

NEW PHOTOVOLTAIC PITCHED ROOF MOUNTED SYSTEM - 10.120 KW DC/8.740 KW AC  
& ENERGY STORAGE SYSTEM - 12 KWH  
54 BANEBERRY PLACE, BROADWAY, NC 27505

NEW PV SYSTEM SPECIFICATIONS

SYSTEM SIZE: DC SIZE: 10.120 KW DC-(STC)  
AC SIZE: 8.740 KW AC  
MODULE: (23) HYUNDAI HIN-T440NF(BK)  
INVERTER: (23) ENPHASE IQ8HC-72-M-DOM-US  
BATTERY : (1) PWRCELL 2 APKE00075 w/ (4) 3.0 KWH DCB BATTERY

APPLICABLE CODES

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:  
2018 NORTH CAROLINA BUILDING CODE  
2018 NORTH CAROLINA RESIDENTIAL CODE  
2018 NORTH CAROLINA FIRE CODE  
2020 NORTH CAROLINA ELECTRICAL CODE  
AS ADOPTED BY HARNETT COUNTY

DESIGN CRITERIA

ROOF SURFACE TYPE: COMPOSITE SHINGLE  
ROOF FRAMING: 2"x4" WOOD TRUSS @ 24" OC  
BUILDING STORY: TWO STORY  
GROUND SNOW LOAD: 10 PSF  
WIND SPEED: 117 MPH  
WIND EXPOSURE: C  
RISK CATEGORY: II

PROJECT NOTES

1.1.1 THIS PHOTOVOLTAIC (PV) & ENERGY STORAGE SYSTEM SHALL COMPLY WITH THE RELEVANT YEAR OF THE NATIONAL ELECTRICAL CODE (NEC), ALL MANUFACTURER'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.  
1.1.2 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND THE PV & ENERGY STORAGE SYSTEM MUST BE INSPECTED PRIOR TO OPERATION  
1.1.3 ALL PV & ENERGY STORAGE SYSTEM COMPONENTS: MODULES, UTILITY-INTERACTIVE INVERTERS, BATTERIES, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC AND OTHER GOVERNING CODES  
1.1.4 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

SCOPE OF WORK

1.2.1 CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC & ENERGY STORAGE SYSTEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE CONDITIONS TO DESIGN, SPECIFY, AND INSTALL THE PITCHED ROOF-MOUNTED PV SYSTEM AND ENERGY STORAGE SYSTEM DETAILED IN THIS DOCUMENT

SCOTT  
WYSSLIN  
G

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7611 Meadowbrook Drive Alpine UT 84004  
North Carolina CDA # P-2308

Signed 10/14/2025

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DRIVEWAY

FRONT OF HOUSE

BANEBERRY PLACE

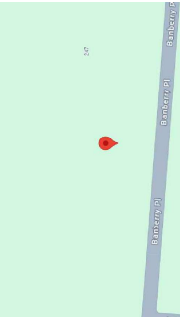
SHEET INDEX

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| PV-07 | INSTALLATION RESOURCE         |
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LEGEND

|     |               |
|-----|---------------|
| —   | PROPERTY LINE |
| —○— | FENCE LINE    |

VICINITY MAP



SATELLITE MAP



CONTRACTOR

SOLARTYME BY AAPCO  
6710 JEFFERSON DAVIS HWY  
RICHMOND, VIRGINIA 23237  
PHONE - (804) 271-2500  
LIC. NO. - 2705036452

PROJECT NAME & ADDRESS  
ALBERTO VELEZ  
54 BANEBERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

SYSTEM DETAILS  
10.120 KW DC-(STC) / 8.740 KW AC  
(23) HYUNDAI HIN-T440NF(BK)  
(23) ENPHASE IQ8HC-72-M-DOM-US  
(1) PWRCELL 2 APKE00075 w/ (4) 3.0 KWH  
DCB BATTERY

REVISIONS

| REV | DESCRIPTION | DATE |
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|     |             |      |
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SHEET TITLE

COVER PAGE

DRAWN DATE 10/13/2025

DRAWN BY VHN

SHEET NUMBER

PV-01

1 PROPERTY PLAN

SCALE: 1" = 10'-0"

NOTES:

1. ROOF ACCESS POINT SHALL NOT BE LOCATED IN AREAS THAT REQUIRE THE REMOVAL OF STRUCTURAL MEMBERS OR OPENINGS SUCH AS WINDOW SILL JOISTS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD WIRES OR SIGNS.
2. STRUCTURES, PATIO COVERS, AND/OR ADDITIONS BUILT WITHOUT PERMITS TO BE RESOLVED BY A SEPARATE PERMIT.

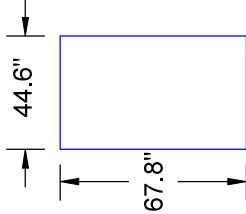
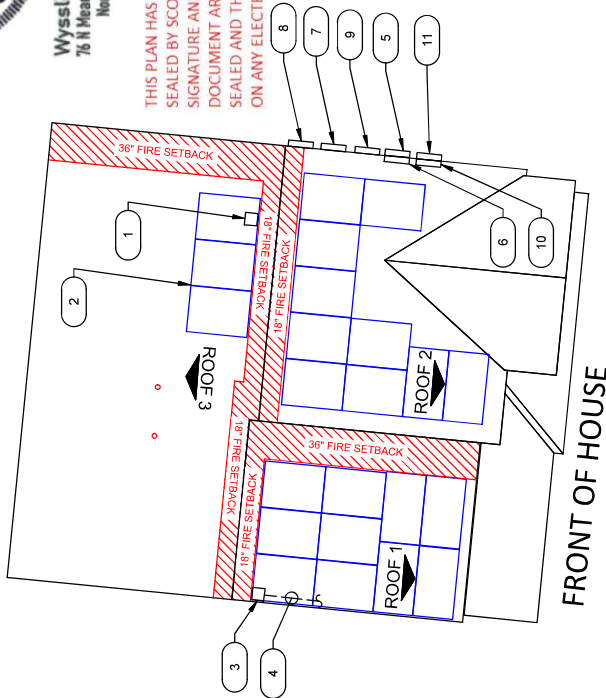
PLAN VIEW TOTAL ROOF AREA: 1843.29 FT<sup>2</sup>  
TOTAL PV ARRAY AREA: 482.98 FT<sup>2</sup>  
TOTAL % OF ROOF COVERED BY PV: 26.20%



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SITE PLAN

SCALE: 1" = 10'-0"

