

**SCOPE OF WORK:**

TO INSTALL A ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM LOCATED AT 325 TURNER DAVIS DR, MADISON, FL 32340, USA. THE POWER GENERATED BY THE PV SYSTEM WILL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ELECTRICAL SERVICE EQUIPMENT. THE PV SYSTEM DOES NOT INCLUDE STORAGE BATTERIES

**GOVERNING CODES**

2021 NFPA 1 (FIRE CODE)  
 2020 NATIONAL ELECTRICAL CODE  
 2023 FLORIDA BUILDING CODE (8TH EDITION)  
 2023 FLORIDA FIRE PREVENTION CODE (8TH EDITION)  
 FLORIDA ADMINISTRATIVE CODE (FAC)

AHJ NAME: CITY OF MADISON

**SHEET INDEX**

PV-0	COVER PAGE
PV-1	SITE PLAN
PV-2	ROOF PLAN & MODULES
PV-2A	STRING LAYOUT & BOM
PV-2B	WIND ZONE CALCULATION
PV-2C	EQUIPMENT ELEVATION
PV-3	ATTACHMENT DETAILS
PV-4	ELECTRICAL LINE DIAGRAM & CALS.
PV-4A	SPECIFICATIONS & NOTES
PV-5	SIGNAGE & WARNING LABEL
PV-6+	EQUIPMENT SPECIFICATIONS

**NEW EQUIPMENT SUMMARY**

135 JA SOLAR JAM72S30-550/MR/1500V (550W) MODULES

01 SUNNY TRIPOWER CORE1 50-US [480V] INVERTER

01 100A NON FUSED AC DISCONNECT WITH , 3-PH, 4-W 480VAC NEMA 3R, UL LISTED

**SYSTEM RATING**

74.25 KWDC

50.00 KWAC

68.53 CEC KWAC

**GENERAL NOTES:**

- THESE CONSTRUCTION DOCUMENTS HAVE BEEN BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS IN CONSTRUCTION DETAILS.
- ARCHITECT HAS NOT BEEN RETAINED TO SUPERVISE ANY CONSTRUCTION OR INSTALLATION OF ANY EQUIPMENT AT SITE.
- CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, OBTAINS ALL PERMITS, LICENSES AND PAY ALL REQUIRED FEES AND COMPLETE INSTALLATION.
- CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY THEM WITHOUT ADDITIONAL COMPENSATION.
- DAMAGE CAUSED TO THE EXISTING STRUCTURE, PIPES, DUCTS, WINDOWS, WALL, FLOORS, ETC. SHALL BE REPAIRED TO THE ORIGINAL CONDITION OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE PROPER INSTALLATION AND COMPLETION OF THE WORK WITH APPROVED MATERIALS.
- NO CHANGES ARE TO BE MADE WITHOUT THE CONSULTATION AND APPROVAL OF THE ARCHITECT.
- CONTRACTOR SHALL OBTAIN BUILDING PERMIT. NO WORK TO START UNLESS BUILDING PERMIT IS PROPERLY DISPLAYED.
- ALL WORKMANSHIP AND MATERIALS SHALL BE OF FIRST QUALITY AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE FL BUILDING CODE, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ALL PERTINENT AGENCIES.
- IT IS ESSENTIAL THAT ALL WORK PROCEED WITH THE MAXIMUM COOPERATION OF ALL PARTIES AND WITH MINIMUM INTERFERENCE TO THE OCCUPANTS WITHIN THE BUILDING. THE OWNER'S DIRECTIONS IN THIS REGARD SHALL BE FULLY COMPLIED WITH.
- THE CONTRACTOR SHALL PERFORM THE WORK IN STRICT CONFORMANCE WITH THE LOCAL LAWS, REGULATIONS AND THE NATIONAL ELECTRIC CODE.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS, APPROVALS, AFFIDAVITS, CERTIFICATIONS, ETC. AND PAY ALL FEES AS REQUIRED BY THE LOCAL AUTHORITIES.
- CONTRACTORS SHALL OBTAIN FIRE CERTIFICATE. UPON COMPLETION OF WORK.

**WIRING AND CONDUIT NOTES:**

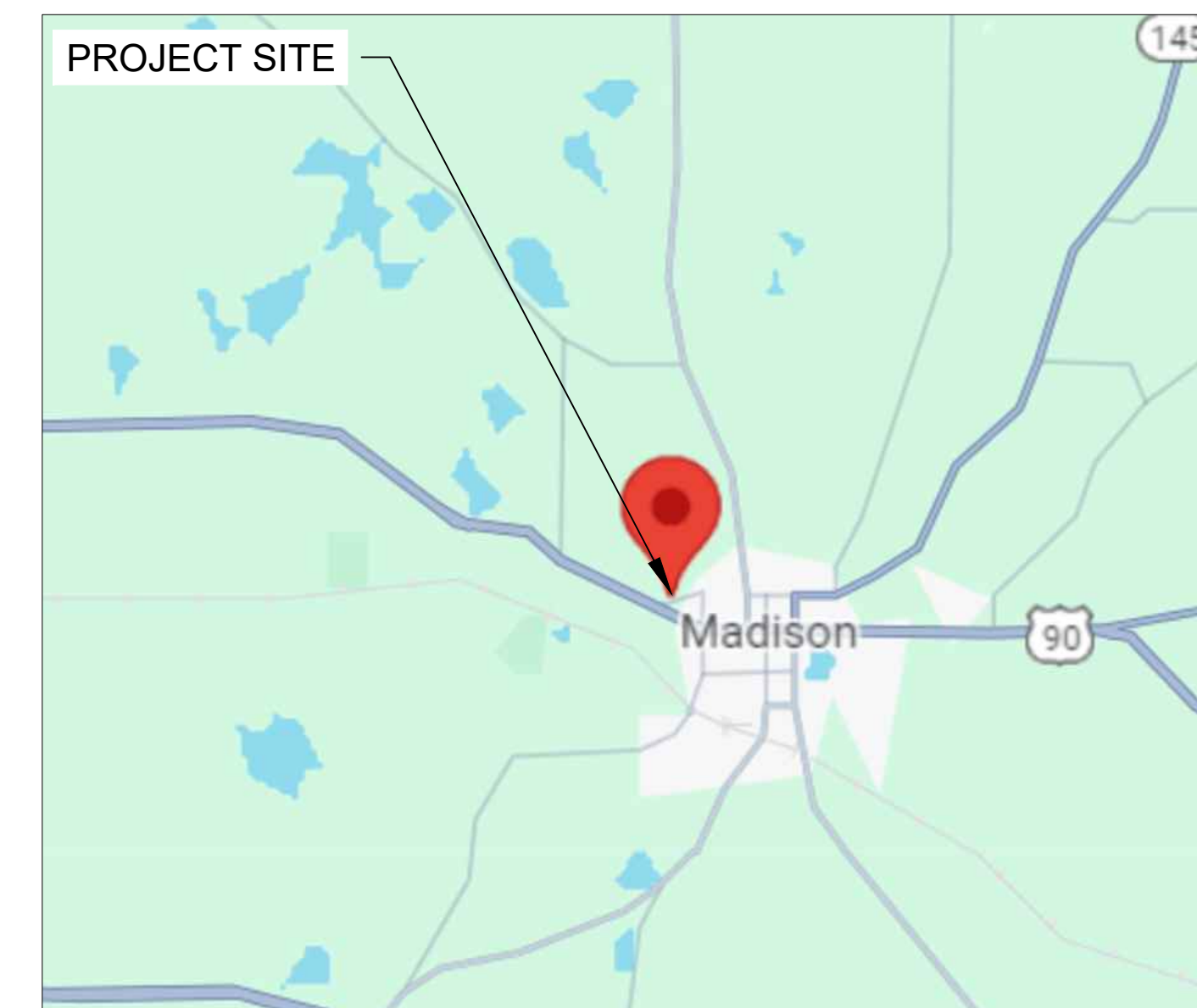
- ALL CONDUIT SIZES AND TYPES, SHALL BE LISTED FOR ITS PURPOSE AND APPROVED FOR THE SITE APPLICATIONS
- ALL PV CABLES AND HOMERUN WIRES BE #10AWG \*USE-2, PV WIRE, OR PROPRIETARY SOLAR CABLING SPECIFIED BY MFR, OR EQUIVALENT; ROUTED TO SOURCE CIRCUIT COMBINER BOXES AS REQUIRED
- ALL CONDUCTORS AND OCPD SIZES AND TYPES SPECIFIED ACCORDING TO [NEC 690.8 (A)(1) & (B)(1)], [NEC 240] [NEC 690.7] FOR MULTIPLE CONDUCTORS
- ALL PV DC CONDUCTORS IN CONDUIT EXPOSED TO SUNLIGHT SHALL BE DERATED ACCORDING TO [NEC TABLE 310.15 (B)(2)(C)] BLACK ONLY\*\*
- EXPOSED ROOF PV DC CONDUCTORS SHALL BE USE-2, 90°C RATED, WET AND UV RESISTANT, AND UL LISTED RATED FOR 600V, UV RATED SPIRAL WRAP SHALL BE USED TO PROTECT WIRE FROM SHARP EDGES
- PHASE AND NEUTRAL CONDUCTORS SHALL BE DUAL RATED THHN/THWN-2 INSULATED, 90°C RATED, WET AND UV RESISTANT, RATED FOR 600V PER NEC 2023 OR 1000V PER NEC 2023
- 4-WIRE DELTA CONNECTED SYSTEMS HAVE THE PHASE WITH THE HIGHER VOLTAGE TO GROUND MARKED ORANGE OR IDENTIFIED BY OTHER EFFECTIVE MEANS
- ALL SOURCE CIRCUITS SHALL HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION
- VOLTAGE DROP LIMITED TO 5% FOR DC CIRCUITS AND 3% FOR AC CIRCUITS
- AC CONDUCTORS >4AWG COLOR CODED OR MARKED: PHASE A OR L1- BLACK, PHASE B OR L2- RED, PHASE C OR L3- BLUE, NEUTRAL- WHITE/GRAY

**ELECTRICAL NOTES:**

- THE EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE INSTALLED ONLY BY QUALIFIED PEOPLE. A QUALIFIED PERSON IS ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED. (NEC 690.4(E) AND 705.6)
- LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION. FOR A LINE SIDE TAP CONNECTION, UTILITY NEEDS TO BE NOTIFIED WELL IN ADVANCE TO COORDINATE BUILDING ELECTRICAL SHUT OFF.
- NEW CONDUIT ROUTING SHOWN IS ESSENTIALLY SCHEMATIC. SUBCONTRACTOR SHALL LAY OUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
- ARRAY WIRING SHOULD NOT BE READILY ACCESSIBLE EXCEPT TO QUALIFIED PERSONNEL.
- ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE WATERTIGHT AND APPROVED FOR USE IN WET LOCATIONS. (NEC 314.15A).
- WIRING METHODS FOR PV SYSTEM CONDUCTORS AREN'T PERMITTED WITHIN 10 IN. OF THE ROOF DECKING OR SHEATHING EXCEPT WHERE LOCATED DIRECTLY BELOW THE ROOF SURFACE THAT'S COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT WIRING
- BACK-FED BREAKER MUST BE AT THE OPPOSITE END OF BUS BAR FROM THE MAIN BREAKER OR MAIN LUG SUPPLYING CURRENT FROM THE UTILITIES.
- ALL CONDUCTORS AND WIRE TIES EXPOSED TO SUNLIGHT ARE LISTED AS UV RESISTANT.
- CONTRACTOR SHALL FOLLOW ALL ELECTRICAL EQUIPMENT LABELING REQUIREMENTS IN NEC 690 AND NEC 2023
- MEASURE THE LINE-TO-LINE AND LINE-TO-NEUTRAL VOLTAGE OF ALL SERVICE ENTRANCE CONDUCTORS PRIOR TO INSTALLING ANY SOLAR EQUIPMENT.



