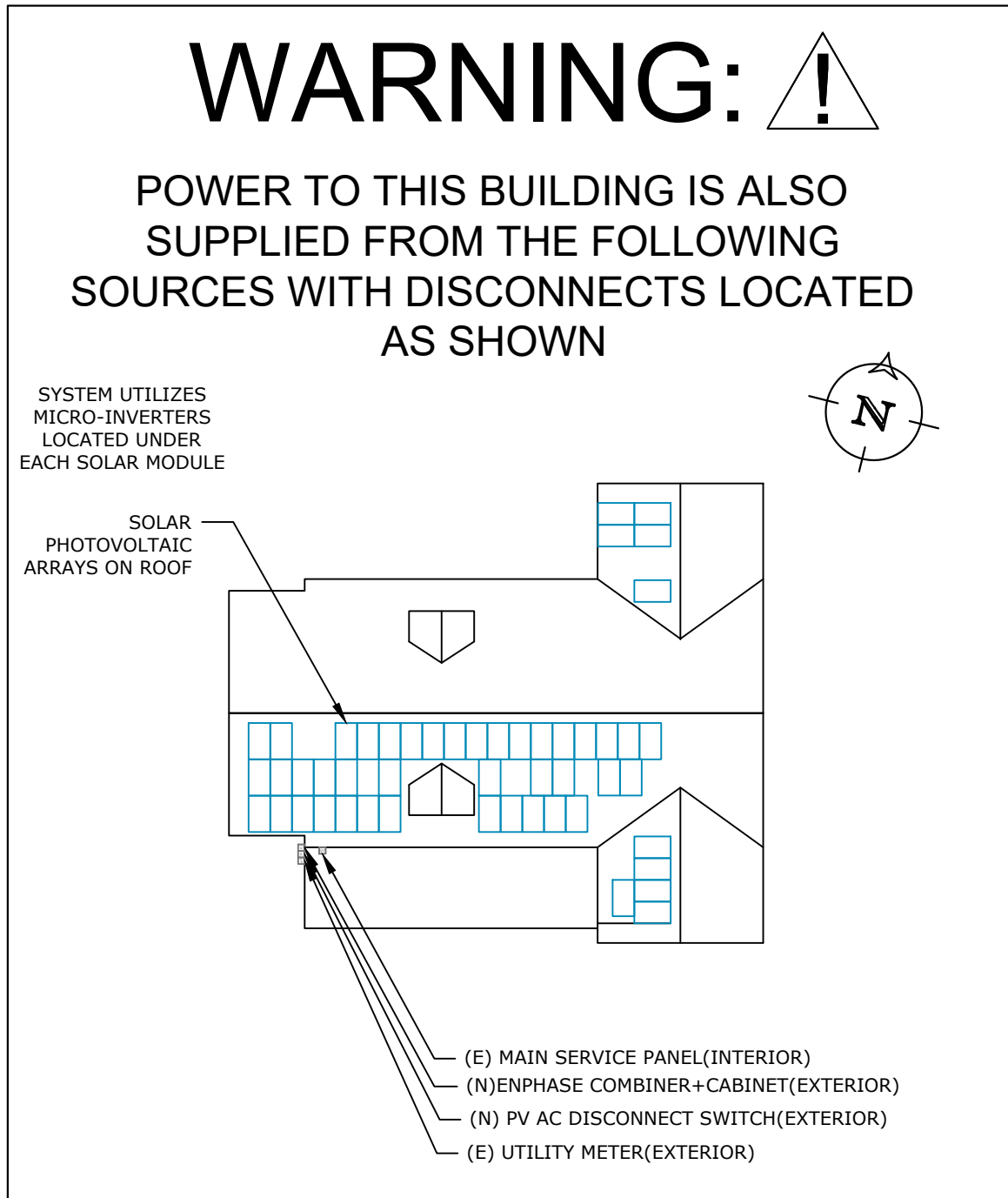
LABEL LOCATION
POINT OF INTERCONNECTION
[PER CODE: NEC 705.12(D)(4)]

