View of Mock Up From directly Across Warren St (Mock Up Not Visible)

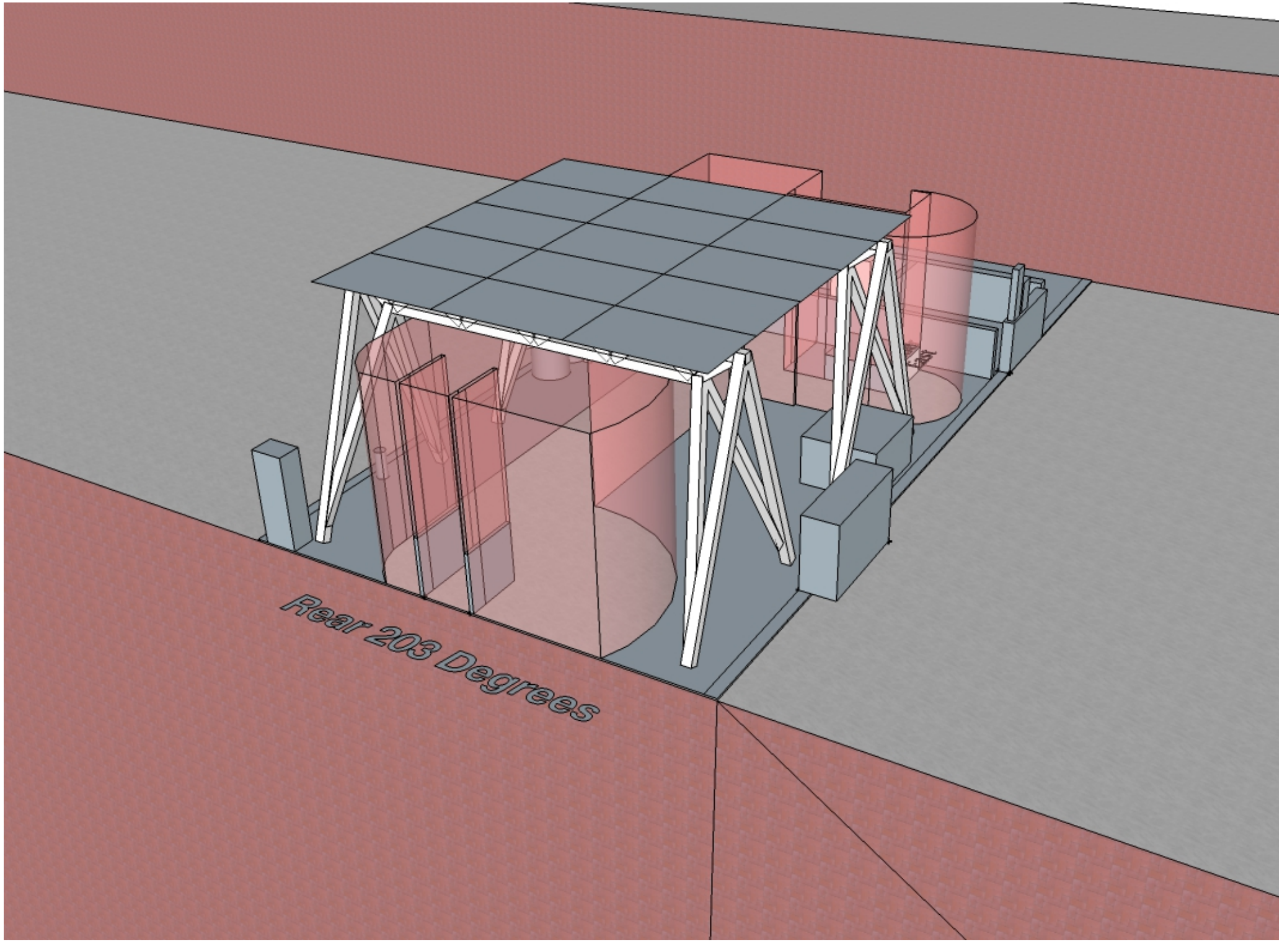
Photo of Roof - Rear to front (facing north)

Photo of Roof - Front to Rear (facing south)

Existing Solar Canopy - 363 12 Street, NY 11215

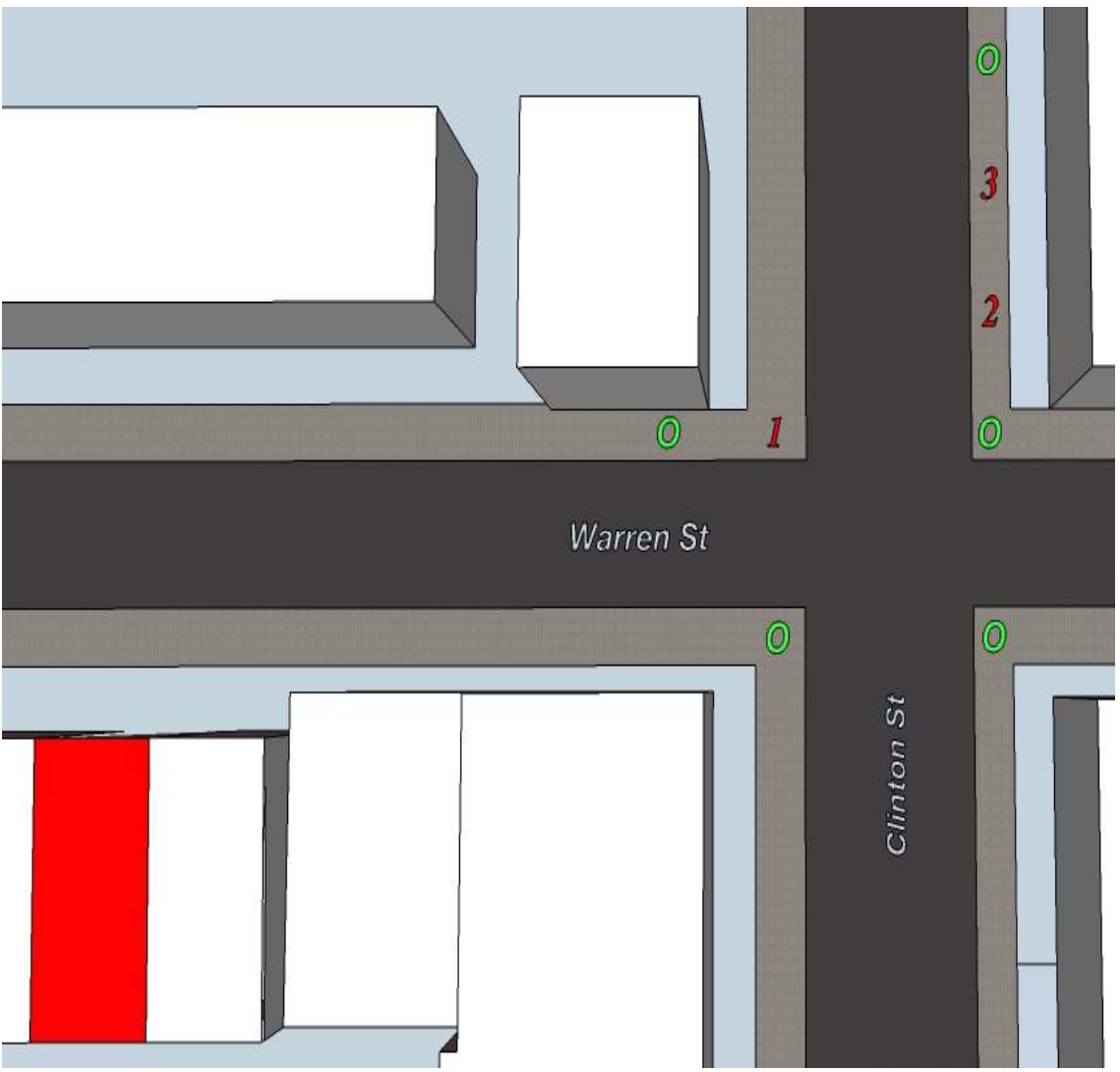
Existing Solar Canopy - 363 12 Street, NY 11215

Rendering of solar canopy on 202 Warren Street with fire code in red.