**1 BUILDING PHOTO** SCALE: NTS



**2 VICINITY MAP** SCALE: NTS



INDEPENDENT GREEN TECHNOLOGIES LLC  
 3954 WEST PENSACOLA STREET,  
 TALLAHASSEE, FL 32304  
 (850) 576-7657  
 CONTRACTOR LIC#: CVC56732

**REVISIONS**

DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

**PROJECT NAME & ADDRESS**

NFC BUILDING 6  
 COMMERCIAL  
 325 TURNER DAVIS DR  
 MADISON, FL 32340, USA  
 PH.# : (850) 576-7657  
 Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
**COVER PAGE**

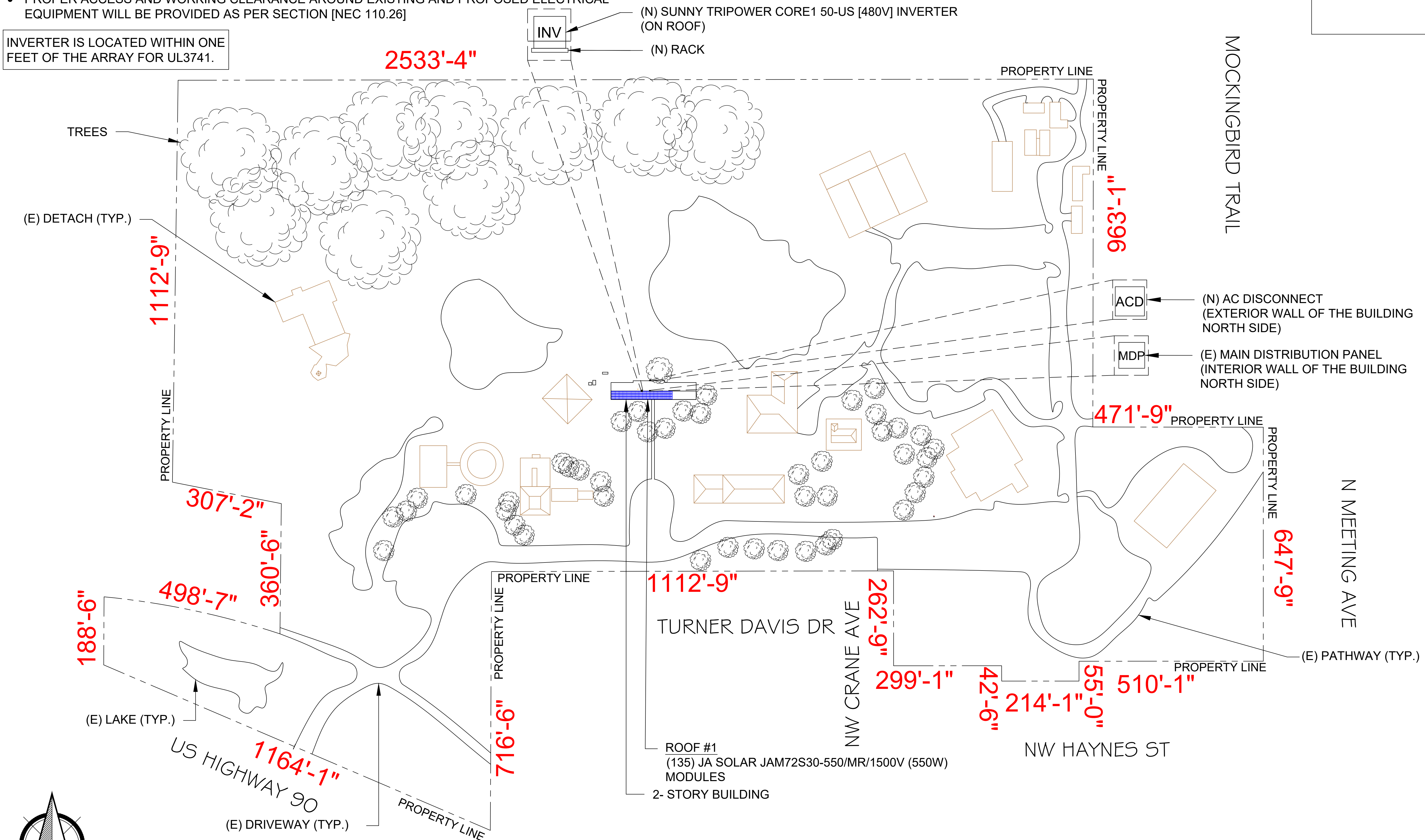
SHEET SIZE  
**ARCH FULL BLEED D 24" X 36"**

SHEET NUMBER  
**PV-0**

**SITE NOTES**

- A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
- THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS AN UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.
- THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION [NEC 110.26]

INVERTER IS LOCATED WITHIN ONE FEET OF THE ARRAY FOR UL3741.



**IGT Solar**  
 INDEPENDENT GREEN TECHNOLOGIES LLC  
 3954 WEST PENSACOLA STREET, TALLAHASSEE, FL 32304  
 (850) 576-7657  
 CONTRACTOR LIC#: CVC56732

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
 COMMERCIAL  
 325 TURNER DAVIS DR  
 MADISON, FL 32340, USA  
 PH.# : (850) 576-7657  
 Email ID : CADEN@IGTSOLAR.COM

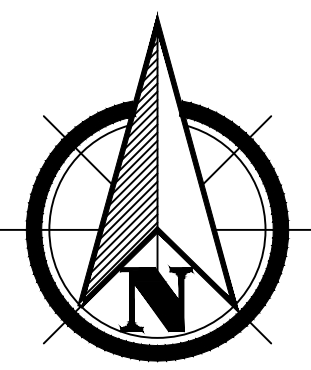
DATE: 09/26/2024

SHEET NAME  
**SITE PLAN**

SHEET SIZE  
**ARCH FULL BLEED D 24" X 36"**

SHEET NUMBER

**PV-1**



**1 PLOT PLAN WITH ROOF PLAN**

PV-1 SCALE: 1/128" = 1'-0"

MODULE TYPE, DIMENSIONS & WEIGHT	
NUMBER OF MODULES:	135 MODULES
MODULE TYPE:	JA SOLAR JAM72S30-550/MR/1500V (550W)
MODULE WEIGHT:	70.1 LBS
MODULE DIMENSIONS:	89.72" X 44.64" = 27.81 SF
UNIT WEIGHT OF AREA:	2.52 PSF

ROOF DESCRIPTION						
ROOF	ROOF TILT	AZIMUTH	RAFTER SIZE	RAFTER SPACING	SEAM SPACING	ROOF MATERIAL
#1	15°	180°	2" X 4"	24" O.C.	12" O.C.	STANDING SEAM METAL

ARRAY AREA & ROOF AREA CALC'S				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	135	3754	5586.99	67
TOTAL ROOF AREA COVERED BY ARRAY AREA (%)		3754	11377.66	33

INVERTER IS LOCATED WITHIN ONE FEET OF THE ARRAY FOR UL3741.

DESIGN SPECIFICATION	
RISK CATEGORY:	II
CONSTRUCTION:	COMMERCIAL
ZONING:	COMMERCIAL
SNOW LOAD (ASCE 7-22):	5 PSF
EXPOSURE CATEGORY:	C
WIND SPEED (ASCE 7-22):	116 MPH

LEGEND	
INV	- INVERTER
ACD	- AC DISCONNECT
MDP	- MAIN DISTRIBUTION PANEL
---	- CONDUIT
○	- VENT, ATTIC FAN (ROOF OBSTRUCTION)
●	- ROOF ATTACHMENT
—	- RAIL



INDEPENDENT GREEN TECHNOLOGIES LLC  
3954 WEST PENSACOLA STREET, TALLAHASSEE, FL 32304  
(850) 576-7657  
CONTRACTOR LIC#: CVC56732

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

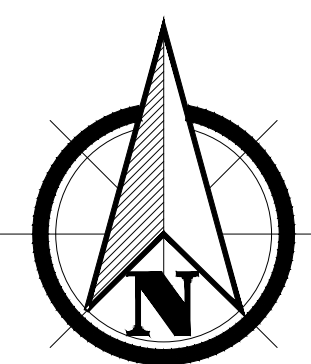
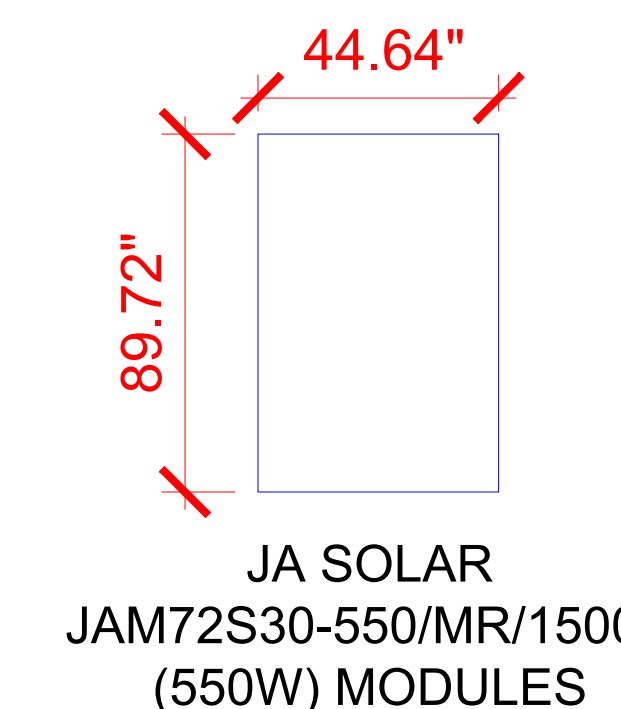
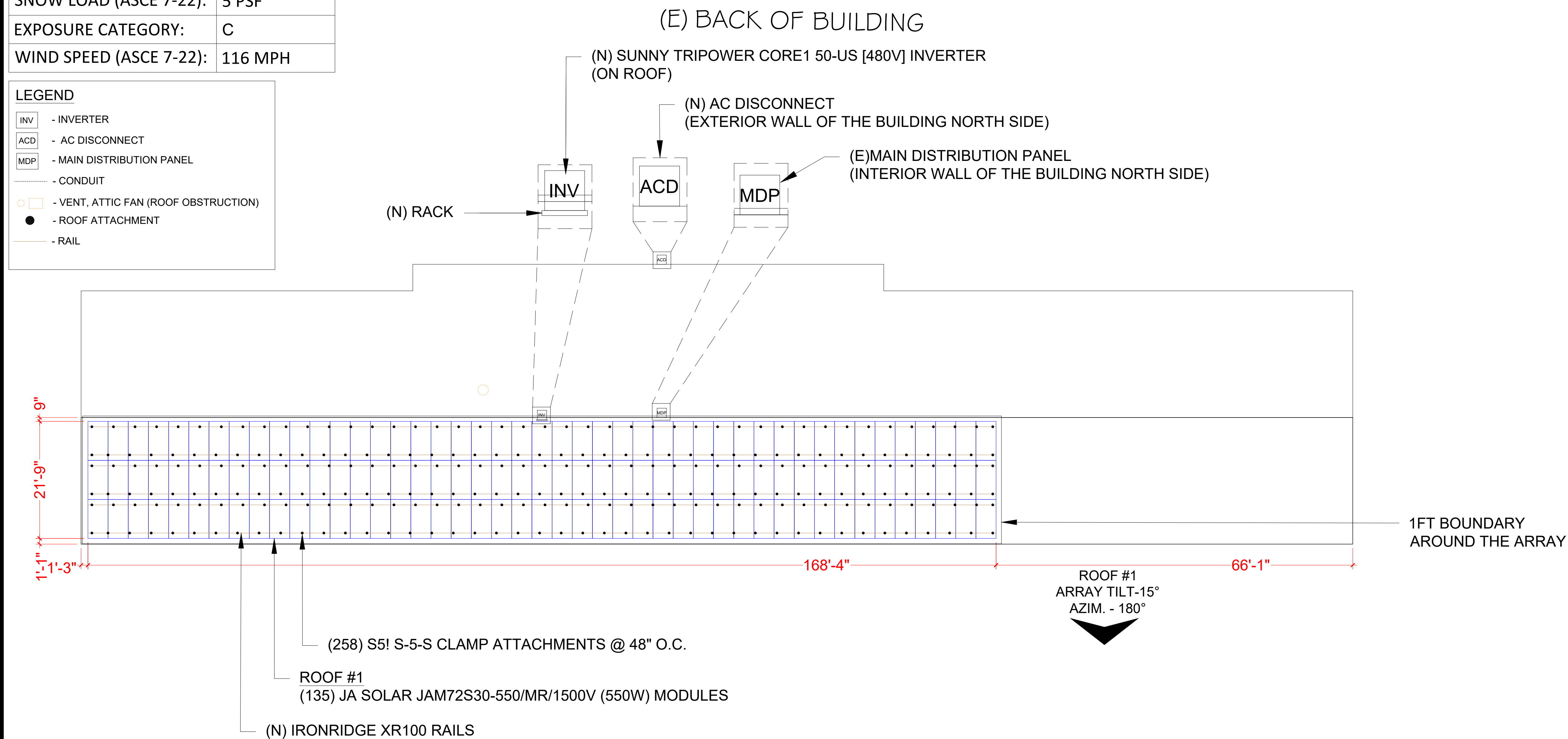
DATE: 09/26/2024

SHEET NAME  
ROOF PLAN & MODULES

SHEET SIZE  
ARCH FULL BLEED D  
24" X 36"