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

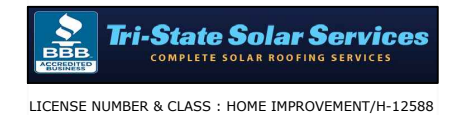
LABEL LOCATION
WEATHER RESISTANT MATERIAL, DURABLE ADHESIVE, UL969 AS STANDARD TO WEATHER RATING (UL LISTING OF MARKINGS NOT REQUIRED), MIN 3/8" LETTER HEIGHT ARIAL OR SIMILAR FONT NON-BOLD, PLACED WITHIN THE MAIN SERVICE DISCONNECT, PLACED ON THE OUTSIDE OF THE COVER WHEN DISCONNECT IS OPERATED WITH THE SERVICE PANEL CLOSED.
(PER CODE: NEC 690.15, 690.13(B))

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION
INVERTER
[PER CODE: NEC 690.56(C)(3)]



ALL PLACARDS SHALL BE OF WEATHER PROOF CONSTRUCTION, BACKGROUND ON ALL PLACARDS SHALL BE RED WITH WHITE LETTERING U.O.N.
PLACARD SHALL BE MOUNTED DIRECTLY ON THE EXISTING UTILITY ELECTRICAL SERVICE.
FASTENERS APPROVED BY THE LOCAL JURISDICTION



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PL-1

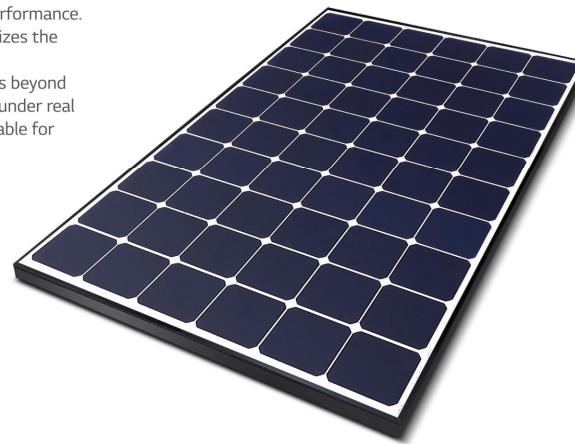
SPEC SHEET

LG NeON[®]R



380W | 375W | 370W | 365W


LG NeON[®]R is powerful solar module that provides world-class performance. A new cell structure that eliminates electrodes on the front maximizes the utilization of light and enhances reliability. LG NeON[®]R is a result of LG's efforts to increase customer's values beyond efficiency. LG NeON[®]R features enhanced durability, performance under real-world conditions, an enhanced warranty and aesthetic design suitable for roofs.



Feature

- Aesthetic Roof**
LG NeON[®]R has been designed with aesthetics in mind: the lack of any electrodes on the front creates an improved, modern aesthetic.
- Extended Product Warranty**
LG has extended the product warranty of the LG NeON[®]R to 25 years which is top level of the industry.
- Enhanced Performance Warranty**
LG NeON[®]R has an enhanced performance warranty. After 25 years, LG NeON[®]R is guaranteed to perform at minimum 90.8% of initial performance.
- More generation per square meter**
The LG NeON[®]R has been designed to significantly enhance its output, making it efficient even in limited space.

About LG Electronics
LG Electronics is a global big player, committed to expanding its operations with the solar market. The company first embarked on a solar energy source research program in 1985, supported by LG Group's vast experience in the semi-conductor, LCD, chemistry and materials industries. In 2010, LG Solar successfully released its first Mono[®] series to the market, which is now available in 32 countries. The NeON[®] (previous Mono[®] NeON), NeON[®]2, NeON[®]2 Bifacial won the "Intersolar AWARD" in 2013, 2015 and 2016, which demonstrates LG Solar's lead, innovation and commitment to the industry.