1  
PV-02

LEGEND



- 1 MICRON INVERTER (1 PER MODULE)
- 2 PV MODULES
- 3 JUNCTION BOX, SIZE DETERMINED IN FIELD
- 4 CONDUIT RUN, SURFACE MOUNTED (ACTUAL CONDUIT RUNS TO BE DETERMINED IN FIELD)
- 5 UTILITY METER (UNDERGROUND SERVICE) METER # 343 840 405
- 6 MAIN SERVICE PANEL
- 7 AC DISCONNECT
- 8 ENPHASE IQ COMBINER BOX
- 9 GENERAC SMART DISCONNECT SWITCH
- 10 (1) APKE00076 BATTERY CABINET
- 11 GENERAC INVERTER APKE00075

|        |                   |                    |
|--------|-------------------|--------------------|
| ROOF 1 | SLOPE             | - 30°              |
|        | AZIMUTH           | - 186°             |
|        | MODULE QTY        | - 10               |
| ROOF 2 | WOOD TRUSS        | - 2"x4" @ 24" O.C. |
|        | COMPOSITE SHINGLE |                    |
|        | SLOPE             | - 30°              |
| ROOF 3 | AZIMUTH           | - 186°             |
|        | MODULE QTY        | - 10               |
|        | WOOD TRUSS        | - 2"x4" @ 24" O.C. |
| ROOF 3 | SLOPE             | - 30°              |
|        | AZIMUTH           | - 6°               |
|        | MODULE QTY        | - 3                |
| ROOF 3 | WOOD TRUSS        | - 2"x4" @ 24" O.C. |
|        | COMPOSITE SHINGLE |                    |

CONTRACTOR

SOLARTYME BY AAPCO  
6710 JEFFERSON DAVIS HWY  
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PHONE - (804) 271-2500  
LIC. NO. - 2705036452

PROJECT NAME & ADDRESS  
ALBERTO VELEZ  
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BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

SYSTEM DETAILS  
10, 120 KW (DC+STC) / 8,740 KW AC  
(23) HYUNDAI HIN-140NFBK  
(1) INVERTER (2) BATTERY CABINETS  
(1) PVWCELL 2 APKE00075 W/ (4) 3.0 MWH  
DCB BATTERY

REVISIONS

| REV | DESCRIPTION | DATE |
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SHEET TITLE  
SITE PLAN

DRAWN DATE 10/13/2025

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SHEET NUMBER

PV-02

DISTRIBUTED LOAD CALCULATIONS

|                               |                       |
|-------------------------------|-----------------------|
| MODULE                        | HYUNDAI HIN-1440N(BK) |
| MODULE WEIGHT                 | 50.01 LBS             |
| MODULE DIMENSIONS (L" x W")   | 67.8" x 44.6"         |
| TOTAL QTY. OF MODULES         | 23                    |
| TOTAL WEIGHT OF MODULES       | 1150.2 LBS            |
| TYPE OF RACKING               | UNIRAC 185RLM1        |
| TYPE OF ATTACHMENT            | UNIRAC SH-BUTYL M2    |
| DISTRIBUTED WEIGHT OF RACKING | 0.5 PSF               |
| TOTAL WEIGHT OF ARRAY         | 1391.7 LBS            |
| AREA OF MODULE                | 210.0 SQFT.           |
| TOTAL ARRAY AREA              | 4830.0 SQFT.          |
| DISTRIBUTED LOAD              | 2.9 PSF               |

NOTE:

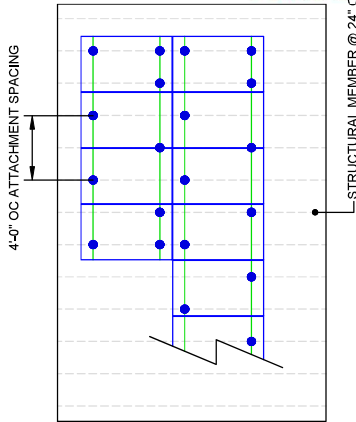
1. CONTRACTOR/INSTALLER TO VERIFY COMPATIBILITY OF ANY BRANDS OR PRODUCTS SUBSTITUTED OR USED AS ALTERNATES WITHIN ANY BRAND-SPECIFIC SYSTEMS. CONTRACTOR SHALL SUPPLY AND PRESENT CERTIFICATES OF COMPATIBILITY TO THE BUILDING OFFICIAL UPON INSPECTION AS NEEDED.

2. REFER TO PV MODULE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR RAIL SPACING SPECIFICATIONS



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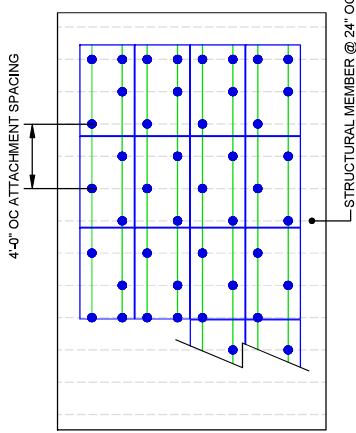
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1.0 TYPICAL ATTACHMENT PLAN (PORTRAIT)

PV-03

SCALE: NTS



1.1 TYPICAL ATTACHMENT PLAN (LANDSCAPE)

PV-03

SCALE: NTS

LEGEND

- ATTACHMENT POINTS
- RAIL
- STRUCTURAL MEMBER

CONTRACTOR

SOLARTYME BY AAPCO  
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RICHMOND, VIRGINIA 23237  
PHONE - (804) 271-2500  
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AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

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10,120 KW (DC+STC) / 8,740 KW AC  
(23) HYUNDAI HIN-1440N(BK)  
(23) UNIRAC 185RLM1  
(1) PVWCELL 2-APKE00075 w/ (4) 3.0 MWH  
DCB BATTERY

REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
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SHEET TITLE  
ATTACHMENT PLAN  
& DETAILS

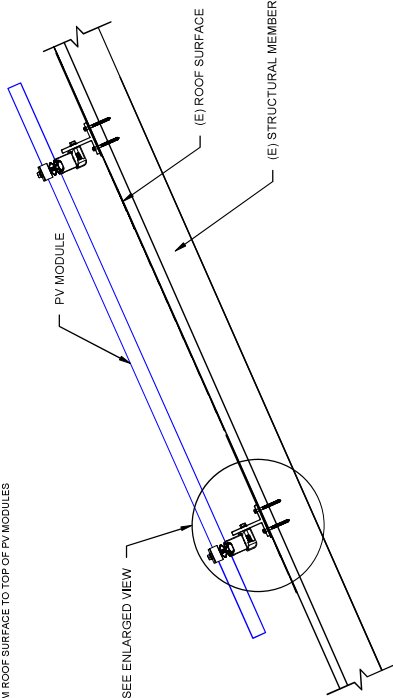
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SHEET NUMBER