SHEET NUMBER

PV-2

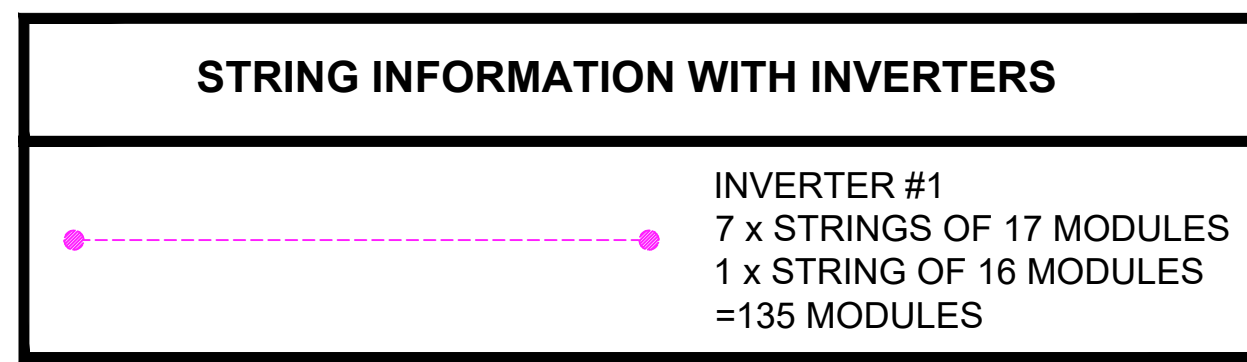


# 1 ROOF PLAN & MODULES

PV-2

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

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	135	JA SOLAR JAM72S30-550/MR/1500V (550W) MODULES
INVERTER	1	SUNNY TRIPOWER CORE1 50-US [480V] INVERTER
AC DISCONNECT	1	100A NON FUSED AC DISCONNECT, NEMA 3R, UL LISTED
ATTACHMENT	258	S51 S-5-S SEAM CLAMPS (STANDING SEAM) METAL ROOFING ATTACHMENTS
ATTACHMENT	516	M8-1.25 STAINLESS STEEL HEX FLANGE BOLT (13MM SOCKET)
ATTACHMENT	516	3/8-24 STAINLESS STEEL ROUND POINT SETSCREW (3/16 HEX DRIVE)
RAILS	90	IRONRIDGE XR-100 14FT (168")
BONDED SPLICE	84	SPLICE KIT
CLAMP	264	UNIVERSAL FASTENING OBJECT (UFO)
CLAMP	12	STOPPER SLEEVES
GROUNDING LUG	3	GROUNDING LUG



INDEPENDENT GREEN TECHNOLOGIES LLC  
3954 WEST PENSACOLA STREET, TALLAHASSEE, FL 32304  
(850) 576-7657  
CONTRACTOR LIC#: CVC56732

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

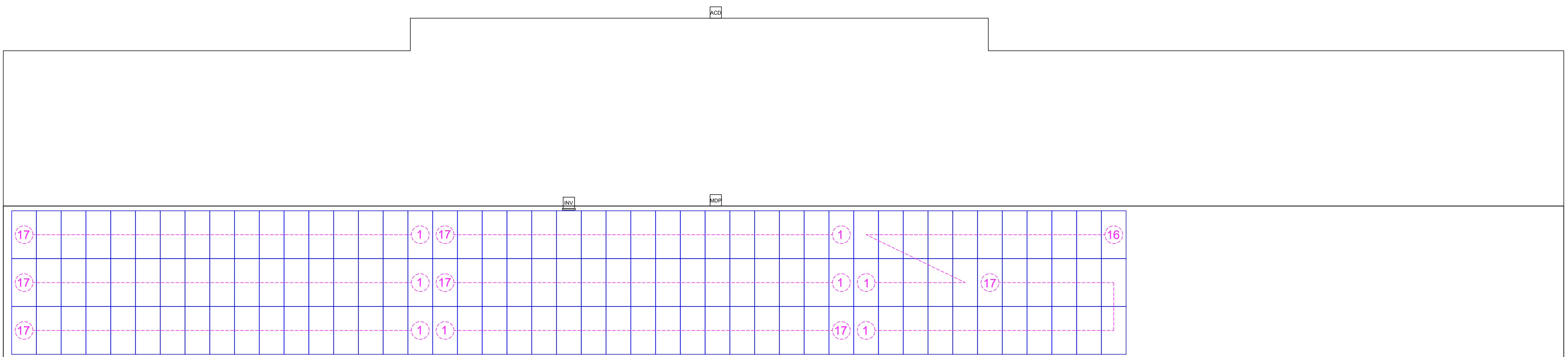
SHEET NAME  
**STRING LAYOUT & BOM**

SHEET SIZE  
**ARCH FULL BLEED D 24" X 36"**

SHEET NUMBER

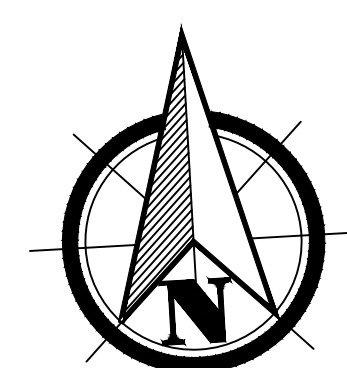
**PV-2A**

(E) BACK OF BUILDING



(E) FRONT OF BUILDING  
TURNER DAVIS DR

MOCKINGBIRD TRAIL



**1** | **STRING LAYOUT & BOM**

PV-2A | SCALE: 1/8" = 1'-0"

**LEGEND**

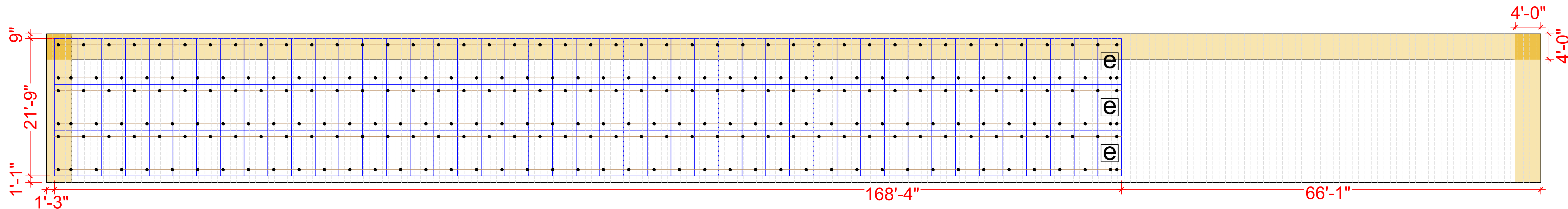
- WIND ZONE 1
- WIND ZONE 2
- WIND ZONE 3
- SEAM
- JA SOLAR JAM72S30-550/MR/1500V (550W)
- IRONRIDGE XR-100 14FT (168")
- ROOF ATTACHMENT
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- GABLE ROOF
- EXPOSED MODULES/ EDGE MODULES

PANEL HEIGHT OF ROOF (H2) 6"

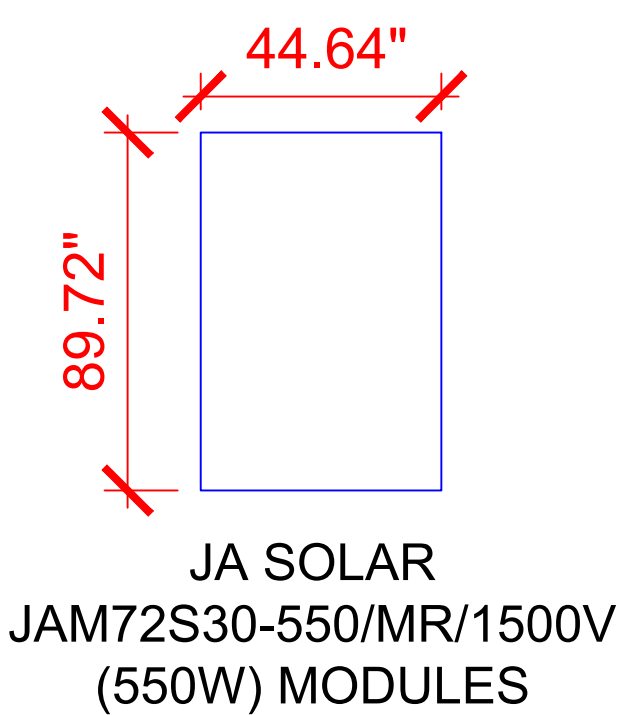
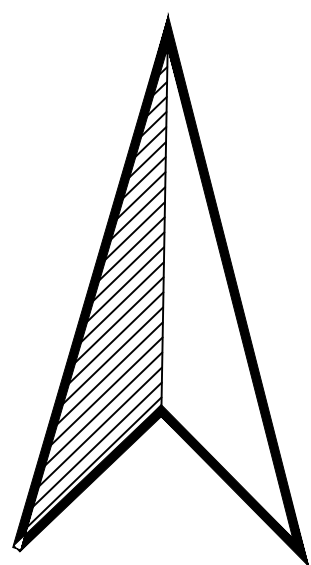
AVERAGE ROOF HEIGHT: 25 FEET

**ARRAY DESCRIPTION**

ARRAY	ARRAY TILT	AZIMUTH	RAFTER SIZE	RAFTER SPACING	SEAM SPACING	ROOF MATERIAL
#1	15°	180°	2" X 4"	24" O.C.	12" O.C.	STANDING SEAM METAL



ROOF- 1



**IGT Solar**  
INDEPENDENT GREEN  
TECHNOLOGIES LLC  
3954 WEST PENSACOLA STREET,  
TALLAHASSEE, FL 32304  
(850) 576-7657  
CONTRACTOR LIC#: CVC56732

**REVISIONS**

DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

**PROJECT NAME & ADDRESS**

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
**WIND ZONE  
CALCULATION**

SHEET SIZE  
**ARCH FULL  
BLEED D  
24" X 36"**

SHEET NUMBER

**PV-2B**



INDEPENDENT GREEN  
TECHNOLOGIES LLC  
3954 WEST PENSACOLA STREET,  
TALLAHASSEE, FL 32304  
(850) 576-7657  
CONTRACTOR LIC#: CVC56732

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
**EQUIPMENT  
ELEVATION**

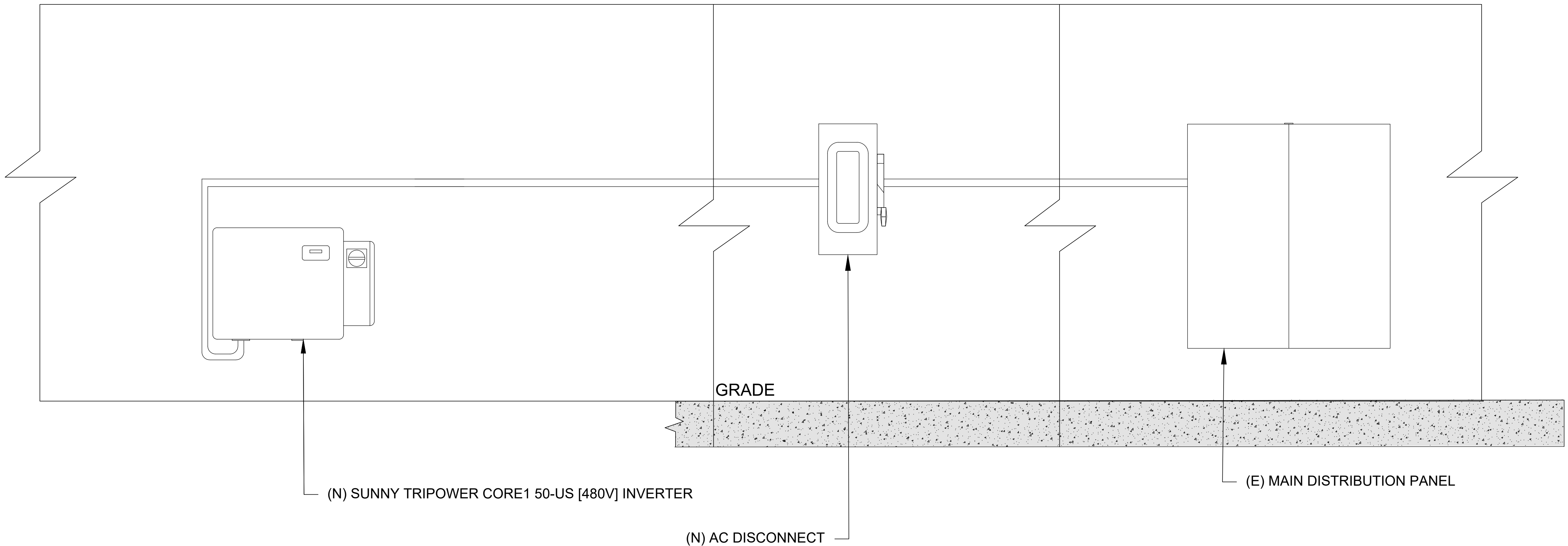
SHEET SIZE  
**ARCH FULL  
BLEED D  
24" X 36"**