1

Street View Looking West
From Clinton St and Warren St
Including Mock Up



1

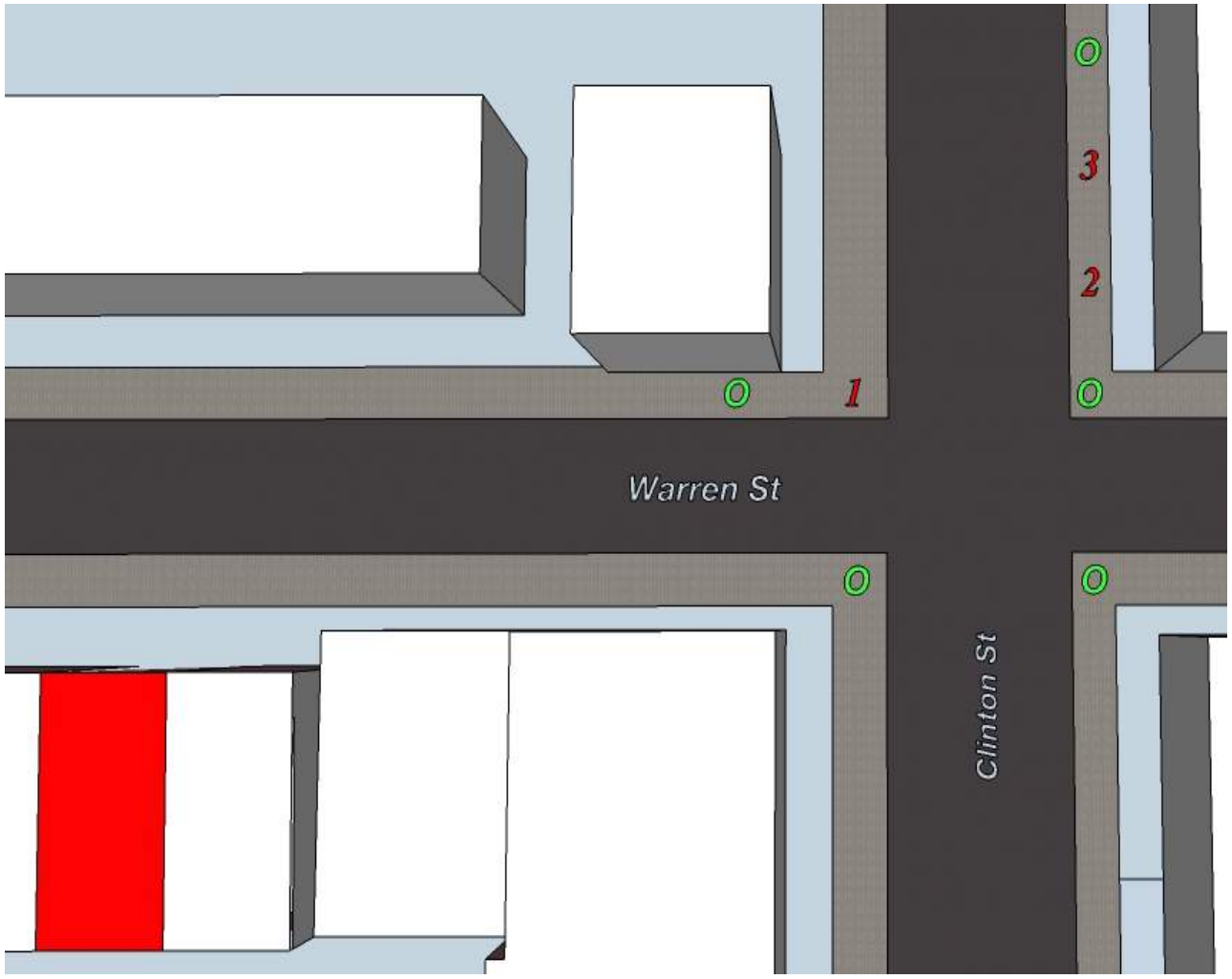
System Rendering Looking
West From Clinton St and
Warren St

Visibility From Street - Enlarged

1

2

Street View Looking West From Clinton St and Warren St Including Mock Up



2

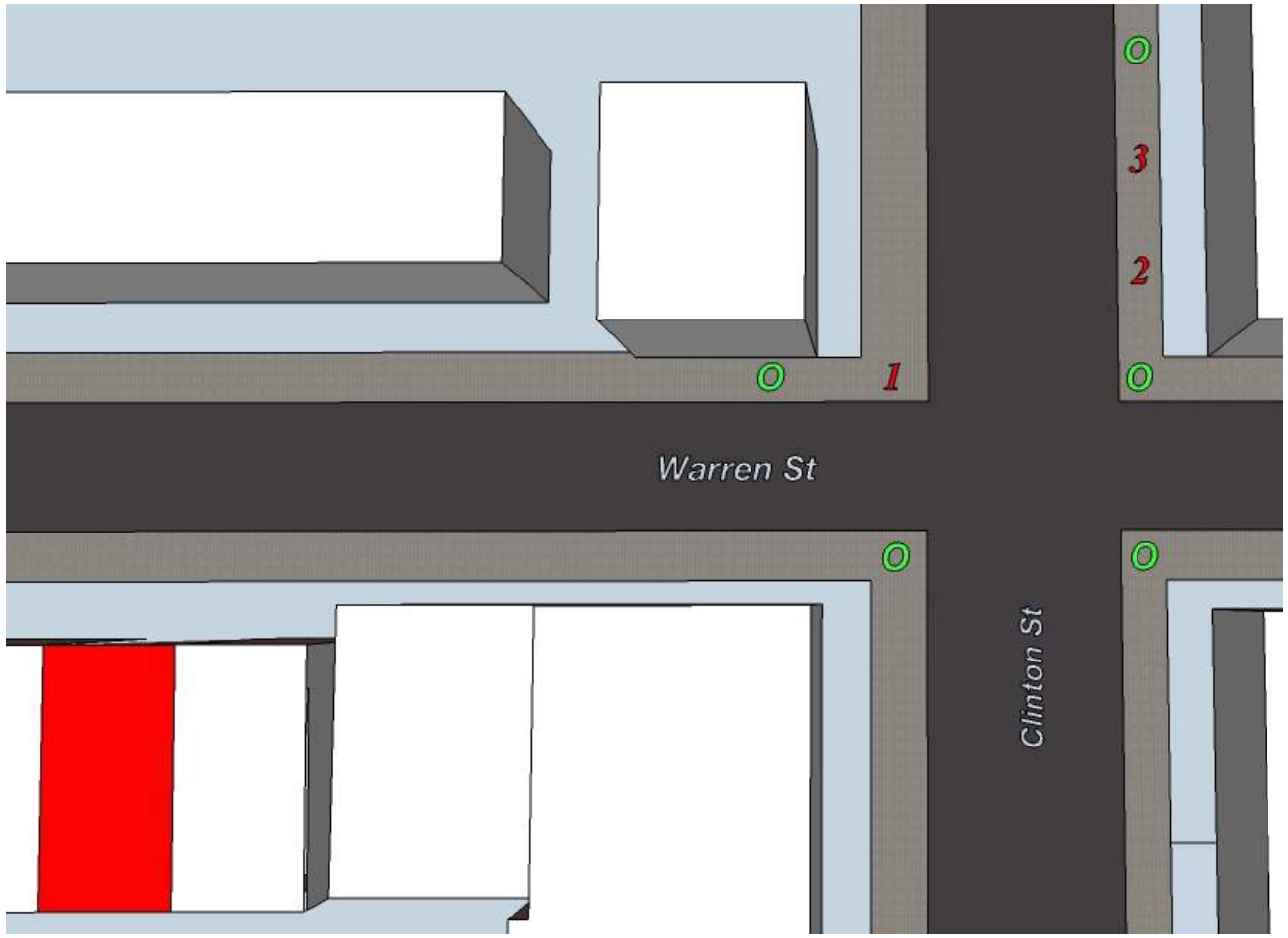
System Rendering Looking West From Clinton St and Warren St

Visibility From Street - Enlarged

2

3

Street View Looking West From Clinton St and Warren St Including Mock Up



3

System Rendering Looking West From Clinton St and Warren St

Visibility From Street - Enlarged

3

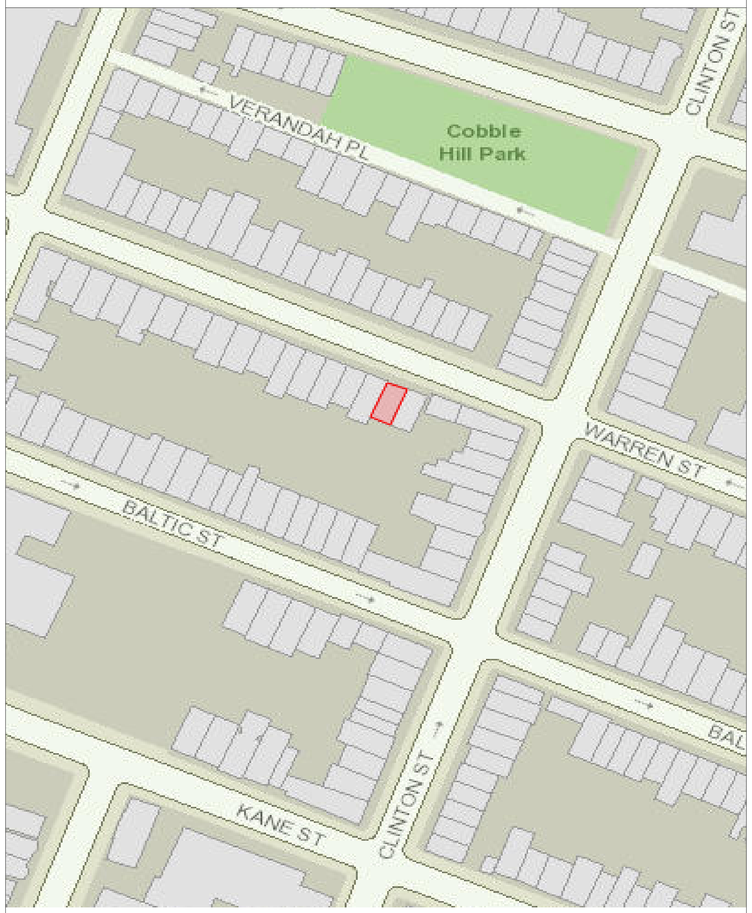
ROOF MOUNTED PHOTOVOLTAIC CANOPY

MODULE	LG ELECTRONICS (15) LG305N1C-B3 MODULES
INVERTER	SMA AMERICA (1) SB3800TL-US-22-208VAC
SYSTEM RATING	4.575 kW DC-STC

SCOPE OF WORK IS SOLELY FOR THE INSTALLATION OF THE SOLAR ELECTRIC GENERATING SYSTEM. ALL OTHER WORK IS NOT TO BE RELIED UPON AS BEING APPROVED BY BUILDINGS DEPARTMENT.