PV-03

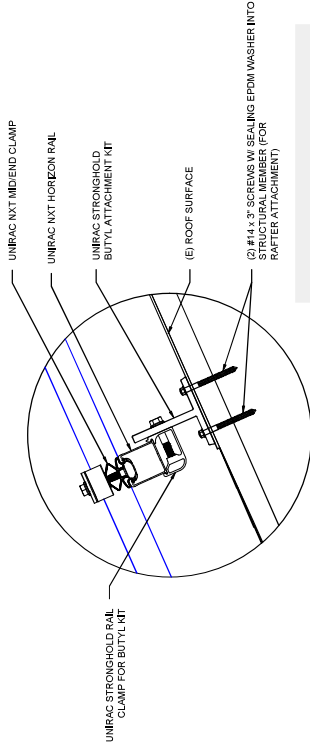
NOTE: 6" MAXIMUM DISTANCE FROM ROOF SURFACE TO TOP OF PV MODULES



2 ATTACHMENT DETAIL

PV-03

Scale: NTS



3 ENLARGED VIEW

PV-03

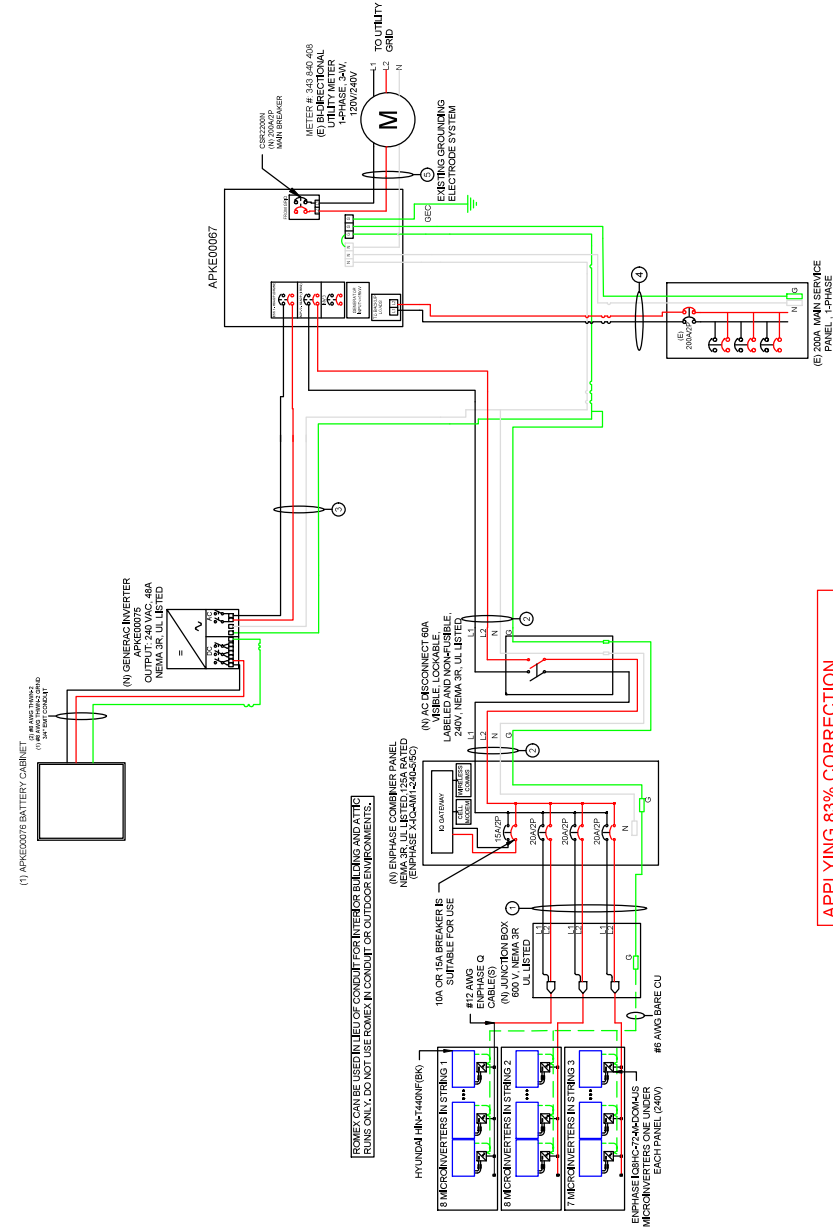
Scale: NTS

| SOLAR MODULE SPECIFICATIONS |                       |
|-----------------------------|-----------------------|
| MANUFACTURER / MODEL #      | HYUNDAI HIN-140NF(BK) |
| WMP                         | 32.3 V                |
| IMP                         | 13.63 A               |
| VOC                         | 38.8 V                |
| ISC                         | 14.39 A               |
| TEMP. COEFF. VOC            | -0.25 %/°C            |
| MAX. OUTPUT, WATTAGE        | 440W                  |

| MICROINVERTER SPECIFICATIONS |                          |
|------------------------------|--------------------------|
| MANUFACTURER / MODEL #       | ENPHASE IQ8HC-72W-DOM-US |
| INPUT POWER RANGE            | 320-540W                 |
| MIN/MAX START VOLTAGE        | 22V/58V                  |
| NOMINAL AC VOLTAGE           | 240V                     |
| MAX CONT. OUTPUT CURRENT     | 1.58A                    |
| MAX CONT. OUTPUT POWER       | 380W                     |
| MAX MODULES PER STRING       | 10 (10 MICROINVERTERS)   |

| SOLAR MODULE SPECIFICATIONS |                       |
|-----------------------------|-----------------------|
| MANUFACTURER / MODEL #      | HYUNDAI HIN-140NF(BK) |
| WMP                         | 32.3 V                |
| IMP                         | 13.63 A               |
| VOC                         | 38.8 V                |
| ISC                         | 14.39 A               |
| TEMP. COEFF. VOC            | -0.25 %/°C            |
| MAX. OUTPUT, WATTAGE        | 440W                  |

| AMBIENT TEMPERATURE SPECIFICATIONS        |        |
|-------------------------------------------|--------|
| RECORD LOW TEMP                           | -10 °C |
| AMBIENT TEMP (HIGH TEMP 2% AVG.)          | 35 °C  |
| MINIMUM CONDUIT HEIGHT ABOVE ROOF SURFACE | 7/8"   |



| DESCRIPTION                            |                                      |                                          | FORMULA                                             |                                       |                      |                                   |                                   | RESULT                                        |                                            |                                  |                            |
|----------------------------------------|--------------------------------------|------------------------------------------|-----------------------------------------------------|---------------------------------------|----------------------|-----------------------------------|-----------------------------------|-----------------------------------------------|--------------------------------------------|----------------------------------|----------------------------|
| PV OVERCURRENT PROTECTION NEC 690.9(B) |                                      |                                          | TOTAL INVERTER OUTPUT CURRENT x 1.25 = 36.3A x 1.25 |                                       |                      |                                   |                                   | 45.43A (SELECTED OCPD = 50A)                  |                                            |                                  |                            |
| WIRE ID                                | EXPECTED WIRE TEMP DERATE<br>(90° C) | QTY OF CURRENT<br>CARRYING<br>CONDUCTORS | CONDUIT FILL<br>DERATE                              | MINIMUM CONDUIT<br>SIZE (TBD ON SITE) | WIRE GAUGE &<br>TYPE | CONDUCTOR<br>AMPACITY @ 90° C (A) | CONDUCTOR<br>AMPACITY @ 75° C (A) | REQUIRED CIRCUIT<br>CONDUCTOR AMPACITY<br>(A) | ADJUSTED CONDUCTOR<br>AMPACITY @ 90° C (A) | NEUTRAL CONDUCTOR<br>SIZE & TYPE | GROUND WIRE SIZE &<br>TYPE |
| 1                                      | 34                                   | 0.96                                     | 0.8                                                 | 3/4"                                  | #10 THWN-2           | 40                                | 35                                | 15.80                                         | 30.72                                      | NONE                             | #8 THWN-2                  |
| 2                                      | 34                                   | 0.96                                     | 1                                                   | 3/4"                                  | #6 THWN-2            | 75                                | 65                                | 45.43                                         | 72                                         | #6 THWN-2                        | #8 THWN-2                  |
| 3                                      | 34                                   | 0.96                                     | 1                                                   | 3/4"                                  | #6 THWN-2            | 75                                | 65                                | 60                                            | 72                                         | #6 THWN-2                        | #8 THWN-2                  |
| 4                                      | 34                                   | 0.96                                     | 2                                                   | 3/4"                                  | #2/0 THWN-2          | 175                               | 175                               | 200                                           | 187.2                                      | #2/0 THWN-2                      | #6 THWN-2                  |
| 5                                      | 34                                   | 0.96                                     | 2                                                   | 1-1/2"                                | #2/0 THWN-2          | 195                               | 175                               | 200                                           | 187.2                                      | #2/0 THWN-2                      | NONE                       |