SHEET NUMBER  
**PV-2C**

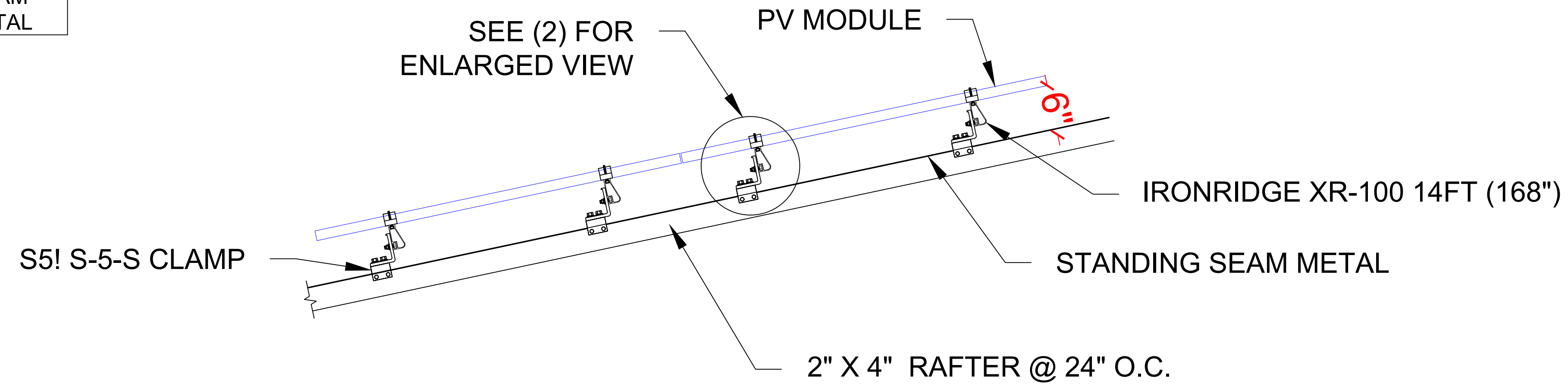
ON ROOF

EQUIPMENT ELEVATION  
EXTERIOR WALL OF THE  
BUILDING NORTH SIDE

EQUIPMENT ELEVATION  
INTERIOR WALL OF THE  
BUILDING NORTH SIDE



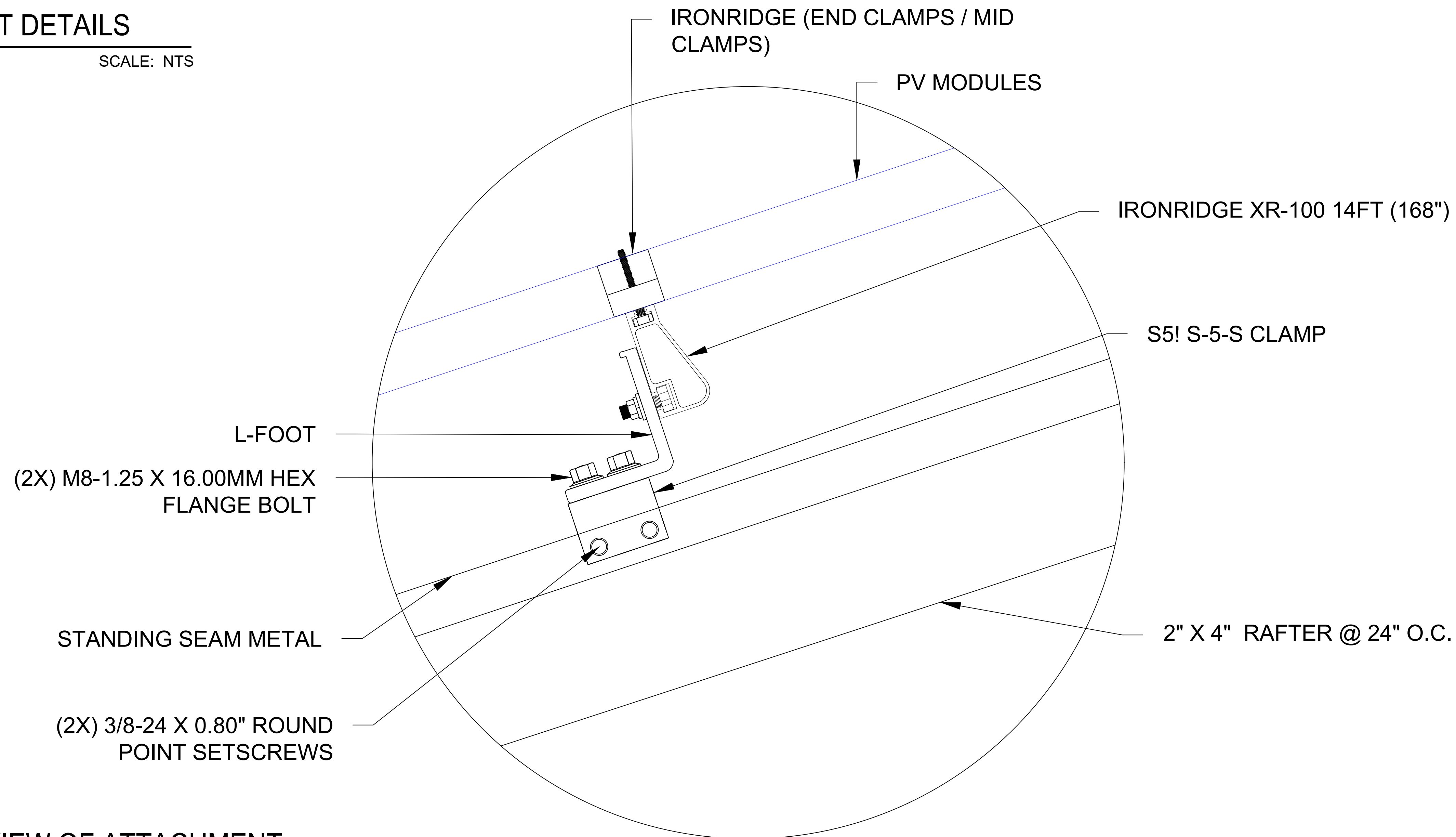
RAFTER SIZE	RAFTER SPACING	SEAM SPACING	ROOF MATERIAL
2" X 4"	24" O.C.	12" O.C.	STANDING SEAM METAL



**2 ATTACHMENT DETAILS**

PV-3

SCALE: NTS



**2 ENLARGED VIEW OF ATTACHMENT**

PV-3

SCALE: NTS

INDEPENDENT GREEN TECHNOLOGIES LLC  
3954 WEST PENSACOLA STREET, TALLAHASSEE, FL 32304  
(850) 576-7657  
CONTRACTOR LIC#: CVC56732

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
**ATTACHMENT  
DETAILS**

SHEET SIZE  
**ARCH FULL  
BLEED D  
24" X 36"**

SHEET NUMBER

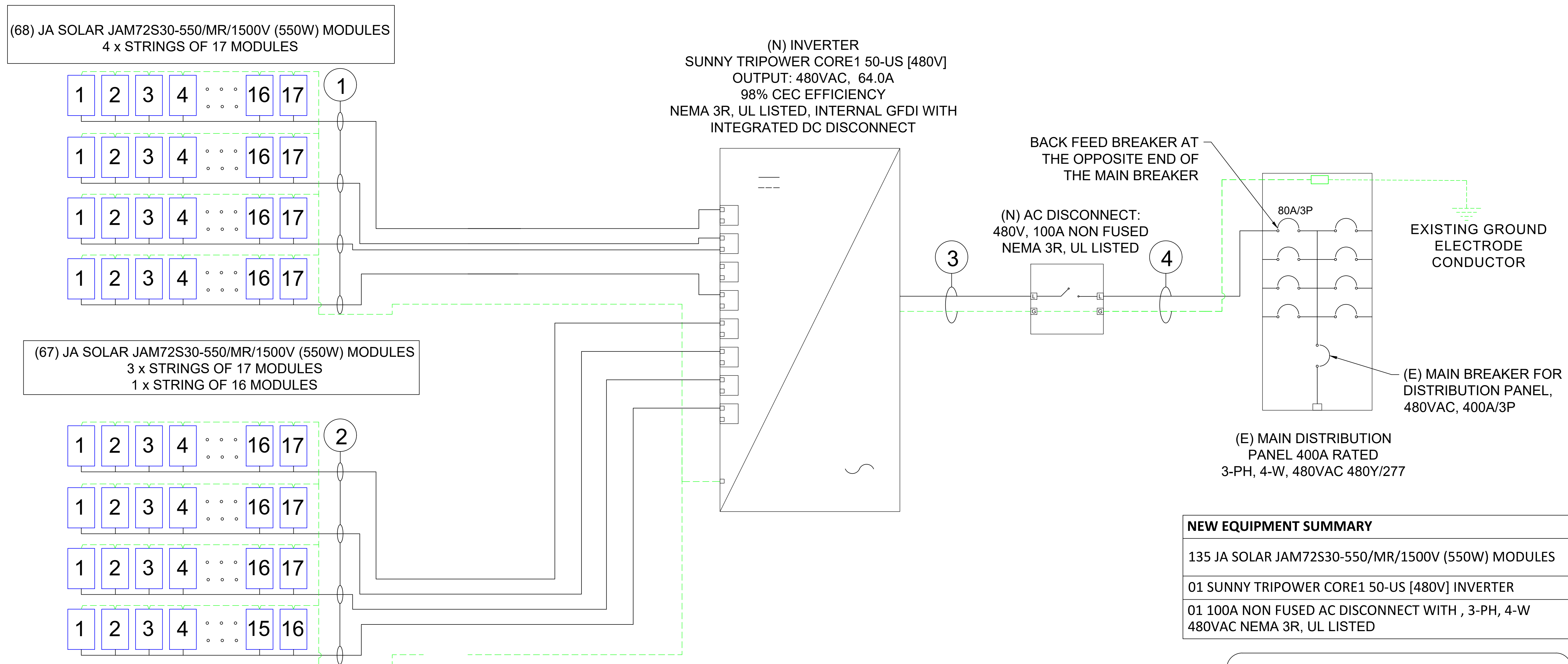
**PV-3**

ID	TYPICAL	INITIAL CONDUCTOR LOCATION	FINAL CONDUCTOR LOCATION	CONDUCTOR		CONDUIT	# NUMBER OF CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CONDUIT	CONDUIT FILL PERCENT	OCPD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT	BASE AMP.	DERATE D AMP.	WIRE AMP. TEMP RATING	LENGTH	VOLTAGE DROP
				PV WIRE	COPPER						BARE, COPPER	THWN-2, COPPER	(35°C)	(35°C)								
1	4	ARRAY	INVERTER	10 AWG	PV WIRE COPPER	OPEN AIR	1	2	N/A	N/A	6 AWG	BARE, COPPER	0.96	(35°C)	N/A	14.00A	17.5A	N/A	N/A	90°C	68FT	0.33%
2	4	ARRAY	INVERTER	10 AWG	PV WIRE COPPER	OPEN AIR	1	2	N/A	N/A	6 AWG	BARE, COPPER	0.96	(35°C)	N/A	14.00A	17.5A	N/A	N/A	90°C	72FT	0.35%
3	1	INVERTER	AC DISCONNECT	3 AWG	THWN-2 COPPER	MIN 1.25" Dia EMT	1	4	28.38%	N/A	8 AWG	THWN-2, COPPER	0.96	(35°C)	0.8	64.0A	80.0A	115A	88.32A	90°C	175FT	1.14%
4	1	AC DISCONNECT	MAIN DISTRIBUTION PANEL	3 AWG	THWN-2 COPPER	MIN 1.25" Dia EMT	1	4	28.38%	80A	8 AWG	THWN-2, COPPER	0.96	(35°C)	0.8	64.0A	80.0A	115A	88.32A	90°C	5FT	0.03%

NOTE: ALL EQUIPMENT TERMINAL TEMPERATURE RATING AT 75°C.

NOTE: THE CONDUIT WILL BE MIN 7/8" OFF THE ROOF SURFACE.

INVERTER IS LOCATED WITHIN ONE FEET OF THE ARRAY FOR UL3741.



NEW EQUIPMENT SUMMARY	
135	JA SOLAR JAM72S30-550/MR/1500V (550W) MODULES
01	SUNNY TRIPOWER CORE1 50-US [480V] INVERTER
01	100A NON FUSED AC DISCONNECT WITH , 3-PH, 4-W 480VAC NEMA 3R, UL LISTED

SYSTEM RATING
74.25 KWDC
50.00 KWAC
68.53 CEC KWAC

INTERCONNECTION
120% RULE - NEC 705.12(B)(3)
UTILITY FEED + SOLAR BACKFEED 400A + 80A = 480A
BUSS RATING x 120% 400A x 120% = 480A

SERVICE INFO	
DISTRIBUTION PANEL:	400A
DISTRIBUTION PANEL BRAND:	SIEMENS
MAIN CIRCUIT BREAKER RATING:	400A
MAIN SERVICE VOLTAGE:	480VAC
MAIN SERVICE LOCATION:	EAST
SERVICE FEED SOURCE:	UNDERGROUND

INDEPENDENT GREEN TECHNOLOGIES LLC  
3954 WEST PENSACOLA STREET, TALLAHASSEE, FL 32304  
(850) 576-7657  
CONTRACTOR LIC#: CVC56732

REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
ELECTRICAL LINE DIAGRAM & CALS.