LG NeON[®]R

LG380Q1C-V5 | LG375Q1C-V5 | LG370Q1C-V5 | LG365Q1C-V5

General Data

Cell Properties(Material / Type)	Monocrystalline / N-type
Cell Maker	LG
Cell Configuration	60 Cells (6 x 10)
Module Dimensions(L x W x H)	1,700mm x 1,016mm x 40mm
Weight	17.5 kg
Glass(Thickness / Material)	2.8mm / Tempered Glass with AR Coating
Backsheet(Color)	White
Frame(Material)	Anodized Aluminium
Junction Box(Protection Degree)	IP68 with 3 Bypass Diodes
Cables(Length)	1,000mm x 2EA
Connector(Type / Maker)	MC4 / MC

Certifications and Warranty

Certifications	IEC 61215-1/-1-1/2:2016, IEC 61730-1/2:2016 UL 1703 ISO 9001, ISO 14001, ISO 50001 OHSAS 18001
Salt Mist Corrosion Test	IEC 61701:2012 Severity 6
Ammonia Corrosion Test	IEC 62716:2013
Module Fire Performance	Type 1 (UL 1703)
Fire Rating	Class C (UL 790, UL/C/ORD C 1703)
Product Warranty	25 Years
Output Warranty of Pmax	Linear Warranty*

* 1) First year : 98%, 2) After 1st year : 0.3% annual degradation 3) 90.8% for 25years
** LG380Q1C-V5 model has UL 1703 certification only

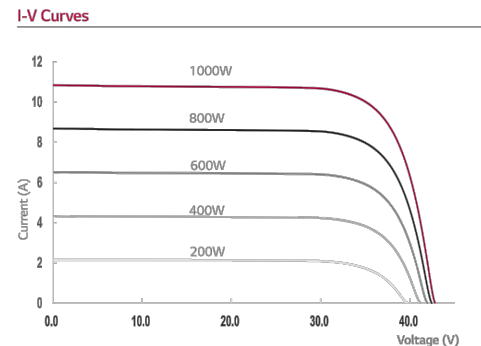
Temperature Characteristics

NMOT* [°C]	44 ± 3
Pmax [%/°C]	-0.30
Voc [%/°C]	-0.24
Isc [%/°C]	0.037

* NMOT(Nominal Module Operating Temperature): Irradiance 800 W/m², Ambient temperature 20 °C, Wind speed 1 m/s, Spectrum AM 1.5

Electrical Properties (NMOT)

Model	LG380Q1C-V5	LG375Q1C-V5	LG370Q1C-V5	LG365Q1C-V5
Maximum Power (Pmax) [W]	285	282	279	275
MPP Voltage (Vmpp) [V]	37.3	37.1	36.9	36.6
MPP Current (Impp) [A]	7.67	7.61	7.55	7.51
Open Circuit Voltage (Voc) [V]	40.3	40.3	40.3	40.2
Short Circuit Current (Isc) [A]	8.73	8.72	8.71	8.70



Electrical Properties (STC*)

Model	LG380Q1C-V5	LG375Q1C-V5	LG370Q1C-V5	LG365Q1C-V5
Maximum Power (Pmax) [W]	380	375	370	365
MPP Voltage (Vmpp) [V]	37.4	37.2	37.0	36.7
MPP Current (Impp) [A]	10.17	10.09	10.01	9.95
Open Circuit Voltage (Voc, ±5%) [V]	42.9	42.8	42.8	42.8
Short Circuit Current (Isc, ±5%) [A]	10.84	10.83	10.82	10.80
Module Efficiency [%]	22.0	21.7	21.4	21.1
Power Tolerance [%]	0 ~ +3			

* STC (Standard Test Condition): Irradiance 1000 W/m², Cell Temperature 25 °C, AM 1.5,
** Measure Tolerance : ± 3%