|                          |  |                        |  |                                        |  |             |  |              |  |
|--------------------------|--|------------------------|--|----------------------------------------|--|-------------|--|--------------|--|
| CONTRACTOR               |  | PROJECT NAME & ADDRESS |  | SYSTEM DETAILS                         |  | REVISIONS   |  | SHEET TITLE  |  |
| SOLARTIME BY AAPCO       |  | ALBERTO VELEZ          |  | 10, 120 KW (DC+STC) / 8,740 KW AC      |  | REV         |  | ELECTRICAL   |  |
| 6710 JEFFERSON DAVIS HWY |  | 54 BANEERRY PLACE,     |  | (23) HYUNDAI HIN-140NF(BK)             |  | DESCRIPTION |  | DIAGRAM      |  |
| RICHMOND, VIRGINIA 23237 |  | BROADWAY, NC 27505     |  | (1) HYUNDAI HIN-140NF(BK)              |  | DATE        |  | DRAWN DATE   |  |
| PHONE - (804) 271-2500   |  | AHJ: HARNETT COUNTY    |  | (1) PWRCELL 2 APKE00075 w/ (4) 3.0 MWH |  |             |  | DRAWN BY     |  |
| LIC. NO. - 2705036452    |  | UTILITY: DUKE ENERGY   |  | (1) PWRCELL 2 APKE00075 w/ (4) 3.0 MWH |  |             |  | SHEET NUMBER |  |
|                          |  | PROGRESS               |  | DCB BATTERY                            |  |             |  | PV-04        |  |
|                          |  |                        |  |                                        |  |             |  |              |  |

# GENERAL NOTES

## SITE NOTES

2.1.1 A LADDER WILL BE IN PLACE FOR INSPECTION IN ACCORDANCE WITH OSHA REGULATIONS.  
2.1.2 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH STORAGE BATTERIES.  
2.1.3 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.  
2.1.4 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED IN ACCORDANCE WITH SECTION NEC 110.  
2.1.5 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

## EQUIPMENT LOCATIONS

2.2.1 ALL EQUIPMENT SHALL MEET MINIMUM WORKING CLEARANCES IN ACCORDANCE WITH NEC 110.  
2.2.2 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY 2020 NORTH CAROLINA ELECTRICAL CODE.  
2.2.3 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES IN ACCORDANCE WITH NEC 690.  
2.2.4 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL IN ACCORDANCE WITH NEC APPLICABLE CODES.  
2.2.5 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

## STRUCTURAL NOTES

2.3.1 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED IN ACCORDANCE WITH THE CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUB-ARRAY, IN ACCORDANCE WITH RAIL MANUFACTURER'S INSTALLATION PRACTICES.  
2.3.2 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS, IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.  
2.3.3 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.  
2.3.4 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER OR PROFESSIONAL ENGINEERING GUIDANCE.  
2.3.5 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

## WIRING & CONDUIT NOTES

2.4.1 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.  
2.4.2 CONDUCTORS SIZED IN ACCORDANCE WITH THE NEC  
2.4.3 AC CONDUCTORS TO BE COLORED OR MARKED PER NEC  
2.4.4 LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC

## GROUNDING NOTES

2.5.1 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.  
2.5.2 PV EQUIPMENT SHALL BE GROUNDING IN ACCORDANCE WITH NEC 690 AND NEC TABLE 250.122.  
2.5.3 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDING IN ACCORDANCE WITH NEC 250.  
2.5.4 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEC 690 AND INVERTER MANUFACTURER'S INSTALLATION PRACTICES  
2.5.5 EACH MODULE WILL BE GROUNDING AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.  
2.5.6 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.  
2.5.7 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER PER NEC 250.  
2.5.8 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690 AND NEC 250, IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED IN ACCORDANCE WITH NEC 250, NEC 690 AND THE AHJ.  
2.5.9 GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690 TO REDUCE FIRE HAZARDS

## DISCONNECTION AND OVERCURRENT PROTECTION NOTES

2.6.1 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).  
2.6.2 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH  
2.6.3 PV SYSTEM CIRCUITS INSTALLED ON OR IN HABITABLE BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.  
2.6.4 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690 AND 240.  
2.6.5 INVERTER ON-GRID BRANCHES SHALL BE CONNECTED TO A SINGLE BREAKER OR GROUPED FUSE DISCONNECT(S) IN ACCORDANCE WITH NEC 110.  
2.6.6 IF REQUIRED BY THE AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION IN ACCORDANCE WITH NEC 690 AND UL 1699B.

## INTERCONNECTION NOTES

2.7.1 LOAD SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.  
2.7.2 THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120 PERCENT OF BUSBAR RATING PER NEC 705.  
2.7.3 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD PER NEC 705.  
2.7.4 AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT PROTECTION DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR, HOWEVER, THE MAIN OVERCURRENT PROTECTION DEVICE MAY BE EXCLUDED IN ACCORDANCE WITH NEC 705.  
2.7.5 FEEDER TAP INTERCONNECTION (LOAD SIDE) IN ACCORDANCE WITH NEC 705.  
2.7.6 SUPPLY SIDE TAP INTERCONNECTION IN ACCORDANCE WITH TO NEC 705 WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.  
2.7.7 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING PER NEC 705.