REFER TO SHEET A-001 FOR: PROFESSIONAL STATEMENT, INSPECTIONS, AND CODE LISTING. THERE IS NO POTENTIAL FALLING HAZARD ON ANY PART OF THE SOLAR ELECTRIC GENERATING SYSTEM

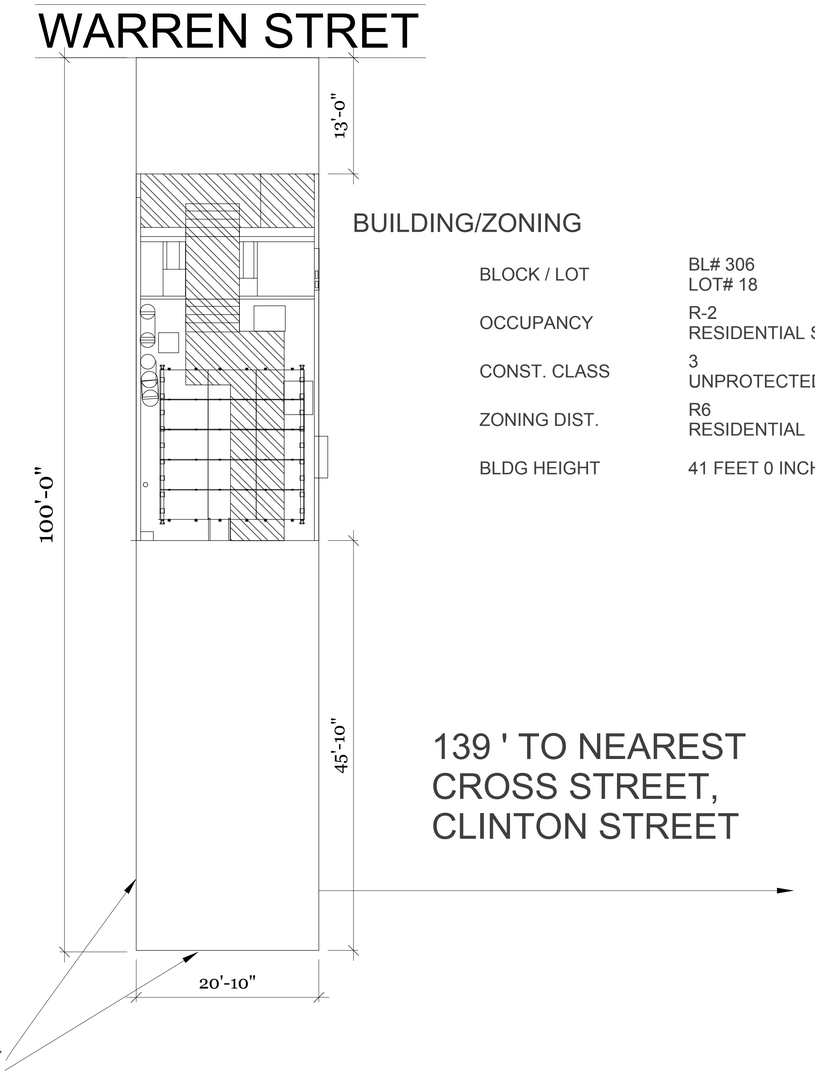
A-000 / 1 DRAWING LIST
NTS



A-000 / 2 LOCATION PLAN
SCALE 1"= 100'-0"

NOTE: BUILDING NOT LOCATED IN FLOOD ZONE

0° ROOF SLOPE
203° ARRAY ORIENTATION
0° ARRAY TILT



A-002 / 1 SITE PLAN
SCALE 1/8"= 1'-0"

BUILDING/ZONING

BLOCK / LOT	BL# 306 LOT# 18
OCCUPANCY	R-2 RESIDENTIAL SINGLE FAMILY
CONST. CLASS	3 UNPROTECTED
ZONING DIST.	R6 RESIDENTIAL
BLDG HEIGHT	41 FEET 0 INCHES

AFFIX BIS STICKER

D.O.B. STAMP

ROOF MOUNTED PHOTVOLTAIC SYSTEM
CANOPY

Client:
Joshua Panas
202, WARREN STRET
Brooklyn, NY, 11201
Net Metered 4.575kW

BROOKLYN SOLARWORKS
200 6th St, Suite 3G, Brooklyn, NY, 11215
(347) 474 7144
www.brooklynsolarworks.com

DRWN XL
CHKD LF
SCALE AS NOTED
DATE November 19, 2015

ISSUE
DATE DESCRIPTION
11/11/15 ORIGINAL

STATE OF NEW YORK
JAMES A. CLANCY
084288
LICENSED PROFESSIONAL ENGINEER

ENGINEER OF RECORD:
JAMES A. CLANCY
PROFESSIONAL ENGINEER
601 ASBURY AVENUE
NATIONAL PARK
NEW JERSEY
08063
P:(856)358-1125
F:(856)358-1511