Operating Conditions

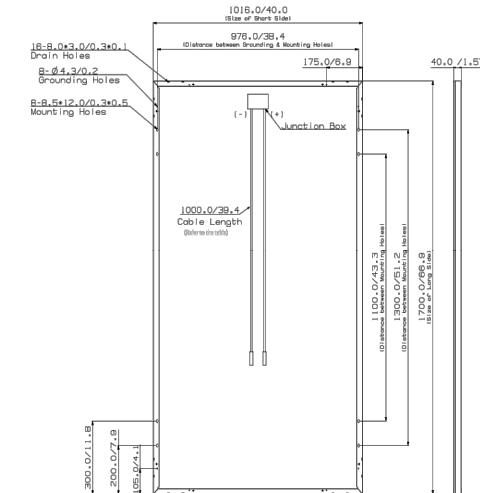
Operating Temperature [°C]	-40 ~ +90
Maximum System Voltage [V]	1,000
Maximum Series Fuse Rating [A]	20
Mechanical Test Load(Front) [Pa / psf]	5,400 / 113
Mechanical Test Load(Rear) [Pa / psf]	4,000 / 83.5

Mechanical Test Load 5,400Pa / 4,000Pa based on IEC 61215-2 : 2016
(Test Load = Design Load x Safety Factor(1.5))

Packaging Configuration


Number of Modules Per Pallet [EA]	25
Number of Modules Per 40ft HQ Container [EA]	650
Packaging Box Dimensions (L x W x H) [mm]	1,750 x 1,120 x 1,221
Packaging Box Gross Weight [kg]	473

Dimensions (mm / inch)



LG Life's Good
LG Electronics Inc.
Solar Business Division
LG Twin Towers, 128 Yeou-daero, Yeongdeungpo-gu, Seoul 07336, Korea
www.lg-solar.com

Product specifications are subject to change without notice.
DS-V5-60-C-G-F-EN-90812
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MODULE SPEC SHEET

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SPEC SHEET

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 and 72-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 modules.

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 PV modules only	60-cell and 72-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
Overtoltage 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)
Overtoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
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 (IQ7-60-2-US & IQ7PLUS-72-2-US)	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)
Dimensions (WxHxD)	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 and NEC-2017 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

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LICENSE NUMBER & CLASS : HOME IMPROVEMENT/H-12588

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UTILITY: O&R

PRN NUMBER: TSS-20763



INVERTER SPEC SHEET

DESIGNER /CHECKED BY: AJ/SR PAPER SIZE: 17"X11"

SCALE: AS NOTED REV: B

DATE: 2/5/2021 SS-2



To learn more about Enphase offerings, visit enphase.com

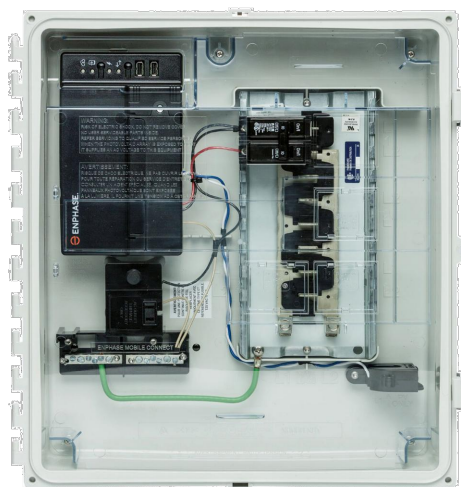


SPEC SHEET

Data Sheet
Enphase Networking

Enphase IQ Combiner+ (X-IQ-AM1-240-2)

The **Enphase IQ Combiner+**™ with Enphase IQ Envoy™ 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
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Provides production metering and optional consumption monitoring
- Supports installation of the Enphase Q Aggregator™

Simple

- Eaton BR series panelboard interior
- 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 warranty
- UL listed