## CONTRACTOR

SOLARTYME BY AAPCO  
6710 JEFFERSON DAVIS HWY  
RICHMOND, VIRGINIA 23237  
PHONE - (804) 271-2500  
LIC. NO. - 270506452

PROJECT NAME & ADDRESS  
ALBERTO VELEZ  
54 BANEERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

## SYSTEM DETAILS

10, 120 KW(DC+15C) / 8,740 KW AC  
(23) HYBRID INVERTER(S)  
(1) PV RACKING SYSTEM  
(1) PVWCELL 2-APR30075 w/ (4) 3.0 kWh  
DCB BATTERY

## REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
|     |             |      |
|     |             |      |
|     |             |      |
|     |             |      |

## SHEET TITLE

## NOTES

DRAWN DATE 10/13/2025

DRAWN BY VHN

## SHEET NUMBER

PV-05

**⚠ WARNING**

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND  
LOAD SIDES MAY BE ENERGIZED  
IN THE OPEN POSITION

LABEL LOCATION: COMBINER PANEL, AC  
DISCONNECT, POINT OF INTERCONNECTION  
PER CODE: NEC 706.15(C)(4), NEC 690.13(B)

**⚠ WARNING**

TURN OFF PHOTOVOLTATIC AC  
DISCONNECT PRIOR TO  
WORKING INSIDE PANEL

LABEL LOCATION: COMBINER PANEL(S), MAIN SERVICE DISCONNECT  
PER CODE: NEC 110.27(C), OSHA 1910.145(f)(7)

**PHOTOVOLTATIC POWER SOURCE**

LABEL LOCATION: DC CONDUIT/TRACEWAYS  
PER CODE: NEC 690.31(D)(2)

**SOLAR PV DC CIRCUIT**

LABEL LOCATION: DC CONDUIT/TRACEWAYS  
PER CODE: NEC 690.31(D)(2)

**PHOTOVOLTATIC SYSTEM AC DISCONNECT**

RATED AC OUTPUT CURRENT: **36.34 A**

NOMINAL OPERATING AC VOLTAGE: **240 V**

LABEL LOCATION: AC DISCONNECT/POINT OF INTERCONNECTION  
PER CODE: NEC 690.34

**⚠ WARNING**

SECOND SOURCE IS PHOTOVOLTATIC SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER  
PER CODE: NEC 690.59, 705.12(C)

**PV SYSTEM**

**DISCONNECT**

LABEL LOCATION: AC DISCONNECT  
PER CODE: NEC 690.13(B)

**⚠ WARNING**

THIS EQUIPMENT FED BY MULTIPLE

SOURCES:

TOTAL RATING OF ALL OVERCURRENT

DEVICES EXCLUDING MAIN POWER

SUPPLY SHALL NOT EXCEED

AMPACTY OF BUSBAR

LABEL LOCATION: AC DISCONNECT  
PER CODE: NEC 705.12(B)(3)(3)

**⚠ WARNING**

POWER SOURCE OUTPUT

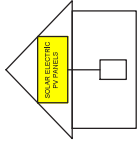
CONNECTION. DO NOT RELOCATE

THIS OVERCURRENT DEVICE.

LABEL LOCATION: POINT OF INTERCONNECTION  
PER CODE: NEC 705.12(B)(3)(2)

**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: MAIN SERVICE DISCONNECT  
PER CODE: NEC 690.56(C)

**MAIN PHOTOVOLTATIC  
SYSTEM DISCONNECT**

LABEL LOCATION: MAIN SERVICE DISCONNECT, UTILITY METER  
PER CODE: NEC 690.13(B)

**RAPID SHUTDOWN SWITCH  
FOR SOLAR PV SYSTEM**

LABEL LOCATION: PSD INITIATION DEVICE, AC DISCONNECT  
PER CODE: NEC 690.56(C)(2)

**⚠ CAUTION**

PHOTOVOLTATIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION: MAIN SERVICE DISCONNECT  
PER CODE: NEC 705.12(D), NEC 690.59

**DO NOT DISCONNECT  
UNDER LOAD**

LABEL LOCATION: MAIN SERVICE DISCONNECT  
PER CODE: NEC 690.15(B) & NEC 690.33(D)(2)

**MAXIMUM DC VOLTAGE**

**OF PV SYSTEM**

LABEL LOCATION: DC DISCONNECT/INVERTER/PV DIST.  
EQUIPMENT  
PER CODE: NEC 690.53

**⚠ WARNING**

ELECTRICAL 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: DC DISCONNECT  
PER CODE: NEC 690.13(B)

SURGE PROTECTOR DEVICE INSTALLED PER NEC 230.67(D)

**EMERGENCY DISCONNECT  
SERVICE DISCONNECT**

LABEL LOCATION: MAIN SERVICE PANEL

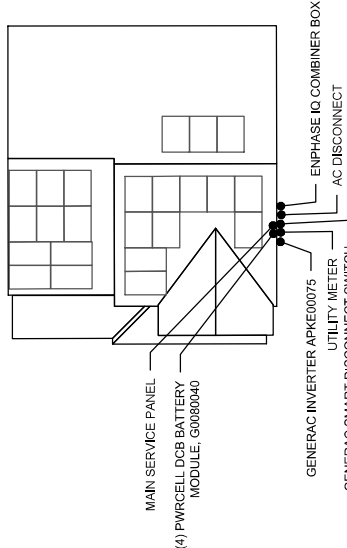
**⚠ WARNING MULTIPLE POWER SOURCE  
SOURCES: UTILITY GRID, PV AND ESS SYSTEM**

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER  
PER CODE: NEC 690.59, 705.12(C)

**CAUTION**

MULTIPLE SOURCES OF POWER.  
POWER TO THIS BUILDING IS ALSO SUPPLIED  
FROM THE FOLLOWING SOURCES WITH  
DISCONNECTS LOCATED AS SHOWN:

ADDRESS: 54 BANE BERRY PLACE, BROADWAY, NC 27505



**CONTRACTOR**

SOLARTYME BY AAPCO  
6710 JEFFERSON DAVIS HWY  
RICHMOND, VIRGINIA 23237  
PHONE - (804) 271-2500  
LIC. NO. - 2705036452

**PROJECT NAME & ADDRESS**  
ALBERTO VELEZ  
54 BANE BERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

**SYSTEM DETAILS**  
10, 120 KW (DC+STC) / 8,740 KW AC  
(23) HYBRID INVERTER (HVI)  
(2) DCB BATTERY MODULES  
(1) PWMCELL 2-APKE00075 w/ (4) 3.0 MWH  
DCB BATTERY

**REVISIONS**

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
|     |             |      |
|     |             |      |
|     |             |      |
|     |             |      |