SEAL & SIGNATURE

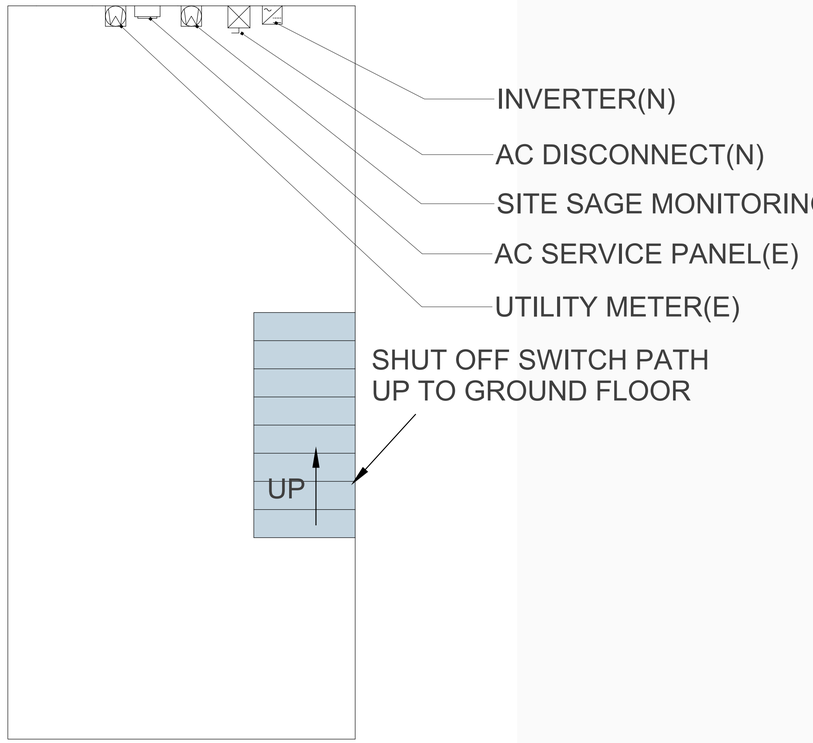
LICENSE# 084288

ROOF/SETBACK

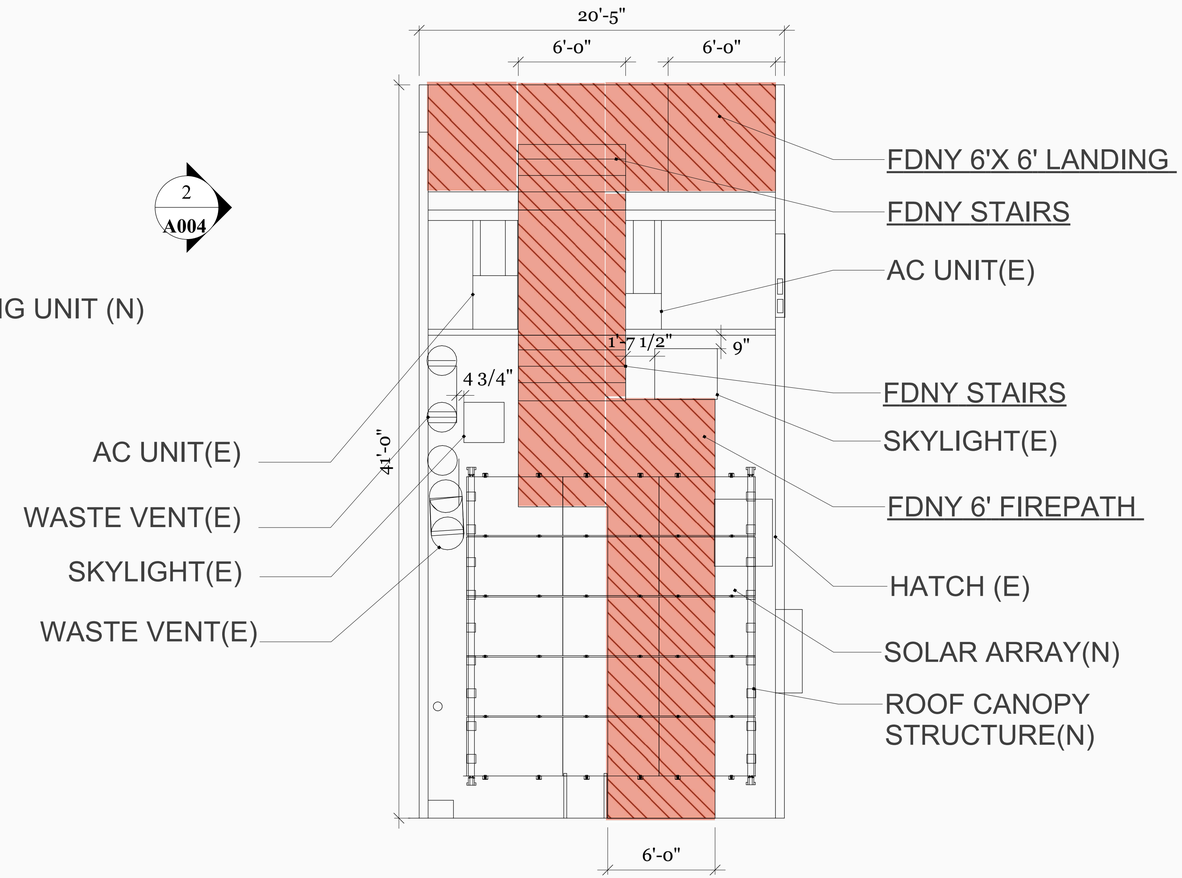
ROOF TYPE	FLAT-WOOD JOIST
RAFTER SIZE	3" X 7"
RAFTER SPACING	20" @ O.C.
ROOF PITCH	0°
SETBACK REQD	6 FEET REQUIRED

WARREN STRET

0° ROOF SLOPE
203° ARRAY ORIENTATION
0° ARRAY TILT



2 / A004



1 / A004

2 / A003 CELLAR LAYOUT

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

1 / A003 ROOF LAYOUT

Scale: 1/4" = 1' - 0"

MONITORING EQUIPMENT SHALL BE MOUNTED NEAR MAIN SERVICE PANEL.

AFFIX BIS STICKER

D.O.B. STAMP

ROOF MOUNTED PHOTVOLTAIC SYSTEM
CANOPY

Client:
Joshua Panas
202, WARREN STRET
Brooklyn, NY, 11201
Net Metered 4.575kW

BROOKLYN SOLARWORKS
200 6th St, Suite 3G, Brooklyn, NY, 11215
(347) 474 7144
www.brooklynsolarworks.com

DRWN XL
CHKD LF
SCALE AS NOTED
DATE November 19, 2015

ISSUE

DATE	DESCRIPTION
11/11/15	ORIGINAL

STATE OF NEW YORK · JAMES A. CLANCY · 084288 · LICENSED PROFESSIONAL ENGINEER

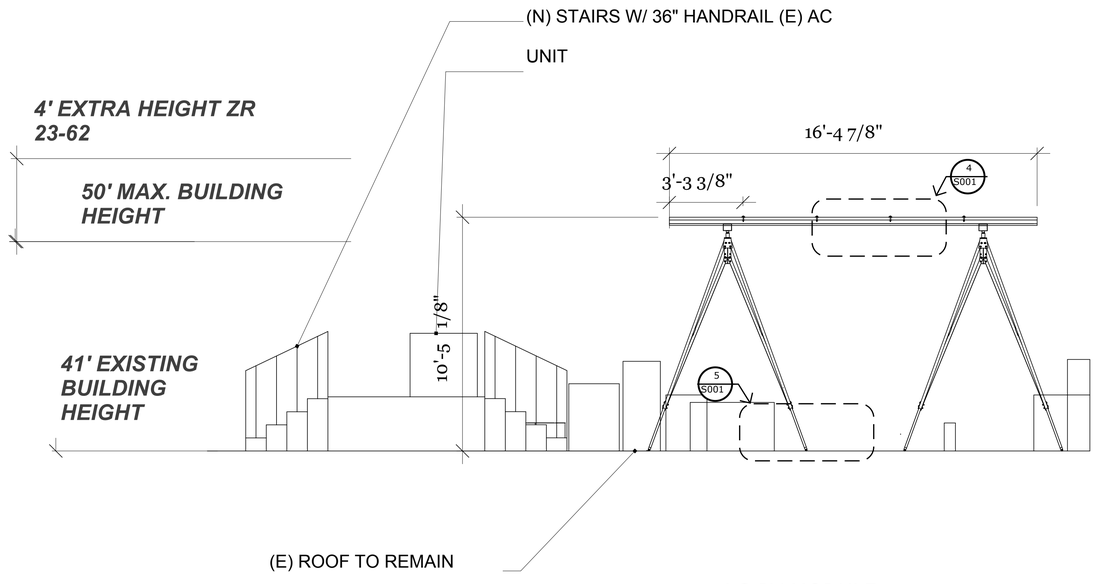
ENGINEER OF RECORD:
JAMES A. CLANCY
PROFESSIONAL ENGINEER
601 ASBURY AVENUE
NATIONAL PARK
NEW JERSEY
08063
P:(856)358-1125
F:(856)358-1511

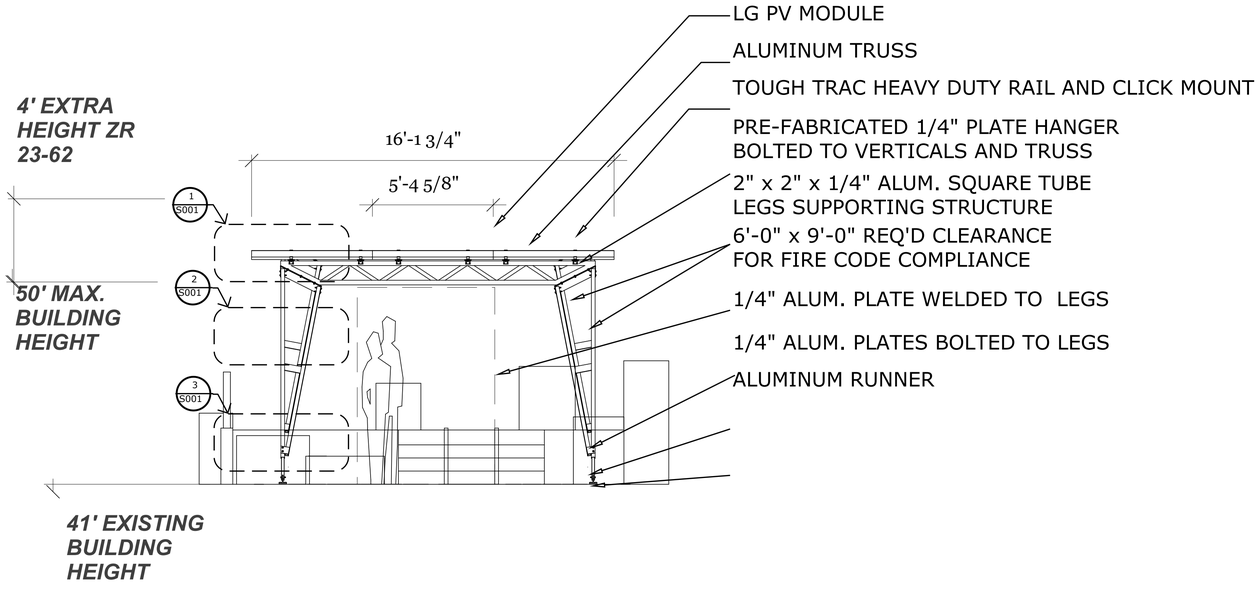
SEAL & SIGNATURE

LICENSE# 084288

A-003: LAYOUT PLAN

SOLAR PANEL INSTALLATION COMPLIES WITH ZR 23-62.
PERMITTED OBSTRUCTIONS:
(m) SOLAR ENERGY SYSTEMS:
(1) ON THE ROOF OF A BUILDING, UP TO FOUR FEET IN HEIGHT, AS MEASURED FROM THE MAXIMUM HEIGHT LIMIT, OR THE FINISHED LEVEL OF THE ROOF, WHICHEVER IS HIGHER. HOWEVER, ANY INSTALLATION ON A ROOF WITH A SLOPE GREATER THAN 20 DEGREES SHALL BE LIMITED TO 18 INCES IN HEIGHT, AS MEASURED PERPENDICULAR TO THE ROOF SURFACE.