Enphase IQ Combiner+

MODEL NUMBER	
IQ Combiner+ X-IQ-AM1-240-2	IQ Combiner+ with Enphase IQ Envoy™ for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and optional* consumption monitoring (+/- 2.5%).
ACCESSORIES (order separately)	
Enphase Mobile Connect™ CELLMODEM-03 (4G / 12-year data plan) CELLMODEM-01 (3G / 5-year data plan) CELLMODEM-M1 (4G LTE CAT-M1 / 5-year data plan)	Plug and play industrial grade cellular modem with data plan for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.)
Consumption Monitoring CT CT-200-SPLIT	Split core current transformers enable whole home consumption metering* (+/- 2.5%).
Circuit Breakers BRK-15A-2-240 BRK-20A-2-240	Breaker, 2 pole, 15A, Eaton BR215 Breaker, 2 pole, 20A, Eaton BR220
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	240 VAC, 60 HZ
Eaton BR series busbar rating	125 A
Max. continuous current rating (output to grid)	65 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. continuous current rating (input from PV)	64 A
Max. total branch circuit breaker rating (input)	80 A (any combination)
Production Metering CT	200 A solid core pre-installed and wired to IQ Envoy
MECHANICAL DATA	
Dimensions (WxHxD)	49.3 x 46.5 x 16.0 cm (19.4" x 18.3" x 6.3")
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	<ul style="list-style-type: none"> • 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 3 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
Ethernet	802.3, Cat5E (or Cat 6) UTP Ethernet cable - not included
Cellular	Optional, CELLMODEM-01 (3G) or CELLMODEM-03 (4G) (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)
Compliance, IQ Envoy	UL 916 CAN/CSA C22.2 No. 61010-1

* Consumption monitoring is required for Enphase Storage Systems.

To learn more about Enphase offerings, visit enphase.com

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2018-05-02



LICENSE NUMBER & CLASS : HOME IMPROVEMENT/H-12588

CUSTOMER INFORMATION

NAME: PAMELA LIPPE

ADDRESS: 9 WOODLAND AVENUE,
BRONXVILLE, NY 10708

40°56'27.2"N 73°49'29.3"W
APN: 55-240-015-415

AHJ: NY-VILLAGE OF BRONXVILLE

UTILITY: O&R

PRN NUMBER: TSS-20763



COMBINER SPEC SHEET

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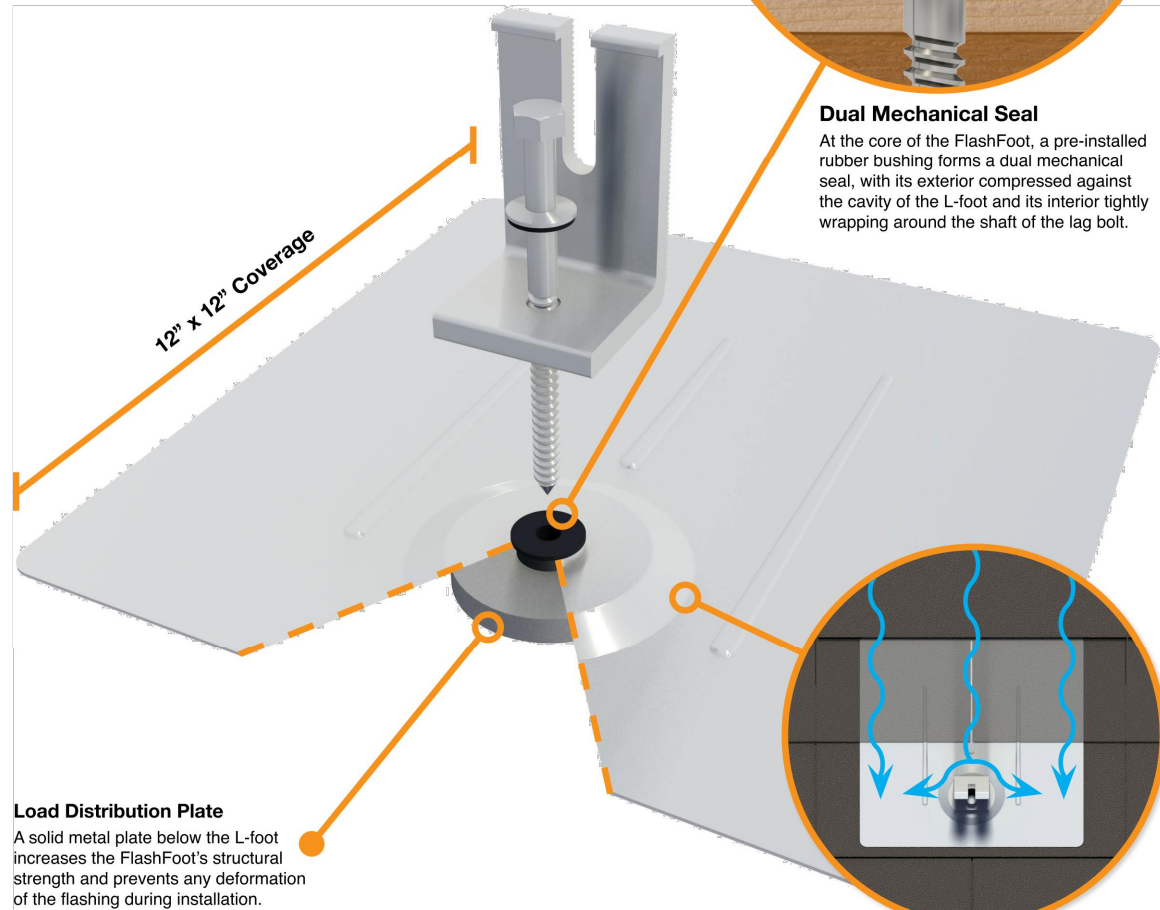
SPEC SHEET