**SHEET TITLE**

**WARNING LABELS**

DRAWN DATE 10/13/2025

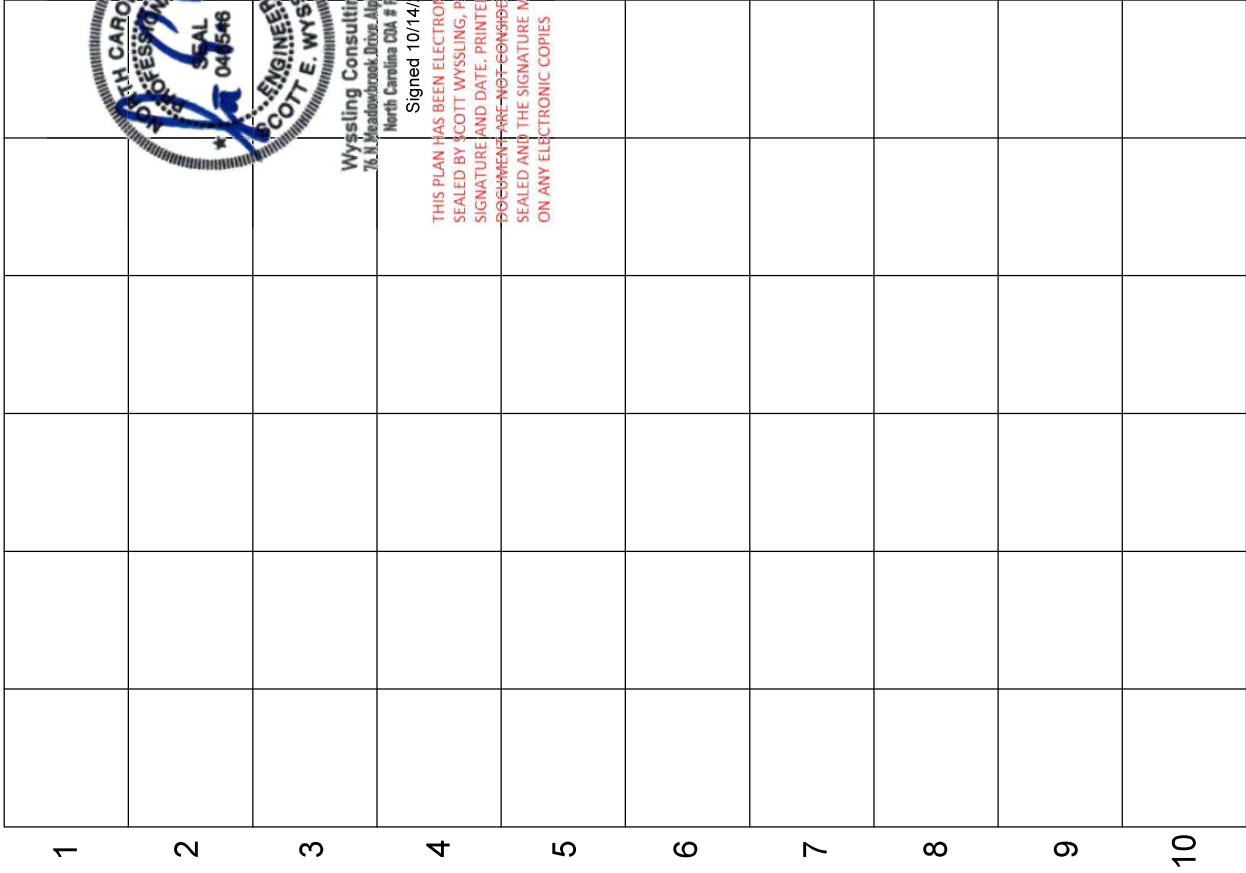
DRAWN BY VHN

**SHEET NUMBER**

PV-06

REFERENCE ONLY

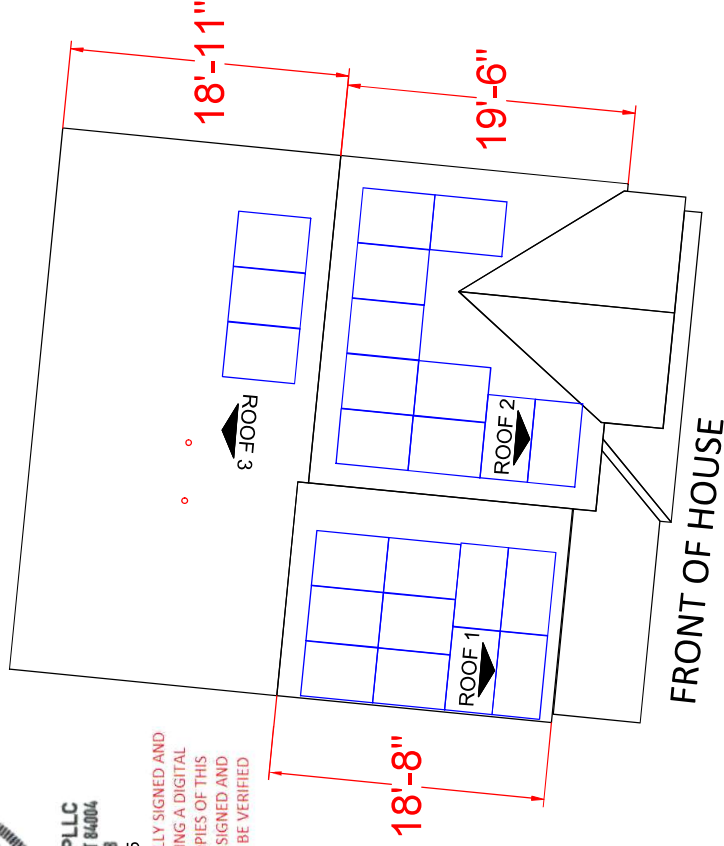
A B C D E F



Wyssling Consulting, PLLC  
76 N. Meadowbrook Drive, Alpine, UT 84004  
North Carolina DM # P-2308

Signed 10/14/2025

THIS PLAN HAS BEEN ELECTRONICALLY SIGNED AND  
SEALED BY SCOTT WYSSLING, PE USING A DIGITAL  
SIGNATURE AND DATE. PRINTED COPIES OF THIS  
DOCUMENT ARE NOT CONSIDERED SIGNED AND  
SEALED AND THE SIGNATURE MUST BE VERIFIED  
ON ANY ELECTRONIC COPIES



\*\*DIMENSIONS ARE 2D (FLAT)

CONTRACTOR

SOLARTYME BY AAPCO  
6710 JEFFERSON DAVIS HWY  
RICHMOND, VIRGINIA 23237  
PHONE - (804) 271-2500  
LIC. NO. - 2705036452

PROJECT NAME & ADDRESS  
ALBERTO VELEZ  
54 BANEERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

SYSTEM DETAILS  
10,120 KW(DC+STC) / 8,740 KW AC  
(231 PV MODULES) 140N(18V)  
(1) 100A MPPT CHARGE CONTROLLER  
(1) PVWCELL 2-APR50075 W/ (4) 3.0 MWH  
DCB BATTERY

REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
|     |             |      |
|     |             |      |
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SHEET TITLE  
INSTALLATION  
RESOURCE

DRAWN DATE 10/13/2025

DRAWN BY VHN

SHEET NUMBER

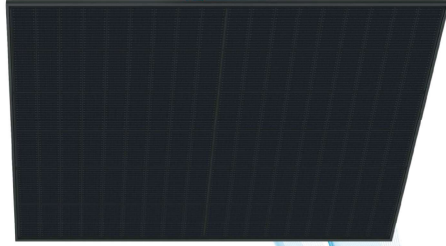
PV-07

# HD HYUNDAI SOLAR MODULE

## NF(BK) Series

Premium N-Type TOPCon Module

HIN-T430NF(BK) | HIN-T435NF(BK) | HIN-T440NF(BK)