2 / A004 RIGHTSIDE ELEVATION
Scale: NTS

1 / A004 FRONT ELEVATION
Scale: NTS

AFFIX BIS STICKER

D.O.B. STAMP

ROOF MOUNTED PHOTVOLTAIC SYSTEM
CANOPY

Client:
Joshua Panas
202, WARREN STRET
Brooklyn, NY, 11201
Net Metered 4.575kW

BROOKLYN SOLARWORKS

200 6th St, Suite 3G, Brooklyn, NY, 11215
(347) 474 7144
www.brooklynsolarworks.com

DRWN XL
CHKD LF
SCALE AS NOTED
DATE November 19, 2015

ISSUE
DATE DESCRIPTION
11/11/15 ORIGINAL

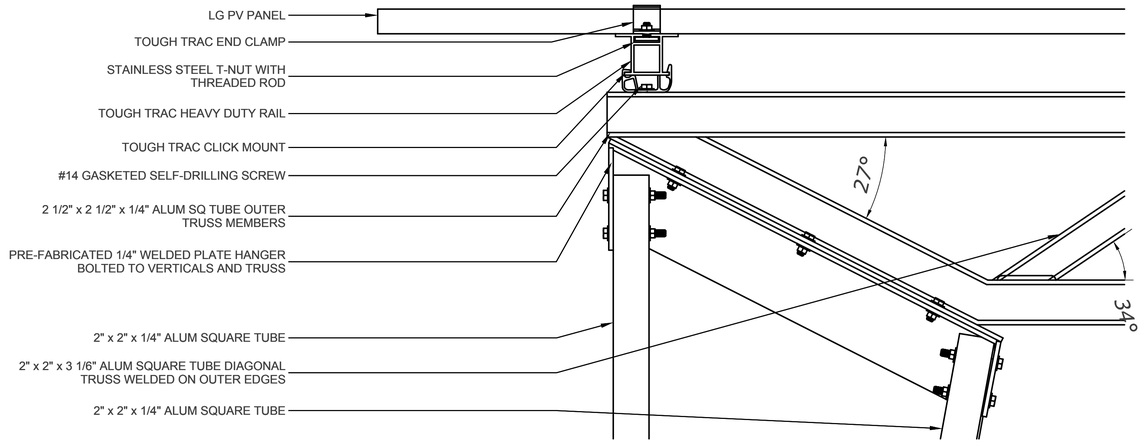
STATE OF NEW YORK · JAMES A. CLANCY · 084288 · LICENSED PROFESSIONAL ENGINEER

ENGINEER OF RECORD:
JAMES A. CLANCY
PROFESSIONAL ENGINEER
601 ASBURY AVENUE
NATIONAL PARK
NEW JERSEY
08063
P:(856)358-1125
F:(856)358-1511