Rapid & Secure Solar Attachments

IronRidge FlashFoot™ is an all-in-one solar mounting product for composition shingle roofs that eliminates the need for separate standoffs, flashings, and L-feet.

FlashFoot incorporates a number of structural and waterproofing features to securely attach IronRidge Rails to roof structures, while also protecting against water intrusion and weather damage.



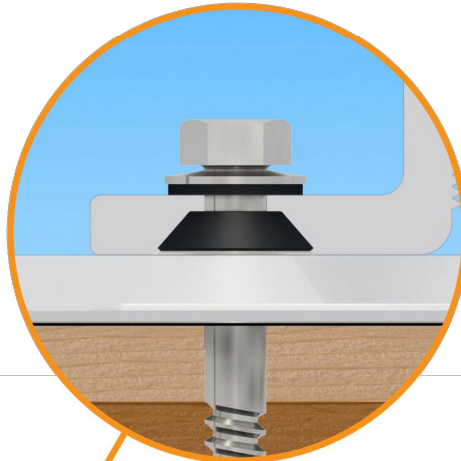
Load Distribution Plate

A solid metal plate below the L-foot increases the FlashFoot's structural strength and prevents any deformation of the flashing during installation.



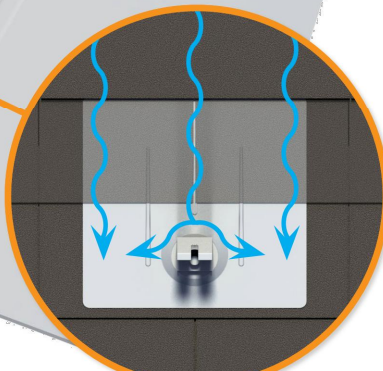
Tech Brief

FlashFoot™



Dual Mechanical Seal

At the core of the FlashFoot, a pre-installed rubber bushing forms a dual mechanical seal, with its exterior compressed against the cavity of the L-foot and its interior tightly wrapping around the shaft of the lag bolt.