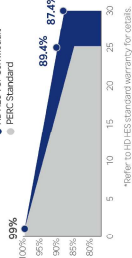
- 22.53% High Efficiency
- 22.43% High Efficiency
- High-End TOPCon Technology
- Higher Bifaciality
- Long Term Reliability
- Compatible with Carport Applications
- For Residential (Full Black Design)

### HD Hyundai's Warranty Provisions

- 25-Year** Product Warranty
  - Material and workmanship
- 30-Year** Performance Warranty
  - First year degradation: 1%
  - Linear warranty after initial year: 0.45% annual degradation
  - Warranty is guaranteed up to 30 years

### Certification

- ISO 9001 Quality management systems
- ISO 14001 Environmental management systems
- ISO 45001 Occupational health and safety management systems
- UL 1709 - 1000V DC Voltage with safety margin (UL954, Class 1)
- IEC 61215 - 1000V DC Voltage with safety margin (UL954, Class 1)
- IEC 61215 - 1000V DC Voltage with safety margin (UL954, Class 1)
- IEC 61215 - 1000V DC Voltage with safety margin (UL954, Class 1)



### Electrical Characteristics

| Item                            | Unit | HIN-T430NF(BK) | HIN-T435NF(BK) | HIN-T440NF(BK) |
|---------------------------------|------|----------------|----------------|----------------|
| Nominal output (Pmax)           | W    | 430            | 476            | 482            |
| Open circuit voltage (Voc)      | V    | 38.4           | 38.6           | 38.8           |
| Short circuit current (Isc)     | A    | 14.25          | 15.79          | 14.32          |
| Voltage at Pmax (Vmpp)          | V    | 31.9           | 31.9           | 32.1           |
| Current at Pmax (Impp)          | A    | 13.48          | 14.94          | 13.56          |
| Module efficiency               | %    | 22.02          | 24.40          | 22.53          |
| Power Class Sorting             | W    | 0              | 0              | 0              |
| Temperature coefficient of Pmax | %/K  | -0.30          | -0.25          | -0.25          |
| Temperature coefficient of Voc  | %/K  | -0.35          | -0.25          | -0.25          |
| Temperature coefficient of Isc  | %/K  | 0.046          | 0.046          | 0.046          |
| Bifaciality                     | %    | 87%            | 10%            | 10%            |

\*The electrical properties of the modules are measured under the irradiance of 1000 W/m<sup>2</sup> at 25°C. AM=1.5, Test uncertainty for Pmax ±3%, Voc ±1%, Isc ±3%.

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### Installation Safety Guide

• Only qualified personnel should install or perform maintenance.

• Be aware of dangerous high DC voltage.

• Do not touch or install modules when they are wet.

• Nominal Module Operation

Operating Temperature

Maximum System Voltage

Maximum Reverse Current

Maximum Test Load

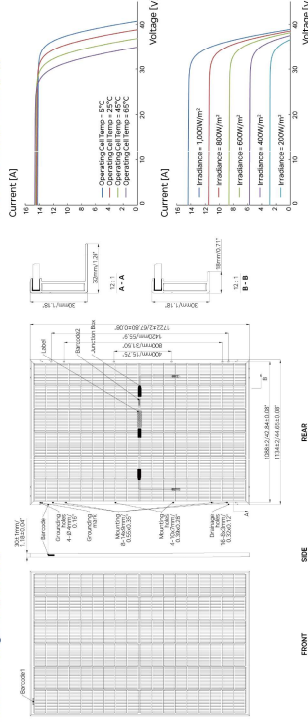
Fire Performance

Type 29

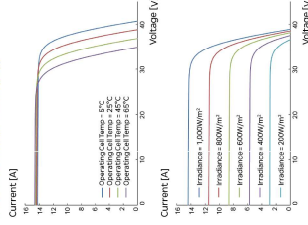
### Shipping Configurations

|                       |          |                             |     |
|-----------------------|----------|-----------------------------|-----|
| Packing Direction     | Vertical | Packing pallet weight (kg)  | 912 |
| Container Size (m)    | 40'      | Modules Per Pallet (pcs)    | 36  |
| Pallets Per Container | 26       | Modules Per Container (pcs) | 936 |

### Module Diagram (unit : mm)



### I-V Curves (HIN-T440NF (BK))



HD Hyundai Energy Solutions reserves the right to update or modify the specifications and features listed in this document without prior notice. Always check the latest version of this document for accurate information. Information using the product, please refer to the installation and operation manual and warranty. We thank you for your support and cooperation.

Sales & Marketing  
res.hid@hid.com



MODEL NUMBER: APKE00075



| MECHANICAL            |                                                                                                                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions            | 22 3/4 in. x 8 3/4 in. x 24 3/4 in.<br>(57.91 cm x 20.57 cm x<br>61.21 cm)                                                                                                              |
| Weight                | 62.1 lbs (28.15 kg)                                                                                                                                                                     |
| Mounting Options      | Wall                                                                                                                                                                                    |
| ENVIRONMENTAL         |                                                                                                                                                                                         |
| Operating Temperature | -22 to 122° F (-30 to 50° C)                                                                                                                                                            |
| Operating Humidity    | Up to 100% condensing                                                                                                                                                                   |
| Maximum Elevation     | 6562 ft (2000 m)                                                                                                                                                                        |
| Environment           | Indoor and outdoor rated                                                                                                                                                                |
| Enclosure Rating      | NEMA 3R                                                                                                                                                                                 |
| COMPLIANCE            |                                                                                                                                                                                         |
| Certifications        | UL 1741, UL 1741 S1, UL 1741<br>SR, UL 1998, IEEE 1547, IEEE<br>1547.4, IEEE 1547.5, IEEE<br>No. 21, NAB 4H (REC-030),<br>V2.0), ISO-NE, REC-024<br>Regulation No. 1815 (PREPA),<br>CSP |
| Emissions             | FCC Part 15 Class B                                                                                                                                                                     |

**PROJECT NAME & ADDRESS**  
ALBERTO VELEZ  
54 BANEERRY PLACE,  
BROADWAY, NC 27505

## SYSTEM DETAILS

**SYSTEM DETAILS**  
10. 120 KW DC-(STC) / 8.740 KW AC  
(23) HYUNDAI HIN-T40NF(BK)  
(23) ENPHASE IQ8HC-72-M-DOM-JUS  
(1) PWRCELL 2 APKE00075 w/ (4) 3.0.  
DCR BATTERY

| REV | DESCRIPTION | DATE |
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**SHEET TITLE**  
**INSTALLATION**  
**RESOURCE**

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| DRAWN DATE | 10/13/2025 |
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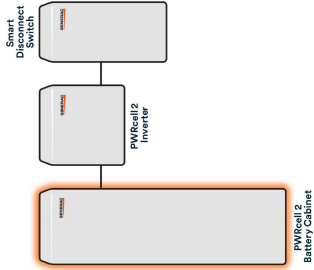
**SHEET NUMBER**

R-2

# PWRcell 2 Battery Cabinet

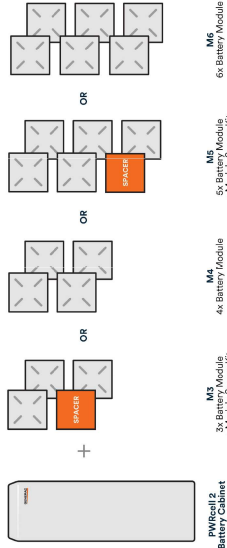
MODEL NUMBERS  
Battery Enclosure Only: APKE00076  
3.0 kWh PWRcell 2 DCB Battery Modules: G0080041

The PWRcell 2 Battery Cabinet can be configured for 9-18 kWh of storage capacity using 3.0 kWh battery modules.  
Suitable for indoor and outdoor wall mount\* with NEMA 3R rating.