SEAL & SIGNATURE

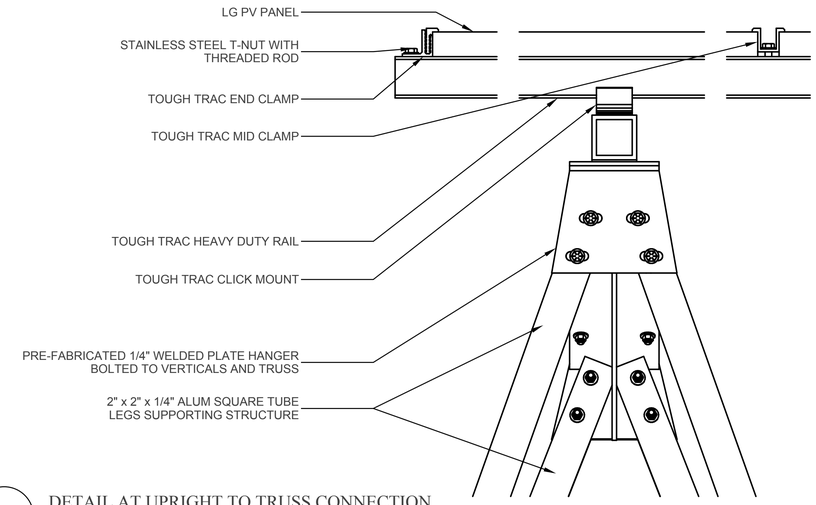
LICENSE# 084288

A-004: ELEVATIONS



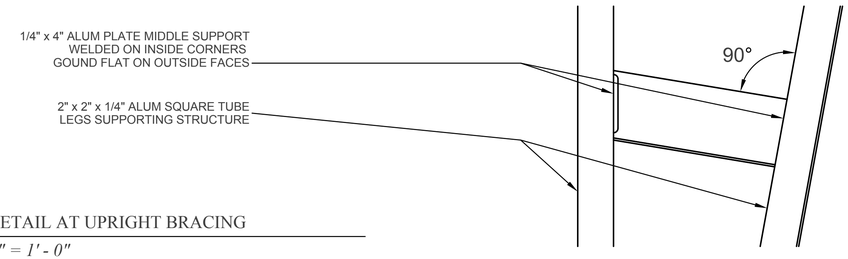
1 DETAIL AT UPRIGHT TO TRUSS CONNECTION

3″ = 1′ - 0″



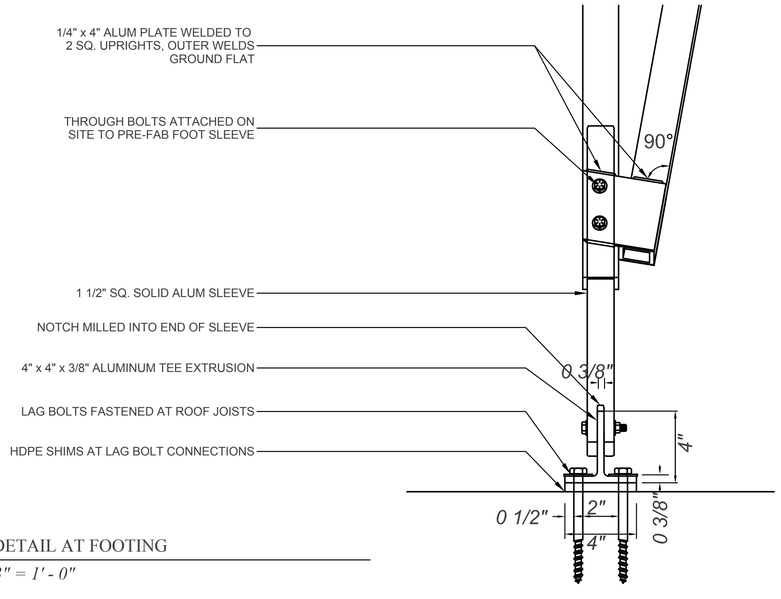
4 DETAIL AT UPRIGHT TO TRUSS CONNECTION

3″ = 1′ - 0″



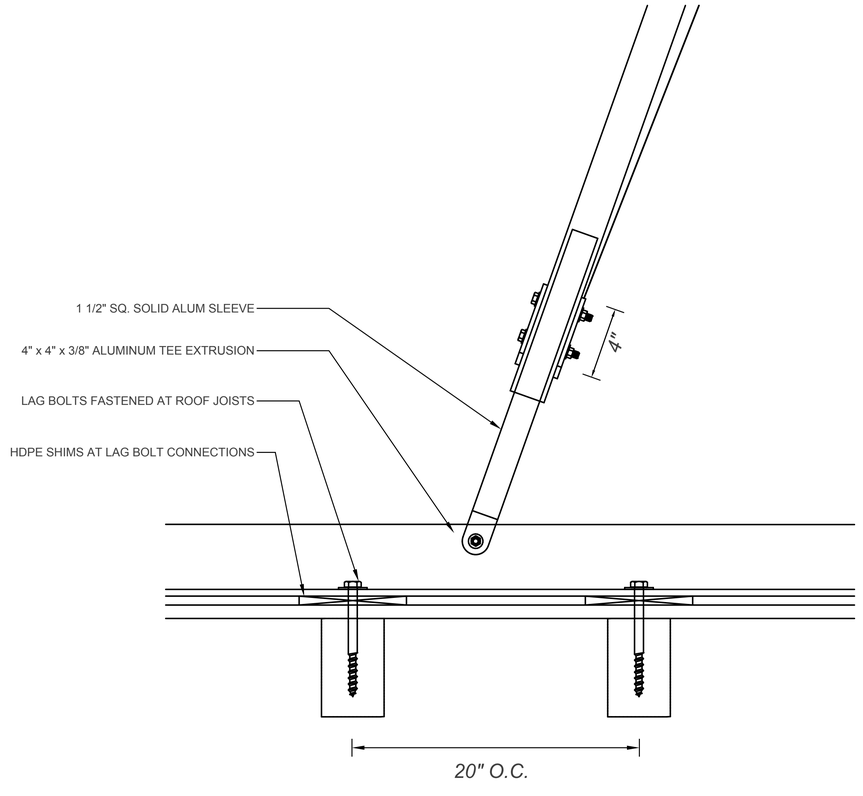
2 DETAIL AT UPRIGHT BRACING

3″ = 1′ - 0″



3 DETAIL AT FOOTING

3″ = 1′ - 0″



5 DETAIL AT FOOTING

3″ = 1′ - 0″

AFFIX BIS STICKER

D.O.B. STAMP

ROOF MOUNTED PHOTVOLTAIC SYSTEM
CANOPY

Client:
Joshua Panas
202, WARREN STRET
Brooklyn, NY, 11201
Net Metered 4.575kW

BROOKLYN SOLARWORKS

200 6th St, Suite 3G, Brooklyn, NY, 11215
(347) 474 7144
www.brooklynsolarworks.com

DRWN XL
CHKD LF
SCALE AS NOTED
DATE November 19, 2015

ISSUE
DATE DESCRIPTION
11/11/15 ORIGINAL

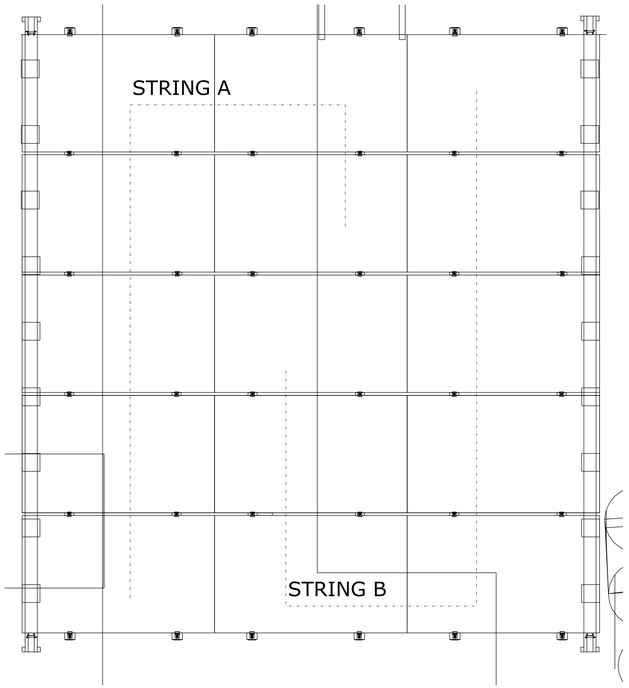
STATE OF NEW YORK
JAMES A. CLANCY
084288
LICENSED PROFESSIONAL ENGINEER

ENGINEER OF RECORD:
JAMES A. CLANCY
PROFESSIONAL ENGINEER
601 ASBURY AVENUE
NATIONAL PARK
NEW JERSEY
08063
P:(856)358-1125
F:(856)358-1511

SEAL & SIGNATURE

LICENSE# 084288

S-001: STRUCTURAL



1 ROOF TOP MODULE LAYOUT PLAN

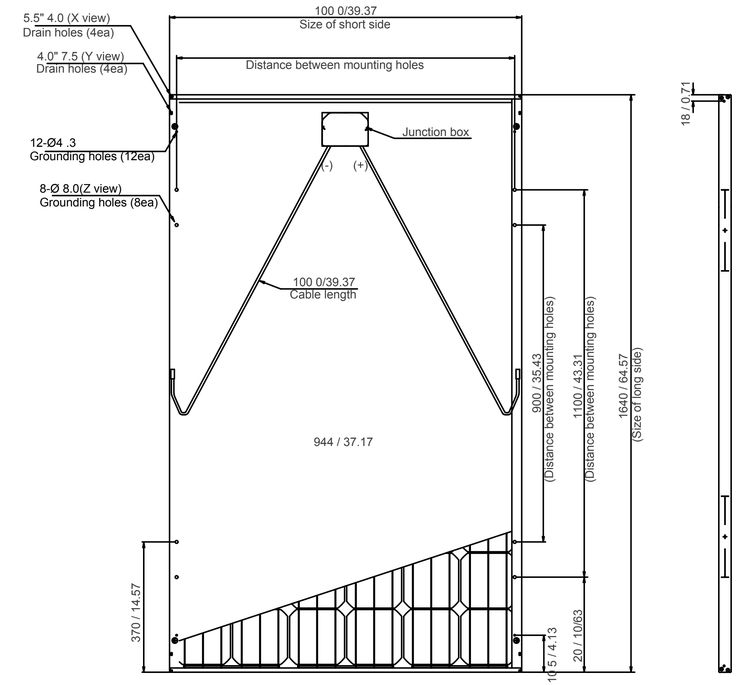
1/2" = 1' - 0'

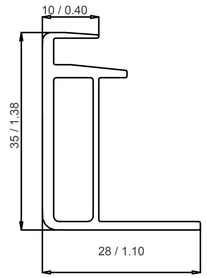
STATEMENT OF STRUCTURAL CERTIFICATION:

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 2014 NEW YORK CITY BUILDING CODE AND ALL OTHER APPLICABLE LOCAL AND STATE BUILDING AND FIRE CODES.
3. THIS INSTALLATION IS CAPABLE OF SUPPORTING SNOW LOADS EQUAL TO 30 PSF AND WIND LOADS EQUAL TO 100 MPH AS PER 2010 NYSRBC
4. LAG SCREWS: 5 16"ØX5"L, STAINLESS STEEL, 5" MIN. EMBEDMENT INTO TIMBER RAFTER. PROVIDE CHEMLINK M-1 SEALANT OR APPROVED EQUIVALENT AT LAG BOLT PENETRATION POINTS.

GENERAL NOTES:

1. THE MAJOR ROOF FRAMING CONSISTS OF 3"x 7" ROOF JOISTS SPACED AT 16" O.C.
2. SOLAR MOUNT RAIL LOCATIONS SHALL BE IN BETWEEN THE MEASUREMENTS OF 270mm AND 500mm OF THE LENGTH OF THE PV MODULE IN PORTRAIT ORIENTATIONS - MEASURED FROM THE TOP/BOTTOM EDGE OF THE MODULE IN RESPECT TO THE ORIENTATION.

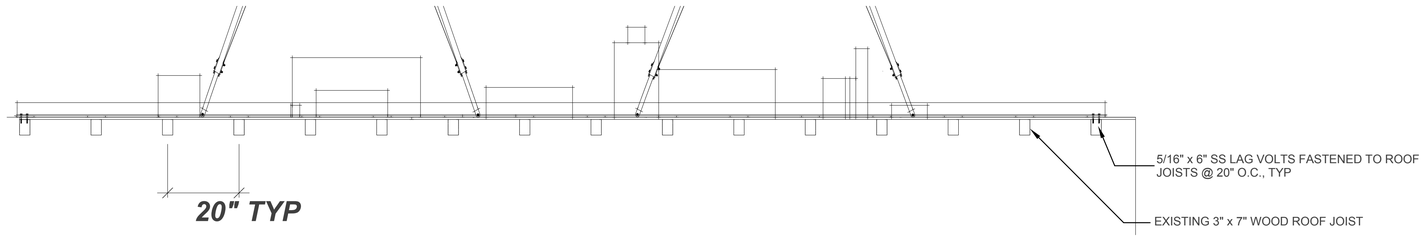




Long side frame

1 LG MODULE DETAILS AND RAIL MOUNTING ALLOWANCE STANDARDS

NTS



2 SECTION - RAFTER CONNECTION DETAILS

1/2" = 1' - 0'

AFFIX BIS STICKER

D.O.B. STAMP

ROOF MOUNTED PHOTVOLTAIC SYSTEM
CANOPY

Client:
Joshua Panas
202, WARREN STRET
Brooklyn, NY, 11201
Net Metered 4.575kW

BROOKLYN SOLARWORKS
200 6th St, Suite 3G, Brooklyn, NY, 11215
(347) 474 7144
www.brooklynsolarworks.com