SHEET SIZE  
ARCH FULL BLEED D  
24" X 36"

SHEET NUMBER  
PV-4



SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL	JA SOLAR JAM72S30-550/MR/1500V (550W)
VMP	41.96 A
IMP	13.11 A
VOC	49.90 V
ISC	14.00A
TEMP. COEFF. VOC	-0.275%/°C
MODULE DIMENSION	89.72"(L) x 44.64"(W)
PANEL WATTAGE	550W

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL	SUNNY TRIPOWER CORE1 50-US [480V]
NOMINAL AC POWER	50000 W
NOMINAL OUTPUT CURRENT	64.0 A
NOMINAL OUTPUT VOLTAGE	480 VAC

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-7°C
AMBIENT TEMP (HIGH TEMP 2%)	35°C
CONDUIT HEIGHT	7/8"
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.275%/°C

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
0.80	4-6
0.70	7-9
0.50	10-20
0.45	21-30



REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
 COMMERCIAL  
 325 TURNER DAVIS DR  
 MADISON, FL 32340, USA  
 PH.# : (850) 576-7657  
 Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
 SPECIFICATIONS  
 & NOTES

SHEET SIZE  
 ARCH FULL  
 BLEED D  
 24" X 36"

SHEET NUMBER

PV-4A

**! WARNING**  
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

CODE : PER NEC 110.27(C) & OSHA 1910.145(f)(7)

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

CODE : PER NEC 110.27(C) & OSHA 1910.145(f)(7)

**! WARNING**  
RACEWAY IS ENERGIZED WHEN IN THE OPEN POSITION. DO NOT RELOCATE OR CUT

**2 Conduit**  
FROM AC DISCONNECT TO TAP LOCATION

**1 Junction Box**  
Scale: NTS

**! WARNING**  
THE DISCONNECTION OF THE GROUNDED CONDUCTOR(S) MAY RESULT IN OVERVOLTAGE OF THE EQUIPMENT

CODE : PER NEC 690.13(B)

**PHOTOVOLTAIC SYSTEM AC DISCONNECT**  
RATED AC OUTPUT CURRENT 64.0 AMPS  
NOMINAL OPERATING AC VOLTAGE 480 VOLTS

LABEL LOCATION:  
POINT OF INTERCONNECTION:  
(PER CODE: NEC 690.54)

**3 Inverter**  
Scale: NTS

**! WARNING**  
THIS EQUIPMENT FED BY MULTIPLE SOURCES: TOTAL RATING OF ALL OVER CURRENT DEVICES EXCLUDING MAIN POWER SUPPLY SHALL NOT EXCEED AMPACITY OF BUSBAR

CODE : PER NEC 690.13(B)

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

CODE : PER NEC 706.15(C)(4) and NEC 690.13(B)

**4 AC Disconnects**  
Scale: NTS

**! WARNING**  
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

CODE : PER NEC 690.13(B)

**! 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  
CODE : PER NEC 706.15(C)(4) and NEC 690.13(B)

**5 Panel Board**  
Scale: NTS

**! WARNING**  
DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

CODE : PER NEC 690.59 and NEC 705.12(D)(3)

**! WARNING**  
POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE.

CODE : PER NEC 705.12(B)(3)(2)

PANEL BOARD ENERGIES FROM TWO SOURCES OF AC POWER  
SOLAR 64.0A AT 480V  
UTILITY GRID 400A AT 480V

CODE : PER NEC 690.54

**MAIN PHOTOVOLTAIC SYSTEM DISCONNECT**

CODE : PER NEC 690.13(B)

**RAPID SHUTDOWN FOR SOLAR PV SYSTEM**

CODE : PER NEC 690.56(C)(2)

**DO NOT DISCONNECT UNDER LOAD**

CODE : PER NEC 690.15(B) and NEC 690.33(D)(2)

**! WARNING**  
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

CODE : PER NEC 110.27(C) and OSHA 1910.145(f)(7)

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

CODE : PER NEC 706.15(C)(4) and NEC 690.13(B)

**! WARNING**  
SINGLE 120-VOLT SUPPLY DO NOT CONNECT MULTI WIRE BRANCH CIRCUITS

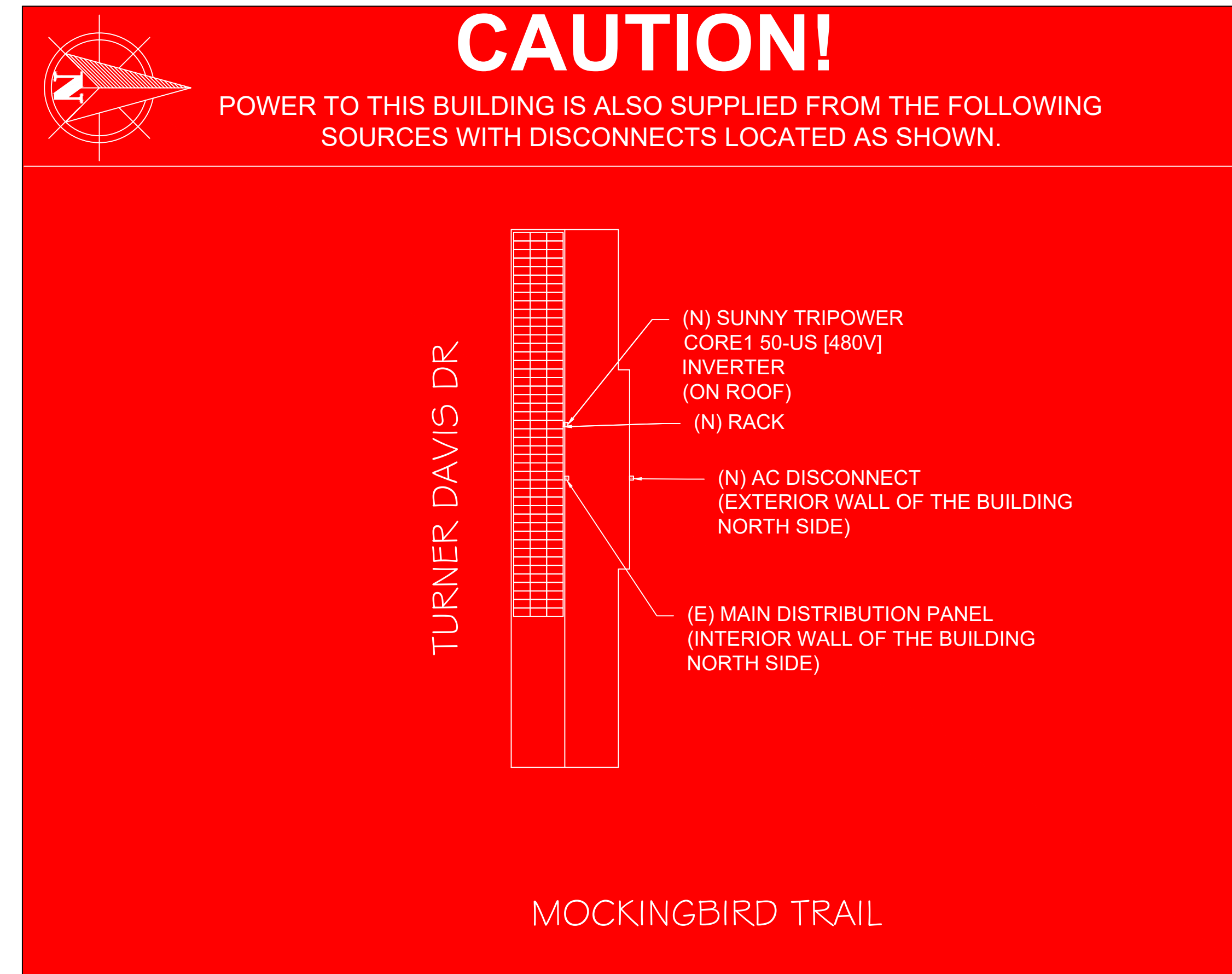
CODE : PER NEC 706.15(C)(4) and NEC 690.13(B)

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

CODE : PER NEC 605.11.3.1(1) and NEC 690.56(C)

**6 Main Distribution Board**  
Scale: NTS



CODE: PER NEC 705.10 & 690.56(A)(B)  
LABEL LOCATION:  
MAIN SERVICE PANEL & UTILITY METER&SUB PANEL, INVERTER, AC DISCONNECT

**CONTRACTORS NOTES:**  
• ALL OF THESE LABELS ARE APPLICABLE.

**ADHESIVE FASTENED SIGNS:**  
• ANSI Z535.4-2011 PRODUCT SAFETY SIGNS AND LABELS, PROVIDES GUIDELINES FOR SUITABLE FONT SIZES, WORDS, COLORS, SYMBOLS, AND LOCATION REQUIREMENTS FOR LABELS. NEC 110.21(B)(1)  
• THE LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. NEC 110.21(B)(3)  
• ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT.



REVISIONS		
DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
SIGNAGE & WARNING LABEL

SHEET SIZE  
ARCH FULL BLEED D  
24" X 36"

SHEET NUMBER

PV-5



- Higher output power
- Lower LCOE
- Less shading and lower resistive loss
- Better mechanical loading tolerance

**Superior Warranty**

- 12-year product warranty
- 25-year linear power output warranty

**Comprehensive Certificates**

- IEC 61215, IEC 61730
- ISO 9001:2015 Quality management systems
- ISO 14001:2015 Environmental management systems
- ISO 45001:2018 Occupational health and safety management systems



SUNNY TRIPOWER CORE1 33-US / 50-US / 62-US



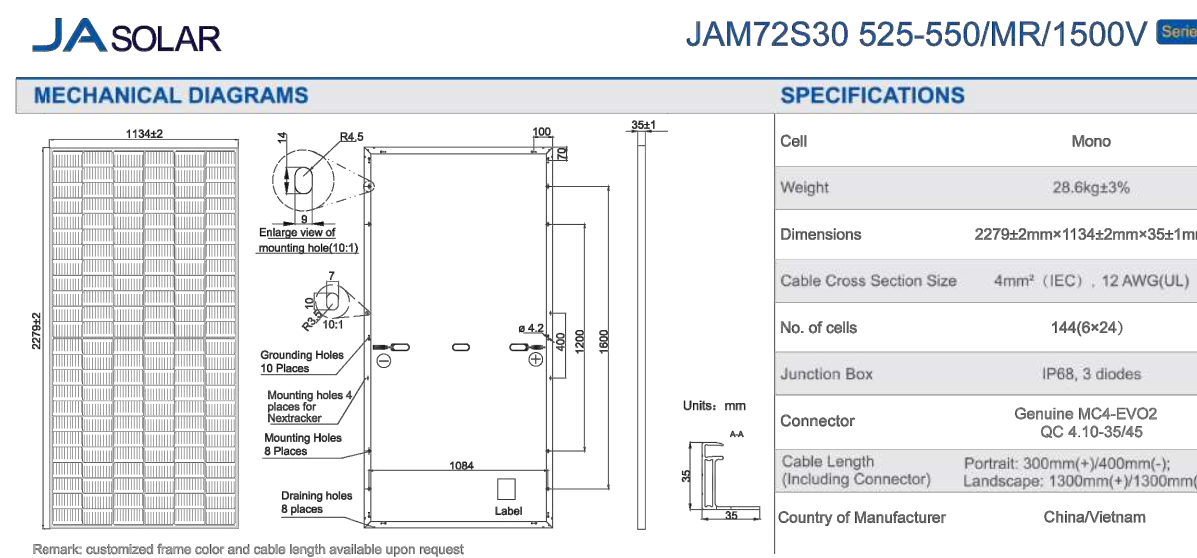
- Fully integrated**
  - Innovative design requires no additional racking for rooftop installation
  - Integrated DC and AC disconnects and overvoltage protection
  - 12-draw string input for reduced labor and material costs
- Increased power, flexibility**
  - Multiple power ratings for small to large scale commercial PV installations
  - 5x-MPP trackers for flexible stringing and maximum power production
  - OptiCool™ Global Peak Shave, tolerant MPP tracking
- Enhanced safety, reliability**
  - Advanced SunSpec P.C. signal for module-level rapid shutdown compliance to 2017 NEC
  - Next-gen DC AFCI arc-fault protection certified to new Standard UL 1699B
- Smart monitoring, control, service**
  - Advanced smart inverter grid support capabilities
  - Increased ROI with SMA emonOS cross sector energy management platform
  - SMA Smart Connected positive CMAA solution reduces time spent diagnosing and servicing in the field

SUNNY TRIPOWER CORE1 33-US / 50-US / 62-US

It stands on its own

The Sunny Tripower CORE1 is the world's first free-standing PV inverter for commercial rooftops, carports, ground mount and repowering legacy solar projects. Now with expanded features and new power classes, the CORE1 is the most versatile, cost-effective commercial solution available. From distribution to construction to operation, the Sunny Tripower CORE1 enables logistical, material, labor and service cost reductions. Integrated SunSpec P.C. for rapid shutdown and enhanced DC AFCI arc-fault protection ensure compliance to the latest safety codes and standards. With Sunny Tripower CORE1 and SMA's emonOS cross sector energy management platform, system integrators can deliver comprehensive commercial energy solutions for increased ROI.