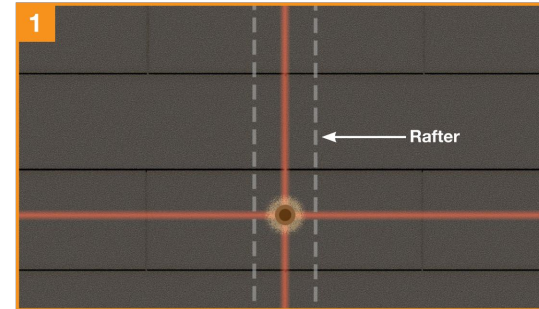
Water Shedding Design

A wide flashing layer combined with an elevated sealing platform maximizes the FlashFoot's water shedding ability.

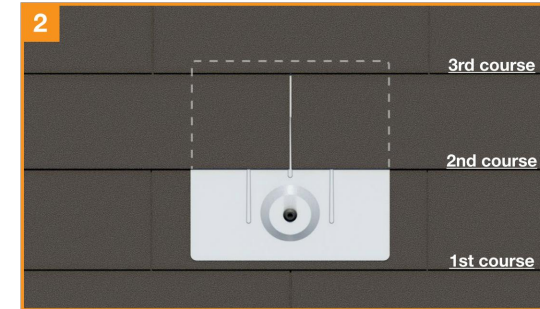
Tech Brief

Installation Overview

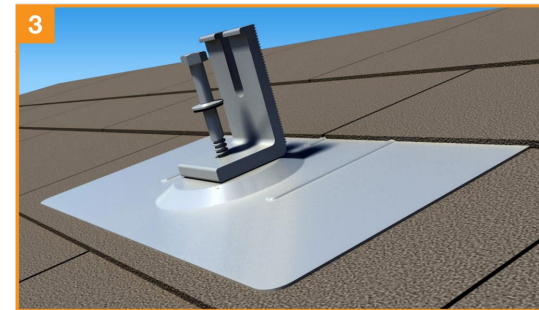
Tools Required: tape measure, chalk line, stud finder, roofing bar, caulking gun with an approved sealant, drill with 1/4" bit and 1/2" socket.



Locate rafters and snap vertical and horizontal lines to mark locations of flashings. Drill 1/4" pilot holes, then backfill with an approved sealant.



Slide flashing, between 1st and 2nd course, so the top is at least 3/4" above the edge of the 3rd course and the bottom is above the edge of the 1st course.



Line up pilot hole with flashing hole and insert lag bolt through bonded washer, L-Foot, and flashing. Tighten lag bolt until fully seated.



The FlashFoot is now installed and ready for IronRidge Rails. With provided L-foot fasteners pre-loaded into rails, drop rails into open L-foot slots.

Testing & Certification

FlashFoot is certified for compliance with the International Building Codes (IBC) & International Residential Codes (IRC) by IAPMO-ES. Mechanical testing conformed to the standard for Testing and Analysis of Joist Hangers and Miscellaneous Connectors (EC002-2011), and rain testing conformed to the Underwriters Laboratory Standard for Gas Vents (UL 441-96 Section 25).

Lag pull-out (withdrawal) capacities (lbs) in typical roof lumber (ASD)	Specific Gravity	5/16" Shaft, 3" Thread Depth
Douglas Fir, Larch	.50	798
Douglas Fir, South	.46	705
Engelmann Spruce, Lodgepole Pine (MSR 1650 f & higher)	.46	705
Hem, Fir	.43	636
Hem, Fir (North)	.46	705
Southern Pine	.55	921
Spruce, Pine, Fir	.42	615
Spruce, Pine, Fir (E of 2 million psi and higher grades of MSR and MEL)	.50	798

Sources: American Wood Council, NDS 2005, Table 11.2A, 11.3.2A; Notes: i) Thread must be embedded in a rafter or other structural roof member. ii) See IBC for required edge distances.