DRWN XL
CHKD LF
SCALE AS NOTED
DATE November 19, 2015

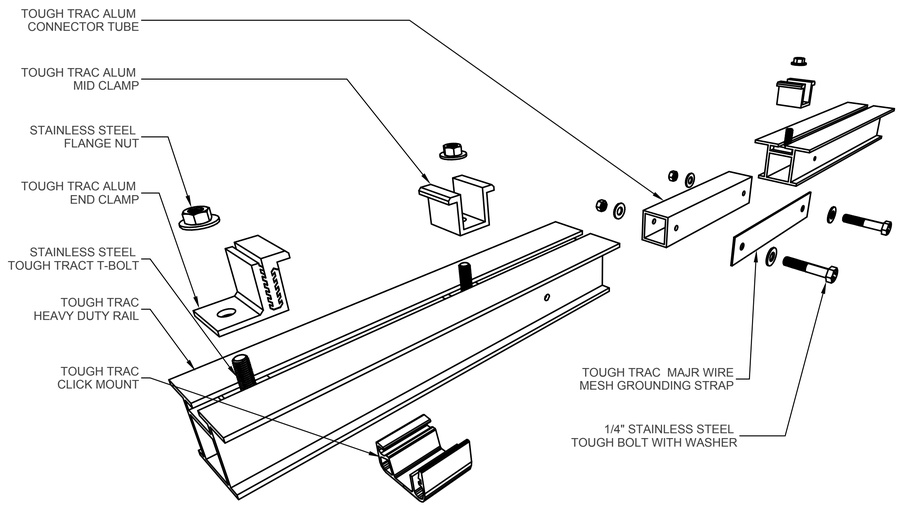
ISSUE
DATE DESCRIPTION
11/11/15 ORIGINAL

ENGINEER OF RECORD:
JAMES A. CLANCY
PROFESSIONAL ENGINEER
601 ASBURY AVENUE
NATIONAL PARK
NEW JERSEY
08063
P:(856)358-1125
F:(856)358-1511

SEAL & SIGNATURE

LICENSE# 084288

S-002: STRUCTURAL



1 PV MODULE TO RAIL CONNECTION HARDWARE

NTS

MAJR COMPONENT INSTALLATION INSTRUCTIONS

MAJR TTGC portrait & landscape grounding clips are used to create a grounding path between the module frame and TOUGH TRAC rails (Standard, Heavy Duty, & Lite). All MAJR TTGC are only to be used with TOUGH TRAC top mount clamps (TTMID).

1. Insert T Bolt into rail slot.

2. Attach MAJR TTGC (portrait or landscape) onto the T bolt through the middle 5/16" hole.

3. Place edge of modules up to upright stops.

4. Attach top mount mid clamp to T Bolt.

5. Tighten flange nuts to 15 lbs of torque to ensure proper penetration between the grounding nibs and module frame.

NOTE: Use one MAJR TTGC with every top mount mid clamp (TTMID) installed. MAJR TTGS grounding straps are used to create a grounding path between TOUGH TRAC rails at splice locations. All

MAJR TTGS are to be used with TOUGH TRAC connector tubes (TTCT) or connector channels (TTCC).

6. After connector tubes (TTCT) or connector channels (TTCC) are inserted, place and hold MAJR TTGS grounding strap on

the outside of the rail.

7. Insert washer and 1/4" bolt through the 1/4" holes of the grounding strap and rail.

8. Tighten 1/4" bolts with flange nuts.

After all panels and rail splices are installed, a single grounding wire is needed to ground the entire array. We recommend using UL approved grounding lugs attached at the ends of each rail and then joined together with a 6 AWG copper wire. This copper wire will be connected to your main ground to ensure proper grounding for your entire array.

TOUGH TRAC HEAVY DUTY RAIL SET SPECIFICATIONS

MILL ALUMINUM 6061: HEAVY DUTY RAIL, SLIDE MOUNT, MID & END CLAMPS, CONNECTOR TUBE

STAINLESS STEEL 300 & 400 SERIES: BOLTS, WASHERS, & NUTS

THE FOLLOWING MAJR PARTS HAVE PASSED THE FOLLOWING TESTS:

STAINLESS STEEL GROUNDING PLATE, WIRE MESH GROUNDING STRAP

TESTING STANDARDS: UL 467, CSA C22.2 No 41-07

INSTALLER RESPONSIBILITIES:

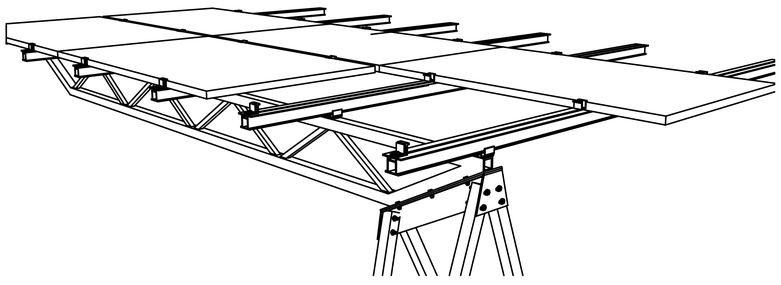
1. Inquire and comply with all local, state, and national building codes that apply to this installation and solar panel installation.

2. Inspect and determine that all roofs, rafters, trusses, and all structural support can handle and support the solar array and live load conditions.

3. Consult and ensure that this mounting solution is appropriate for your particular installation.

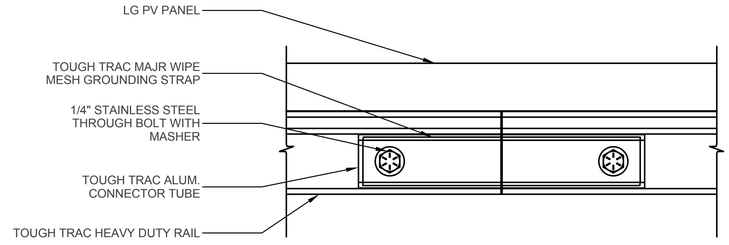
4 To use only TOUGH TRACTM supplied parts for your installation. Substituting parts may void the warranty.

5. Ensure all electrical connections are compliant to national and local electrical codes.



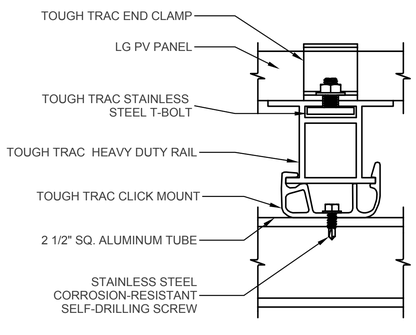
2 STANDARD PV RACKING SYSTEM ASSEMBLY - PERSPECTIVE

NTS

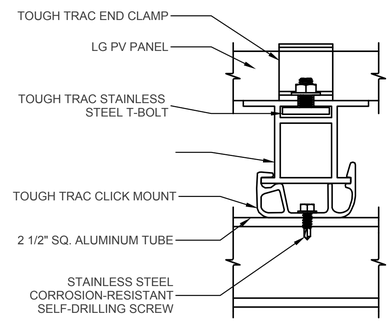


3 TYPICAL SPLICE CONNECTION DETAIL

1/2" = 1' - 0"



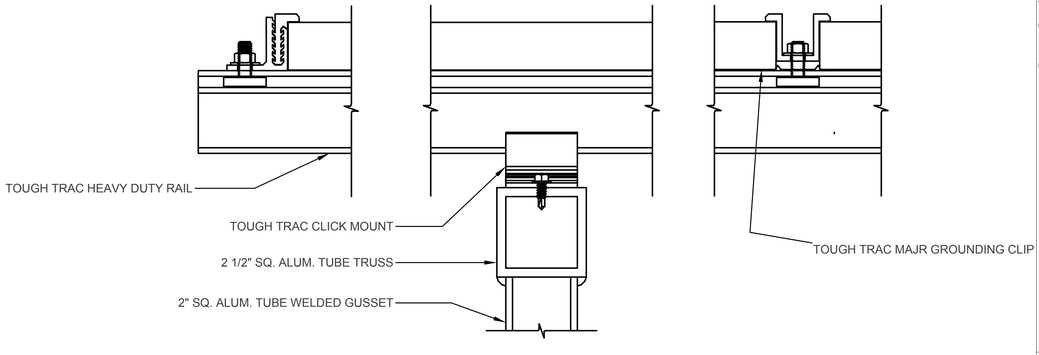
AT END CLAMP



AT MID CLAMP

4 TYPICAL PV PANEL TO TRUSS CONNECTION DETAILS - FRONT

1/2" = 1' - 0"



AT END CLAMP **AT TRUSS AND CLICK MOUNT** **AT MID CLAMP**

AFFIX BIS STICKER

D.O.B. STAMP

ROOF MOUNTED PHOTVOLTAIC SYSTEM
CANOPY

Client:
Joshua Panas
202, WARREN STRET
Brooklyn, NY, 11201
Net Metered 4.575kW

BROOKLYN SOLARWORKS

200 6th St, Suite 3G, Brooklyn, NY, 11215
(347) 474 7144
www.brooklynsolarworks.com