www.SMA-America.com

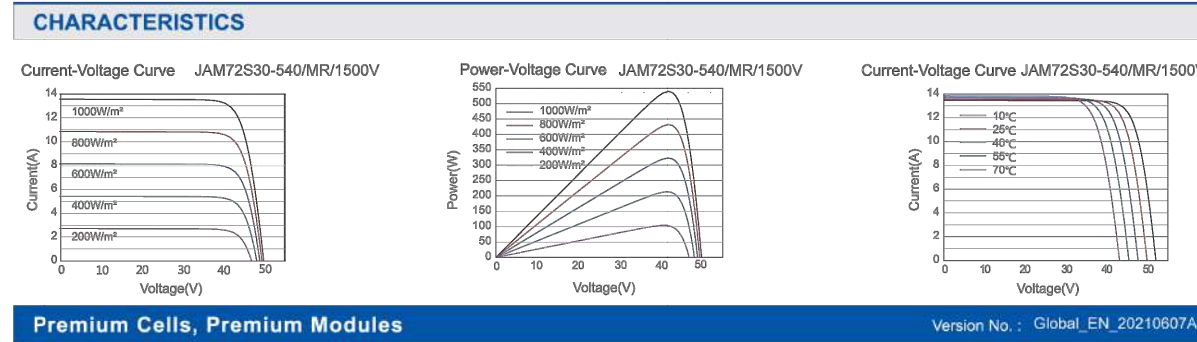


**ELECTRICAL PARAMETERS AT STC**

TYPE	JAM72S30-525/MR/1500V	JAM72S30-530/MR/1500V	JAM72S30-535/MR/1500V	JAM72S30-540/MR/1500V	JAM72S30-545/MR/1500V	JAM72S30-550/MR/1500V
Rated Maximum Power(Pmax) [W]	525	530	535	540	545	550
Open Circuit Voltage(Voc) [V]	49.15	49.30	49.45	49.60	49.75	49.90
Maximum Power Voltage(Vmp) [V]	41.15	41.31	41.47	41.64	41.80	41.96
Short Circuit Current(Isc) [A]	13.85	13.72	13.79	13.88	13.93	14.00
Maximum Power Current(Imp) [A]	12.76	12.83	12.90	12.97	13.04	13.11
Module Efficiency [%]	20.3	20.5	20.7	20.9	21.1	21.3

**ELECTRICAL PARAMETERS AT NOCT**

TYPE	JAM72S30-525/MR/1500V	JAM72S30-530/MR/1500V	JAM72S30-535/MR/1500V	JAM72S30-540/MR/1500V	JAM72S30-545/MR/1500V	JAM72S30-550/MR/1500V
Rated Max Power(Pmax) [W]	397	401	405	408	412	416
Open Circuit Voltage(Voc) [V]	48.05	48.18	48.31	48.43	48.55	48.68
Max Power Voltage(Vmp) [V]	38.36	38.57	38.78	38.99	39.20	39.43
Short Circuit Current(Isc) [A]	10.97	11.01	11.06	11.09	11.13	11.17
Max Power Current(Imp) [A]	10.35	10.39	10.43	10.47	10.51	10.55



**Technical data\***

	Sunny Tripower CORE1 33-US	Sunny Tripower CORE1 50-US	Sunny Tripower CORE1 62-US
<b>Input (DC)</b>			
Maximum array power	50000 Wp 31C	75000 Wp 31C	93750 Wp 31C
Maximum system voltage	1000 V	1000 V	1000 V
Rated MPP voltage range	330 V - 800 V	500 V - 800 V	550 V - 800 V
MPP operating voltage range	150 V - 1000 V	150 V - 1000 V	150 V - 118 V
Minimum DC voltage / start voltage	150 V / 118 V	150 V / 118 V	150 V / 118 V
MPP trackers / string per MPP tracker	6 / 2	6 / 2	6 / 2
Maximum operating input current / per MPP tracker	100 A / 20 A	100 A / 20 A	100 A / 20 A
Maximum short circuit current per MPP / per string input	30 A / 30 A	30 A / 30 A	30 A / 30 A
<b>Output (AC)</b>			
AC installed power	33300 W	50000 W	62300 W
Maximum apparent power	33000 VA	50000 VA	62000 VA
Output phase / line connectors	3 / 3/3/PE	3 / 3/3/PE	3 / 3/3/PE
Nominal AC voltage	480 V / 277 V WYE	480 V / 277 V WYE	480 V / 277 V WYE
AC voltage range	40 A	24 A	20 V
Maximum output current	40 A	64 A	73.5 A
Rated grid frequency	50 Hz	50 Hz	50 Hz
Grid frequency range	50 Hz, 60 Hz / 0 Hz - 10 Hz	50 Hz, 60 Hz / 0 Hz - 10 Hz	50 Hz, 60 Hz / 0 Hz - 10 Hz
Power factor at rated power / adjustable displacement	1 / 0.9 leading - 0.9 lagging	1 / 0.9 leading - 0.9 lagging	1 / 0.9 leading - 0.9 lagging
THFi (THD)	< 3%	< 3%	< 3%
<b>Efficiency</b>			
CEC efficiency (preliminary)	97.5%	98%	98%
<b>Protection and safety features</b>			
Load shed DC disconnect	●	●	●
Load shed AC disconnect	●	●	●
Ground fault monitoring: Rise / Differential current	●	●	●
DC AFCI arc fault protection	●	●	●
SunSpec P.C. signal for rapid shutdown	●	●	●
DC reverse polarity protection	●	●	●
AC short circuit protection	●	●	●
DC surge protection: Type 2 / Type 1+2	●	●	●
AC surge protection: Type 2 / Type 1+2	●	●	●
Protection class / overvoltage category (as per UL 84C)	1 / IV	1 / IV	1 / IV
<b>General data</b>			
Device dimensions (W/H/D)	621 mm / 723 mm / 569 mm (24.4 in x 28.8 in x 22.4 in)	621 mm / 723 mm / 569 mm (24.4 in x 28.8 in x 22.4 in)	621 mm / 723 mm / 569 mm (24.4 in x 28.8 in x 22.4 in)
Device weight	84 kg / 185 lbs	84 kg / 185 lbs	84 kg / 185 lbs
Operating temperature range	-25 °C - +60 °C (13 °F - +140 °F)	-25 °C - +60 °C (13 °F - +140 °F)	-25 °C - +60 °C (13 °F - +140 °F)
Storage temperature range	-40 °C - +70 °C (-40 °F - +158 °F)	-40 °C - +70 °C (-40 °F - +158 °F)	-40 °C - +70 °C (-40 °F - +158 °F)
Audible noise emissions (full power @ 1m and 22 °C)	65 dB(A)	65 dB(A)	65 dB(A)
Energy consumption at night	5 W	5 W	5 W
Topology	Transformerless	Transformerless	Transformerless
Cooling Concept	OptiCool (forced convection, variable speed fan)	OptiCool (forced convection, variable speed fan)	OptiCool (forced convection, variable speed fan)
Induction protection rating	Type A5, IEC 61801-2	Type A5, IEC 61801-2	Type A5, IEC 61801-2
Maximum permissible relative humidity (non-condensing)	100%	100%	100%
<b>Additional information</b>			
Mounting	Free-standing with included mounting feet	Free-standing with included mounting feet	Free-standing with included mounting feet
DC connection	Amphion UTX PV connectors	Amphion UTX PV connectors	Amphion UTX PV connectors
AC connection	Screw terminals: 4 AWG to 4/0 AWG CU/AL	Screw terminals: 4 AWG to 4/0 AWG CU/AL	Screw terminals: 4 AWG to 4/0 AWG CU/AL
LED indicators (Status / Fault / Communication)	● D / ● / ● / ●	● D / ● / ● / ●	● D / ● / ● / ●
Data protocols (Status / Alarm / RS485)	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●
Multi-function relay	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●
Optional Global Peak Shave (advanced MPP tracking)	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●
Integrated Power Control (I/O on Demand 24/7)	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●
Optional optional SMA Fast Sync Controller compatible	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●
SMA Smart Connected (proactive monitoring and service support)	● / ● / ● / ●	● / ● / ● / ●	● / ● / ● / ●
<b>Certification (as of June 2018)</b>			
UL 1741, UL 1699B, UL 1998, IEEE 1547, CAN/CSA-C22.2 No. 40709	UL 1741, UL 1699B, UL 1998, IEEE 1547, CAN/CSA-C22.2 No. 40709	UL 1741, UL 1699B, UL 1998, IEEE 1547, CAN/CSA-C22.2 No. 40709	UL 1741, UL 1699B, UL 1998, IEEE 1547, CAN/CSA-C22.2 No. 40709
FCC compliance	FCC Part 15 Class A	FCC Part 15 Class A	FCC Part 15 Class A
Grid interconnection standards	UL 1741, CA, CA Rule 21, NERC D, NERC S, IAH	UL 1741, CA, CA Rule 21, NERC D, NERC S, IAH	UL 1741, CA, CA Rule 21, NERC D, NERC S, IAH
Advanced grid support capabilities	L/NRST, L/NRST, Volt/VAr, Volt/Watt, Frequency/Watt, Ramp Rate Control, Fixed Power Factor	L/NRST, L/NRST, Volt/VAr, Volt/Watt, Frequency/Watt, Ramp Rate Control, Fixed Power Factor	L/NRST, L/NRST, Volt/VAr, Volt/Watt, Frequency/Watt, Ramp Rate Control, Fixed Power Factor
<b>Warranty</b>			
Standard	10 years	10 years	10 years
Optional extensions	15 / 20 years	15 / 20 years	15 / 20 years
10 Optional features	● Standard features	● Standard features	● Standard features
Type designation	STP93-US-41	STP93-US-41	STP93-US-41



Toll Free +1 888 4 SMA USA www.SMA-America.com SMA America, LLC



**REVISIONS**

DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : CADEN@IGTSOLAR.COM

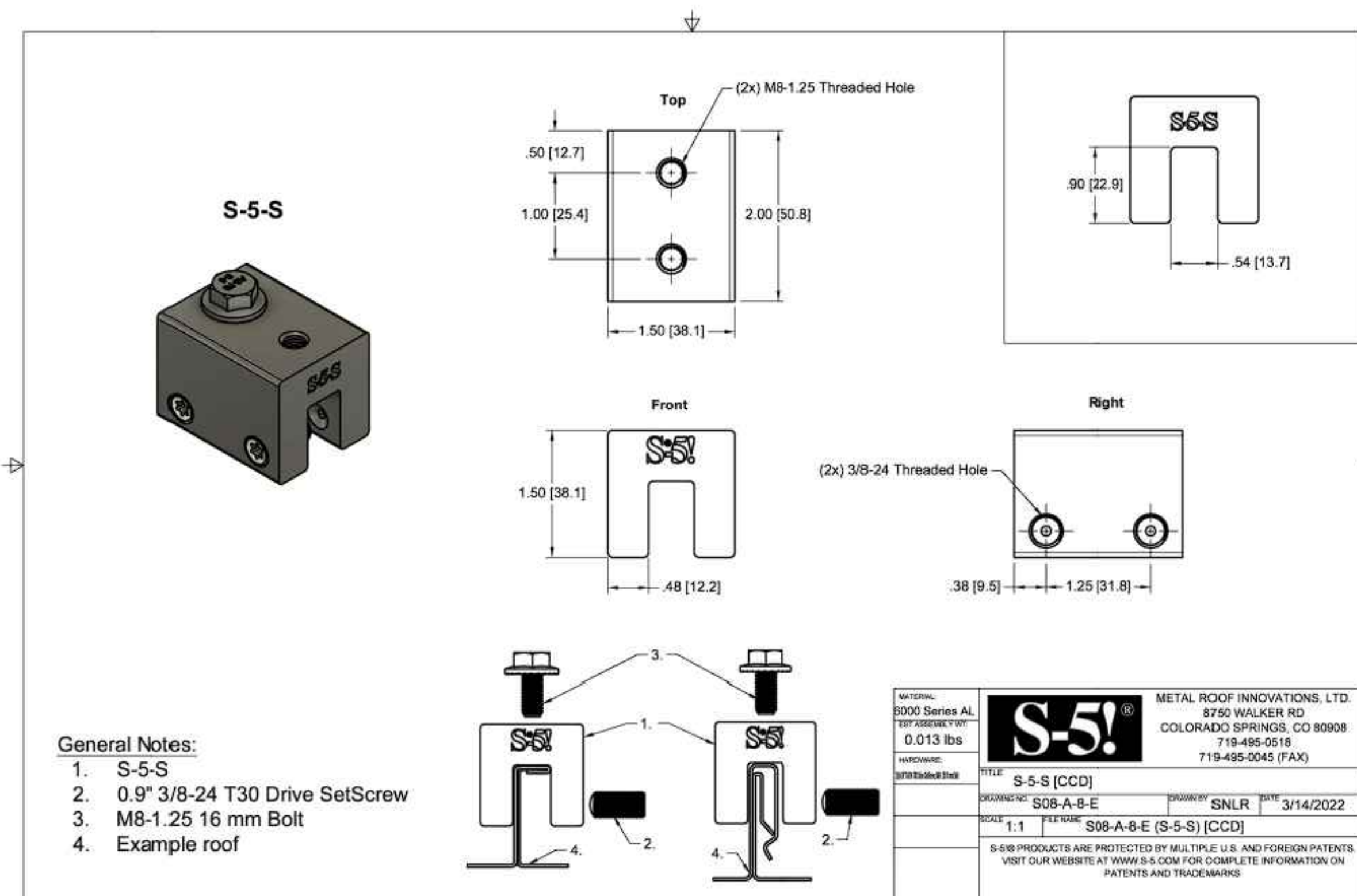
DATE: 09/26/2024

SHEET NAME  
EQUIPMENT SPECIFICATIONS

SHEET SIZE  
ARCH FULL BLEED D 24" X 36"