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MOUNT SPEC SHEET

DESIGNER /CHECKED BY: AJ/SR

PAPER SIZE: 17"X11"

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REV: B

DATE: 2/5/2021

SS-4

SPEC SHEET



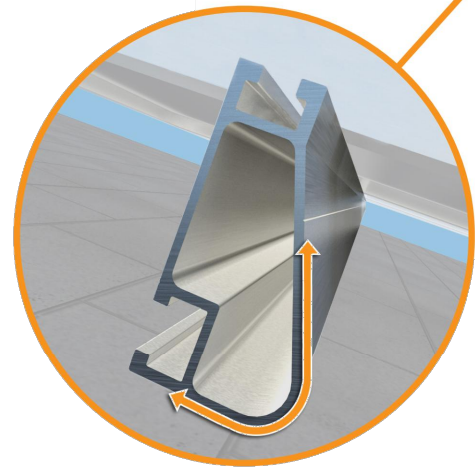
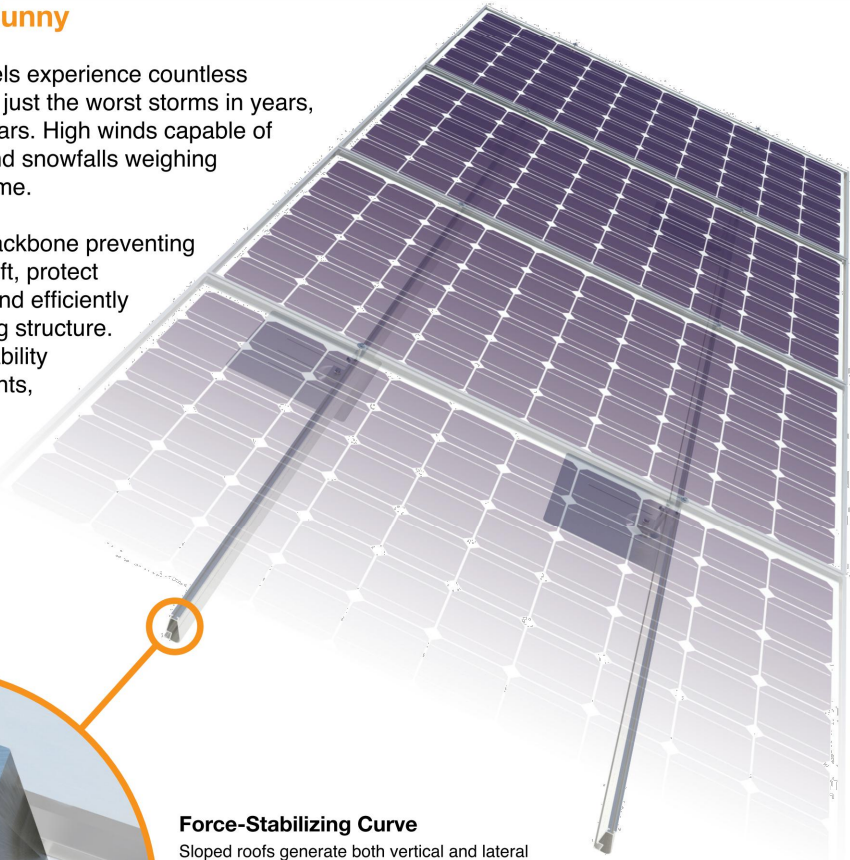
XR Rail Family

Tech Brief

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

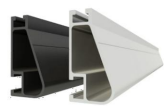
Compatible with Flat & Pitched Roofs

XR Rails are compatible with FlashFoot and other pitched roof attachments.

IronRidge offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails are made of 6000-series aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.



XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.

Tech Brief



XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves spans up to 6 feet, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear & black anodized finish
- Internal splices available



XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.

- 10' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available



XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans up to 12 feet for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The table below was prepared in compliance with applicable engineering codes and standards.* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2e, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed certification letters.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	90						
	120						
	140	XR10		XR100		XR1000	
	160						
20	90						
	120						
	140						
	160						
30	90						
	160						
40	90						
	160						
80	160						
	160						
120	160						
	160						

*Table is meant to be a simplified span chart for conveying general rail capabilities. Use approved certification letters for actual design guidance.



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RAIL SPEC SHEET

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