DRWN XL
CHKD LF
SCALE AS NOTED
DATE November 19, 2015

ISSUE
DATE DESCRIPTION
11/11/15 ORIGINAL

STATE OF NEW YORK
JAMES A. CLANCY
084288
LICENSED PROFESSIONAL ENGINEER

ENGINEER OF RECORD:
JAMES A. CLANCY
PROFESSIONAL ENGINEER
601 ASBURY AVENUE
NATIONAL PARK
NEW JERSEY
08063
P:(856)358-1125
F:(856)358-1511

SEAL & SIGNATURE

LICENSE# 084288

S-003: STRUCTURAL

MonoX® NeON **LG305N1C-B3**

Mechanical Properties

Cells	6 x 10
Cell vendor	LG
Cell type	Monocrystalline
Cell dimensions	156 x 156 mm / 6 x 6 in
# of busbar	3
Dimensions (L x W x H)	1640 x 1000 x 35 mm 64.57 x 39.37 x 1.38 in
Static snow load	5400 Pa / 113 psf
Static wind load	2400 Pa / 50 psf
Weight	16.8 ± 0.5 kg / 36.96 ± 1.1 lb
Connector type	MC4 connector IP 67
Junction box	IP 67 with 3 bypass diodes
Length of cables	2 x 1000 mm / 2 x 39.37 in
Glass	High transmission tempered glass
Frame	Anodized aluminum

Certifications and Warranty

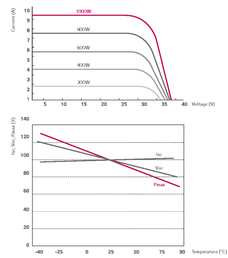
Certifications	IEC 61215, IEC 61730-1/-2, UL 1703, ISO 9001, IEC 61701, IEC 62716
Module fire performance (UL1703)	Type 2
Product warranty	10 years
Output warranty of Pmax (measurement Tolerance ± 3%)	Linear warranty* NEW

* 1) 1st year 98%, 2) After 2nd year 0.7%p annual degradation, 3) 81.2% for 25 years

Temperature Coefficients

NOCT	45 ± 2 °C
Pmpp	-0.41 %/°C
Voc	-0.29 %/°C
Isc	0.04 %/°C

Characteristic Curves



Electrical Properties (STC *)

	305 W
MPP voltage (Vmpp)	32.1
MPP current (Impp)	9.52
Open circuit voltage (Voc)	40.0
Short circuit current (Isc)	10.1
Module efficiency (%)	18.6
Operating temperature (°C)	-40 ~ +90
Maximum system voltage (V)	1000 (IEC), 600 (UL)
Maximum series fuse rating	20
Power tolerance (%)	0 ~ +3

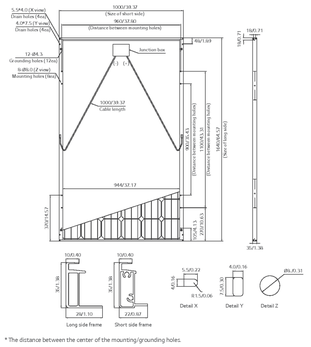
* STC (Standard Test Condition): Irradiance 1000 W/m², module temperature 25 °C, AM 1.5
* The nameplate power output is measured and determined by LG Electronics at its sole and absolute discretion.

Electrical Properties (NOCT*)

	305 W
Maximum power (Pmpp)	223
MPP voltage (Vmpp)	29.4
MPP current (Impp)	7.59
Open circuit voltage (Voc)	37.0
Short circuit current (Isc)	8.14
Efficiency reduction (from 1000 W/m² to 200 W/m²)	< 2%

* NOCT (Nominal Operating Cell Temperature): Irradiance 800 W/m², ambient temperature 20 °C, wind speed 1 m/s

Dimensions (mm/in)



* The distance between the center of the mounting/grounding holes.

LG Life's Good

North America Solar Business Team
LG Electronics U.S.A. Inc
1000 Sylvan Ave, Englewood Cliffs, NJ 07632

Contact: lg.solar@lge.com
www.lgsolarusa.com

Innovation for a Better Life

Technical data	Sunny Boy 3000TL-US		Sunny Boy 3800TL-US		Sunny Boy 4000TL-US	
	208 V AC	240 V AC	208 V AC	240 V AC	208 V AC	240 V AC
Input (DC)						
Max. usable DC power (@ cos φ = 1)	3200 W		4200 W		4200 W	
Max. DC voltage	600 V		600 V		600 V	
Rated MPPT voltage range	175 – 480 V		175 – 480 V		175 – 480 V	
MPPT operating voltage range	125 – 500 V		125 – 500 V		125 – 500 V	
Min. DC voltage / start voltage	125 V / 150 V		125 V / 150 V		125 V / 150 V	
Max. operating input current / per MPP tracker	18 A / 15 A		24 A / 15 A		24 A / 15 A	
Number of MPP trackers / strings per MPP tracker			2 / 2			
Output (AC)						
AC nominal power	3000 W		3330 W	3840 W	4000 W	
Max. AC apparent power	3000 VA		3330 VA	3840 VA	4000 VA	
Nominal AC voltage / adjustable	208 V / ●	240 V / ●	208 V / ●	240 V / ●	208 V / ●	240 V / ●
AC voltage range	183 – 229 V	211 – 264 V	183 – 229 V	211 – 264 V	183 – 229 V	211 – 264 V
AC grid frequency; range	60 Hz / 59.3 – 60.5 Hz		60 Hz / 59.3 – 60.5 Hz		60 Hz / 59.3 – 60.5 Hz	
Max. output current	15 A		16 A		20 A	
Power factor (cos φ)	1		1		1	
Output phases / line connections	1 / 2		1 / 2		1 / 2	
Harmonics	< 4%		< 4%		< 4%	
Efficiency						
Max. efficiency	97.2%	97.6%	97.2%	97.5%	97.2%	97.5%
CEC efficiency	96.5%	96.5%	96.5%	97.0%	96.5%	97.0%
Protection devices						
DC disconnection device			●			
DC reverse-polarity protection			●			
Ground fault monitoring / Grid monitoring			● / ●			
AC short circuit protection			●			
All-pole sensitive residual current monitoring unit			●			
Arc fault circuit interrupter (AFCI) compliant to UL 1699B			●			
Protection class / overvoltage category			I / IV			
General data						
Dimensions (W / H / D) in mm (in)	490 / 519 / 185 (19.3 / 20.5 / 7.3)					
DC Disconnect dimensions (W / H / D) in mm (in)	187 / 297 / 190 (7.4 / 11.7 / 7.5)					
Packing dimensions (W / H / D) in mm (in)	617 / 597 / 266 (24.3 / 23.5 / 10.5)					
DC Disconnect packing dimensions (W / H / D) in mm (in)	370 / 240 / 280 (14.6 / 9.4 / 11.0)					
Weight / DC Disconnect weight	24 kg (53 lb) / 3.5 kg (8 lb)					
Packing weight / DC Disconnect packing weight	27 kg (60 lb) / 3.5 kg (8 lb)					
Operating temperature range	-40 °C ... +60 °C (-40 °F ... +140 °F)					
Noise emission (typical)	≤ 25 dB(A)		< 25 dB(A)		< 25 dB(A)	
Internal consumption at night	< 1 W		< 1 W		< 1 W	
Topology	Transformerless		Transformerless		Transformerless	
Cooling	Convection		Convection		Convection	
Electronics protection rating	NEMA 3R		NEMA 3R		NEMA 3R	
Features						
Secure Power Supply	●		●		●	
Display: graphic	●		●		●	
Interfaces: RS485 / Speedwire/Webconnect	o/o		o/o		o/o	
Warranty: 10 / 15 / 20 years	●/o/o		●/o/o		●/o/o	
Certificates and permits (more available on request)	UL 1741, UL 1998, UL 1699B, IEEE1547, FCC Part 15 (Class A & B), CAN/CSA C22.2 107.1-1					
NOTE: US inverters ship with gray lids						
Type designation	SB 3000TL-US-22		SB 3800TL-US-22		SB 4000TL-US-22	

AFFIX BIS STICKER

D.O.B. STAMP

ROOF MOUNTED PHOTVOLTAIC SYSTEM
CANOPY

Client:
Joshua Panas
202, WARREN STRET
Brooklyn, NY, 11201
Net Metered 4.575kW

BROOKLYN SOLARWORKS

200 6th St, Suite 3G, Brooklyn, NY, 11215
(347) 474 7144
www.brooklynsolarworks.com

DRWN XL
CHKD LF
SCALE AS NOTED
DATE November 19, 2015

ISSUE
DATE DESCRIPTION
11/11/15 ORIGINAL

STATE OF NEW YORK
JAMES A. CLANCY
LICENSED PROFESSIONAL ENGINEER
084288

ENGINEER OF RECORD:
JAMES A. CLANCY
PROFESSIONAL ENGINEER
601 ASBURY AVENUE
NATIONAL PARK
NEW JERSEY
08063
P:(856)358-1125
F:(856)358-1511

SEAL & SIGNATURE

LICENSE# 084288

Q-001: DATA SHEET