SHEET NUMBER

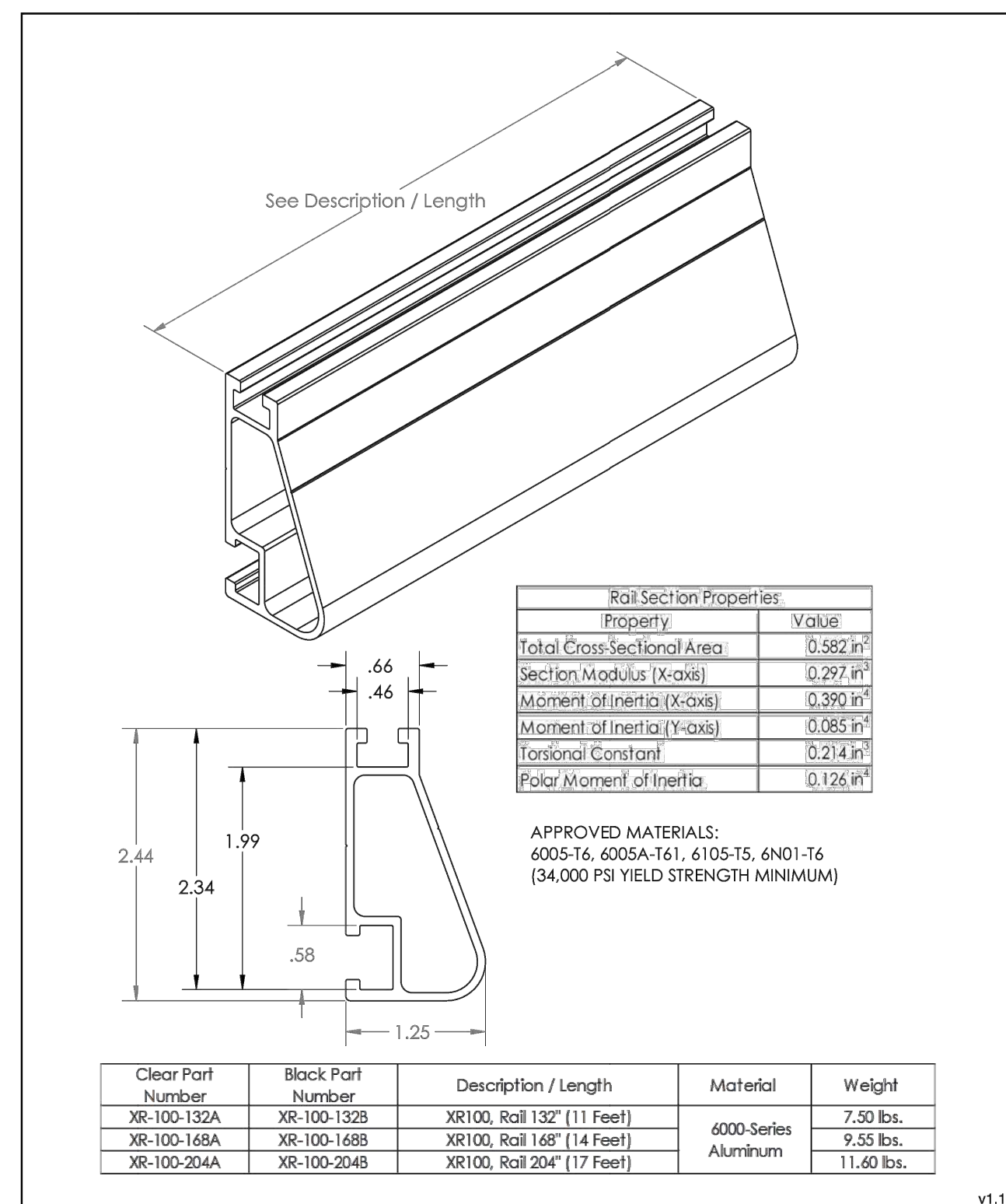
PV-6



Cut Sheet



XR100® Rail



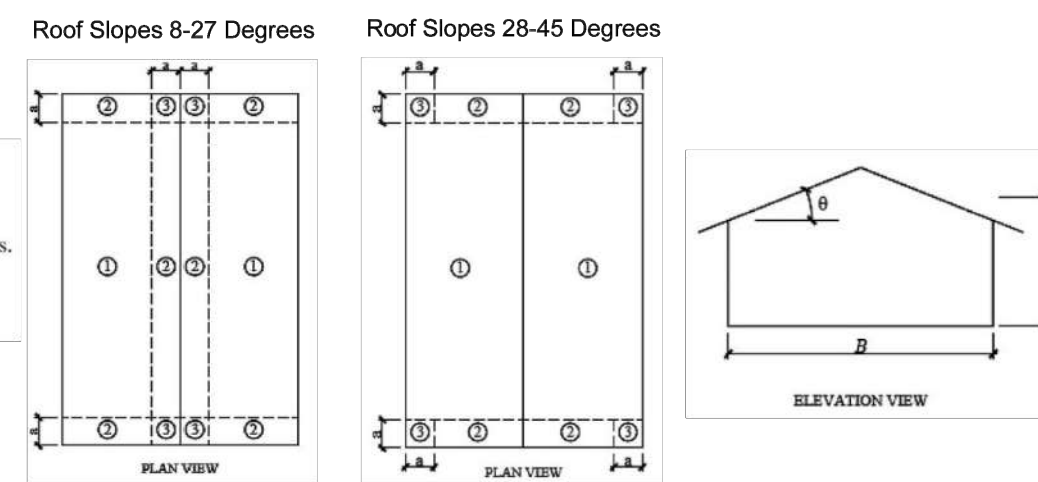
Gable Roof Flush Mount System Span Table (inches) - Portrait or Landscape Installation  
 Max Module Length: 92.5", Max Module SF: 29.5 SF

Wind Speed (mph)	Roof Slope (deg)	Exposure B						Exposure C						Exposure D																							
		Ground Snow: 0 psf		10 psf		Exposed Mod.		Edge Mod.		Ground Snow: 0 psf		10 psf		Exposed Mod.		Edge Mod.		Ground Snow: 0 psf		10 psf		Exposed Mod.		Edge Mod.													
115	8-20	112	102	91	96	96	91	100	78	69	72	61	53	106	81	72	96	81	72	75	64	50	59	42	33	92	73	64	66	51	35	51	33	28			
115	21-27	110	109	104	93	93	93	105	85	79	81	67	64	109	88	83	93	88	83	85	69	64	68	54	44	99	79	74	93	79	74	77	61	54	64	43	35
115	28-45	107	107	100	92	92	92	102	90	80	80	72	65	106	96	89	92	92	83	83	75	66	67	61	53	96	85	76	92	85	76	75	68	60	61	56	42
120	8-20	112	96	86	96	96	96	92	73	65	69	58	46	98	77	69	96	77	69	72	58	45	55	38	30	85	69	61	85	69	61	64	47	39	45	32	25
120	21-27	110	104	98	93	93	93	100	80	75	78	64	60	104	84	78	93	84	78	81	65	60	65	48	39	96	75	72	93	75	72	72	54	45	60	38	30
120	28-45	107	107	96	92	92	92	97	86	76	76	72	64	101	89	79	92	89	79	79	72	64	64	58	48	91	81	72	91	81	72	72	64	57	58	50	38
130	8-20	112	86	77	86	86	77	81	66	58	64	48	38	86	69	61	66	69	61	64	44	36	45	32	26	75	61	48	75	61	48	55	32	26	39	29	
130	21-27	110	96	88	93	93	88	90	72	67	72	58	50	96	75	72	93	76	72	74	58	48	60	39	32	85	68	64	85	68	64	66	44	32	53	32	25
130	28-45	107	98	88	92	92	88	88	79	72	72	64	57	92	82	72	92	82	72	72	65	57	58	51	38	83	74	65	83	74	65	65	58	44	49	41	32
140	8-20	101	78	72	96	78	72	72	60	44	57	39	30	78	64	51	78	64	51	56	33	29	40	26	22	68	51	36	68	51	36	45	37	22	38	22	18
140	21-27	106	85	80	93	85	80	83	66	61	66	50	41	86	69	64	66	67	45	33	54	32	26	78	64	55	78	64	55	61	33	26	48	27	20		
140	28-45	102	91	81	92	91	81	81	72	64	65	59	49	84	75	66	84	75	66	65	59	45	51	42	32	76	68	60	76	68	60	59	50	33	39	34	26
150	8-20	89	72	64	89	72	64	64	48	33	49	33	27	68	55	39	68	55	39	48	36	24	39	24	19	60	39	30	37	34	19	28	19	28	19	16	
150	21-27	97	78	73	93	78	73	76	60	51	64	41	33	79	64	58	79	64	58	64	55	47	44	28	21	72	55	42	72	55	42	55	42	39	24	17	
150	28-45	96	84	74	92	84	74	74	67	59	60	54	41	77	72	61	77	72	61	60	52	35	41	35	27	72	64	54	72	64	54	50	38	27	33	29	22
160	8-20	81	65	58	81	65	58	59	38	28	43	28	24	64	42	32	64	42	32	39	34	20	32	20	17	54	32	26	54	32	26	31	17	26	17	14	
160	21-27	90	72	67	90	72	67	72	53	39	58	36	27	73	58	45	73	58	45	57	39	28	41	24	17	66	44	32	66	44	32	48	25	19	35	20	14
160	28-45	88	78	69	88	78	69	69	64	51	55	48	35	72	64	57	72	64	57	54	41	29	35	30	24	64	58	42	64	58	42	38	32	24	29	26	19
170	8-20	73	60	45	73	60	45	52	32	25	38	25	18	53	33	27	53	33	27	33	22	18	27	18	15	48	28	24	48	28	24	28	18	15	24	15	12
170	21-27	83	67	61	83	67	61	65	42	36	51	39	24	68	48	35	68	48	35	49	36	19	36	21	15	61	35	27	61	35	27	39	22	16	30	18	12
170	28-45	81	73	64	81	73	64	64	57	41	48	39	30	66	60	48	66	60	48	42	33	26	30	27	20	59	51	35	59	51	35	32	27	20	25	24	16
175	8-20	72	58	41	72	58	41	48	29	24	36	24	20	53	32	26	53	32	26	32	20	17	25	17	14	42	26	21	42	26	21	26	14	21	14	12	
175	21-27	80	64	59	80	64	59	64	38	28	48	29	22	65	42	32	65	42	32	45	34	18	34	20	14	59	32	25	59	32	25	36	21	14	29	17	12
175	28-45	79	72	64	79	72	64	61	55	37	44	36	27	66	58	42	66	58	42	36	27	24	28	25	18	57	45	32	57	45	32	29	26	19	24	21	14
180	8-20	67	53	36	67	53	36	45	27	22	34	22	18	49	29	24	49	29	24	29	19	16	24	16	13	39	24	20	39	24	20	24	16	13	20	11	11
180	21-27	78	64	57	78	64	57	61	33	26	48	27	20	64	38	29	64	38	29	42	34	17	32	19	13	57	30	24	57	30	24	34	19	13	27	16	11
180	28-45	76	68	60	76	68	60	60	59	50	33	39	34	26	61	55	38	61	55	38	33	29	22	27	24	17	54	41	29	54	41	29	27	24	22	20	14

Shaded cells indicate conditions in which UFO Mid Clamp connection capacity is exceeded. See Note 9 on page 2 for details.

Figure 2:

**Notation**  
 $a$  = 10% of least horizontal dimension or 0.44, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m). If an overhang exists, the edge distance shall be measured from the outside edge of the overhang. The horizontal dimensions used to compute the edge distance shall not include any overhang dimensions.  
 $B$  = Horizontal dimension of building measured normal to wind direction, ft (m).  
 $h$  = Mean roof height, in ft (m), except that eave height shall be used for  $\theta \leq 10^\circ$ .  
 $\theta$  = Angle of plane of roof from horizontal, degrees.



REVISIONS

DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
 COMMERCIAL  
 325 TURNER DAVIS DR  
 MADISON, FL 32340, USA  
 PH.# : (850) 576-7657  
 Email ID : CADEN@IGTSOLAR.COM

DATE: 09/26/2024

SHEET NAME  
 EQUIPMENT SPECIFICATIONS

SHEET SIZE  
 ARCH FULL BLEED D  
 24" X 36"

SHEET NUMBER

PV-7

# S-5!® The Right Way!®

## S-5-S Clamp

The S-5-S clamp was created specifically for popular snap-together profiles—including residential profiles by Taylor Metals and Easy Lock Standing Seam. For horizontal seams under .540 inches (like the Firestone UC4) the S-5-S or S-5-S Mini can be used to avoid the necessity of crimping the seam.

Its simple design and size make it perfect for use with S-31® snow retention products and other heavy-duty applications. Installation is as simple as setting the patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to [www.S-5.com/tools](http://www.S-5.com/tools) for information and tools available for properly attaching and tensioning S-5! clamps.

## S-5-S Mini Clamp

The S-5-S Mini is a bit shorter than the S-5-S and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!\*

\*S-5! clamps are not compatible with, and should not be used with S-5! SnowBall™ SnowForce™ or ColorGuard™ snow retention systems.

The S-5-S clamp was created specifically for popular snap-together profiles.

S-5-S and S-5-S Mini

888-825-3432 | [www.S-5.com](http://www.S-5.com)

# S-5!® The Right Way!®

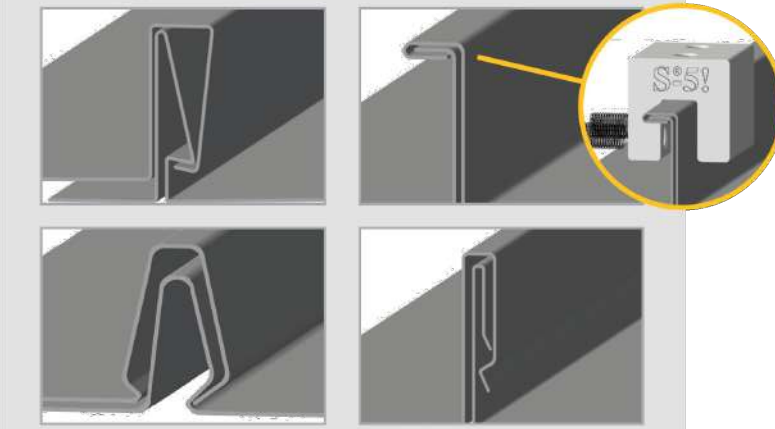
The strength of the S-5-S clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but not pierce it—leaving roof warranties intact.

The S-5-S and S-5-S Mini clamps are each furnished with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. A structural aluminum attachment clamp, the S-5-S is compatible with most common metal roofing materials excluding copper. All included hardware is stainless steel. Please visit [www.S-5.com](http://www.S-5.com) for more information including CAD details, metallurgical compatibilities and specifications.

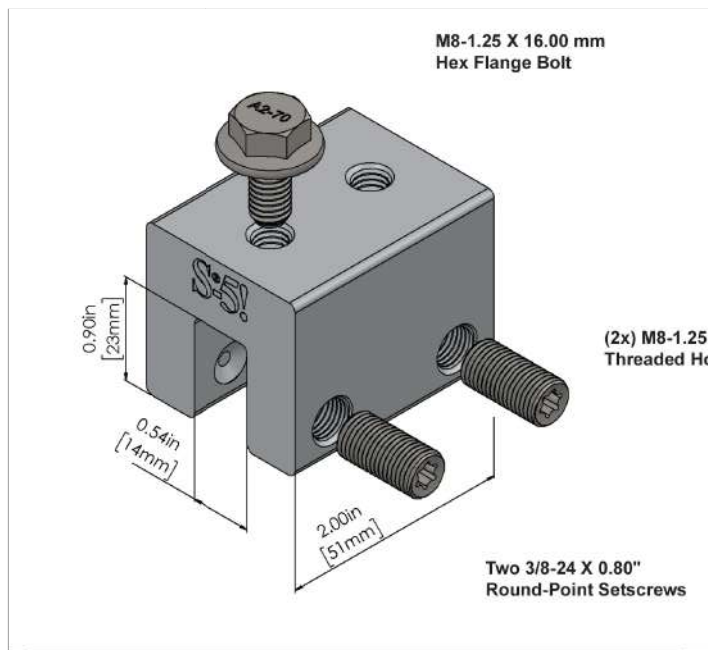
The S-5-S clamp has been tested for load-to-failure results on most major brands and profiles of standing seam roofing. The independent lab test data found at [www.S-5.com](http://www.S-5.com) can be used for load-critical designs and applications. S-5!® holding strength is unmatched in the industry. Profiles that are shaped as illustrated below will work with the S-5-S and S-5-S Mini. In order for the S-5-S or S-5-S Mini to fit these types of seams, the finished seam must:

- Be at least 1.00" high.
- Have a height distance less than or equal to 0.25" between the male portion of the panel and female portion of the panel.

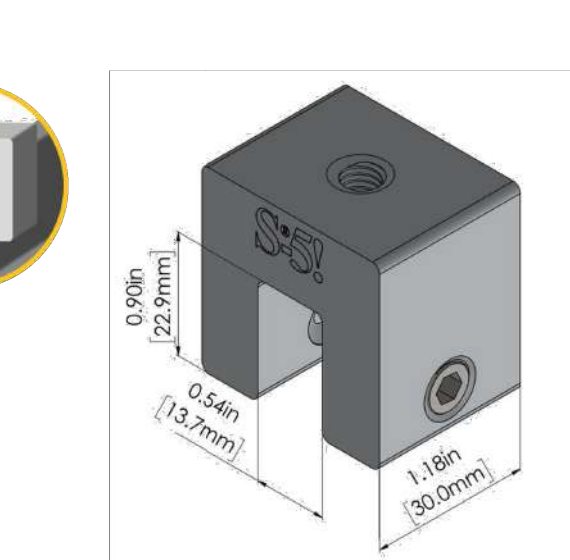
## Example Profiles



## S-5-S Clamp



## S-5-S Mini Clamp



Please note: All measurements are rounded to the second decimal place.

### S-5! Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at [www.S-5.com](http://www.S-5.com) for complete information on patents and trademarks. For maximum holding strength, setscrews should be tightened and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 100 and 105 inch-pounds when used on 22ga steel and between 150 and 150 inch-pounds for all other metals and thinner gauges of steel. Consult the S-5 website at [www.S-5.com](http://www.S-5.com) for published data regarding holding strength. Copyright 2017 IronRidge Products, LLC. S-5! products are registered trademarks. S-5! aggressively protects its patents, trademarks and copyrights. Version 081921.

Distributed by

# IRONRIDGE

## XR100® Rail

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

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-100-192A	XR-100-192B	XR100, Rail 132" (11 Feet)	6000-Series Aluminum	7.50 lbs.
XR-100-168A	XR-100-168B	XR100, Rail 148" (14 Feet)	6000-Series Aluminum	9.55 lbs.
XR-100-204A	XR-100-204B	XR100, Rail 204" (17 Feet)	6000-Series Aluminum	11.60 lbs.

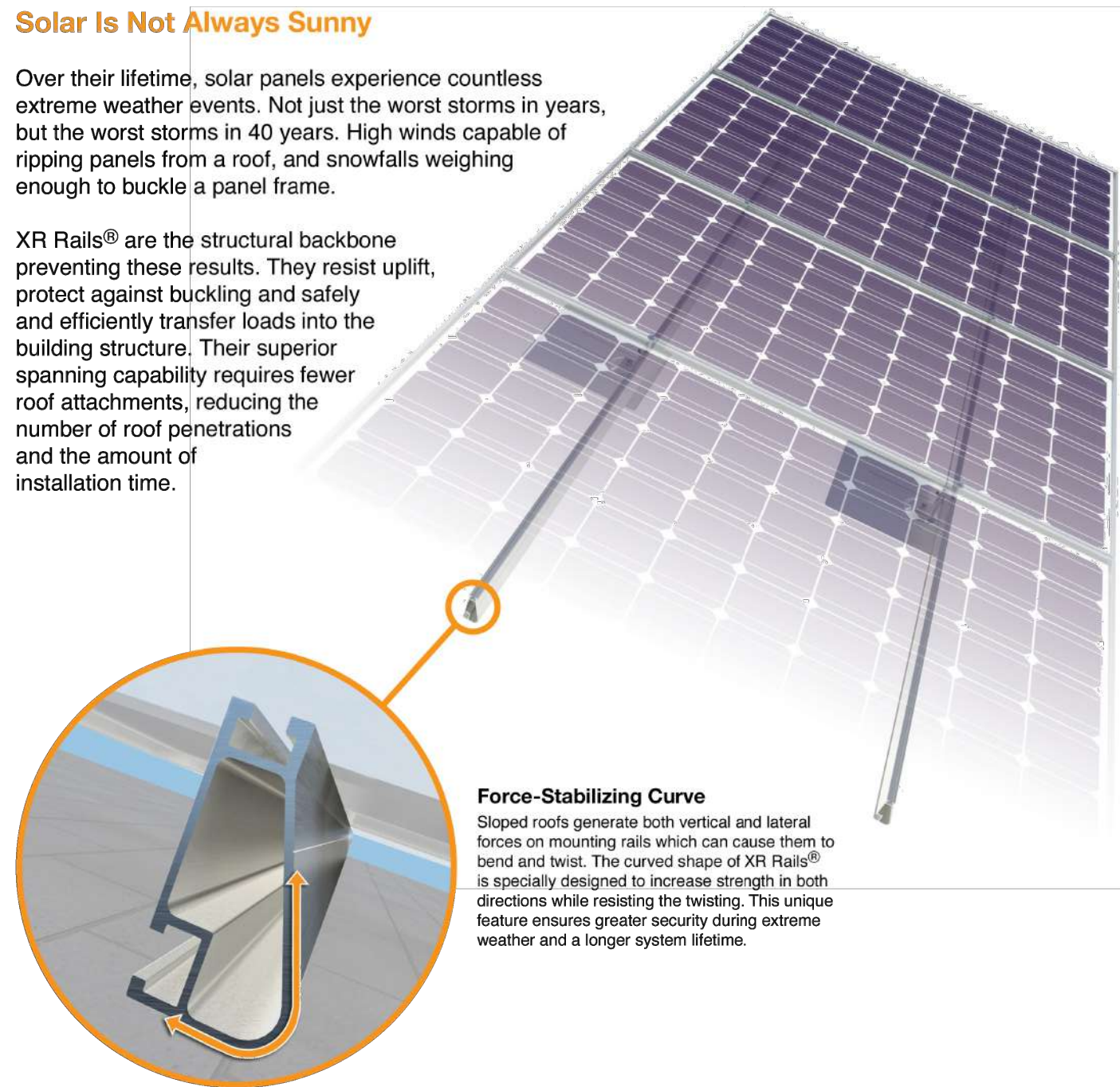
# IRONRIDGE

## XR Rail® Family

### 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.

XR10	XR100	XR1000
<p>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.</p> <ul style="list-style-type: none"> <li>• 6' spanning capability</li> <li>• Moderate load capability</li> <li>• Clear &amp; black anodized finish</li> <li>• Internal splices available</li> </ul>	<p>XR100 is a residential and commercial mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.</p> <ul style="list-style-type: none"> <li>• 10' spanning capability</li> <li>• Heavy load capability</li> <li>• Clear &amp; black anodized finish</li> <li>• Internal splices available</li> </ul>	<p>XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans up to 12 feet for commercial applications.</p> <ul style="list-style-type: none"> <li>• 12' spanning capability</li> <li>• Extreme load capability</li> <li>• Clear anodized finish</li> <li>• Internal splices available</li> </ul>

## 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](http://IronRidge.com) for detailed certification letters.

Load	Rail Span	Rail Span					
		4'	5' 4"	6'	8'	10'	12'
None	90						
	120						
	140	XR10		XR100		XR1000	
	160						
20	90						
	120						
	140						
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.

# IRONRIDGE

## UFO® Family of Components

### Simplified Grounding for Every Application

The UFO® family of components eliminates the need for separate grounding hardware by bonding solar modules directly to IronRidge® XR Rails®. All system types that feature the UFO® family—Flush Mount®, Tilt Mount® and Ground Mount®—are fully listed to the UL 2703 standard.

UFO® hardware forms secure electrical bonds with both the module and the rail, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.

Only for installation and use with IronRidge products in accord with written instructions. See [IronRidge.com/UFO](http://IronRidge.com/UFO)

INDEPENDENT GREEN TECHNOLOGIES LLC  
3954 WEST PENSACOLA STREET, TALLAHASSEE, FL 32304  
(850) 576-7657  
CONTRACTOR LIC#: CVC56732

## REVISIONS

DESCRIPTION	DATE	REV
REVISION	09/19/2024	A
REVISION	09/26/2024	B

Signature with Seal

PROJECT NAME & ADDRESS

NFC BUILDING 6  
COMMERCIAL  
325 TURNER DAVIS DR  
MADISON, FL 32340, USA  
PH.# : (850) 576-7657  
Email ID : [CADEN@IGTSOLAR.COM](mailto:CADEN@IGTSOLAR.COM)

DATE: 09/26/2024

SHEET NAME  
EQUIPMENT SPECIFICATIONS

SHEET SIZE  
ARCH FULL BLEED D  
24" X 36"

SHEET NUMBER

PV-8