## SYSTEM OVERVIEW Battery Cabinet

The PWRcell 2 Battery Cabinet is one component of the PWRcell 2 Home Energy Storage System.



## SYSTEM OVERVIEW Battery Configuration

\*Optional floor support with leveling feet (APKE00103).

## PWRcell 2 Battery Cabinet Specifications

| BATTERY CONFIGURATIONS                    |                                                                                                                                         |                  |                 |                    |        |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|--------------------|--------|
| PERFORMANCE                               |                                                                                                                                         |                  |                 |                    |        |
| Usable Battery Energy¹                    | 9 kWh                                                                                                                                   | 12 kWh           | 15 kWh          | 18 kWh             | 18 kWh |
| Max. Continuous Power²                    | 5.2 kW                                                                                                                                  | 7 kW             | 8.7 kW          | 10.5kW             |        |
| ELECTRICAL                                |                                                                                                                                         |                  |                 |                    |        |
| Voltage Range (Input/Output)              | 360 - 420 VDC                                                                                                                           |                  |                 |                    |        |
| Maximum Continuous Current                | 14.58 A                                                                                                                                 | 19.44 A          | 24.30 A         | 29.15 A            |        |
| ENVIRONMENTAL                             |                                                                                                                                         |                  |                 |                    |        |
| Operating Temperature Range - Charging    | 23 to 122 °F (-5 to 50 °C)                                                                                                              |                  |                 |                    |        |
| Operating Temperature Range - Discharging | -4 to 122 °F (-20 to 50 °C)                                                                                                             |                  |                 |                    |        |
| Maximum Elevation                         | 6560 ft (2000 m)                                                                                                                        |                  |                 |                    |        |
| Enclosure Rating                          | NEMA 3R                                                                                                                                 |                  |                 |                    |        |
| MECHANICAL                                |                                                                                                                                         |                  |                 |                    |        |
| Dimensions (DxWxH)                        | 10 ¼ in x 23 in x 70 in (271 cm x 58.2 cm x 177.7 cm)                                                                                   |                  |                 |                    |        |
| Total Weight of Cabinet                   | 113 lb (51.3 kg)                                                                                                                        |                  |                 |                    |        |
| Total Weight of Installed Unit            | 278 lbs (126.1 kg)                                                                                                                      | 333 lbs (151 kg) | 388 lbs (76 kg) | 443 lbs (200.9 kg) |        |
| Maximum Lift Weight of Cabinet            | 62.6 lbs (28.4 kg)                                                                                                                      |                  |                 |                    |        |
| Mounting                                  | Wall, with optional floor support                                                                                                       |                  |                 |                    |        |
| COMPLIANCE                                |                                                                                                                                         |                  |                 |                    |        |
| Safety                                    | UL 9540¹, UL 9540A, UL 1973, UL 1998                                                                                                    |                  |                 |                    |        |
| Environmental                             | FCC Part 15 Class B                                                                                                                     |                  |                 |                    |        |
| Evaluated Functions/Protection            | Battery overcharge, battery over discharge, battery short-circuit, system overcurrent, battery temperature, cabinet switch (disconnect) |                  |                 |                    |        |

¹At beginning of life at 77 °F (25 °C). See product warranty document for more information.  
²Derating may occur at temperatures above 104 °F (40 °C) and below 32 °F (0 °C).  
³Suitable for use in residential non-habitable spaces.

## CONTRACTOR

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PHONE - (804) 271-2500  
LIC. NO. - 2705036452

PROJECT NAME & ADDRESS  
ALBERTO VELEZ  
54 BANEERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

SYSTEM DETAILS  
10, 120 KW (DC+AC) / 8,740 KW AC  
(23) HYDRAULIC PUMP (HP)  
(1) PWRCELL 2 DCB BATTERY  
(1) PWRCELL 2 APKE00076 w/ (4) 3.0 kWh  
DCB BATTERY

## REVISIONS

| REV | DESCRIPTION | DATE |
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## SHEET TITLE INSTALLATION RESOURCE

DRAWN DATE 10/13/2025

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## SHEET NUMBER

R-3



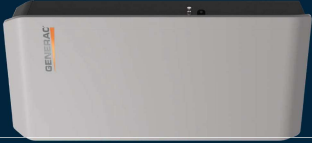
# Smart Disconnect Switch (SDS)

MODEL NUMBER: APKE00067

The Smart Disconnect Switch is a versatile and powerful addition to the PWRcell 2 system that aggregates all power generation sources into one hub - supporting AC-coupled PV, battery backup and generator integration. The SDS also has integrated power control systems (PCS), reducing the need for main service panel upgrades.

## Features & Benefits

- Integrates with ecobee Smart Thermostat Enhanced and Premium models, enhancing energy management capabilities
- Seamlessly connects Generac home standby generators up to 28 kW<sup>1</sup> for exceptional resiliency
- Wi-Fi, LTE connectivity
- Supports both partial and whole home backup
- Suitable for service and non-service entrance



## Specifications

| PERFORMANCE                         |                                                                                                             | ENVIRONMENTAL                  |                                                                                                                                                                                                                                           |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Voltage (Nominal)                | 20/240 V                                                                                                    | Operating Temperature          | -22 to 122 °F (-30 to 50 °C)                                                                                                                                                                                                              |
| Grid Type                           | Single Phase                                                                                                | Operating Humidity             | Up to 100% condensing                                                                                                                                                                                                                     |
| Grid Frequency                      | 60 Hz                                                                                                       | Maximum Elevation              | 6562 ft (2000 m)                                                                                                                                                                                                                          |
| Current Rating                      | 200 A                                                                                                       | Environment                    | Indoor and outdoor/rated                                                                                                                                                                                                                  |
| Minimum Input Short Circuit Current | 22 kA                                                                                                       | Enclosure Type                 | NEMA 3R                                                                                                                                                                                                                                   |
| Automatic Transfer Time             | < 50 ms                                                                                                     | COMPLIANCE                     |                                                                                                                                                                                                                                           |
| Overcurrent Protection Device       | Main breaker (EATON 2-pole series only): CSR2100N (100A), CSR2125N (125A), CSR2150N (150A), CSR2200N (200A) | Certifications                 | UL TH4, UL TH4-S411, UL TH4-SB, UL 8189A, UL 67, UL TH4-C80, PCS: UL 3141, IEEE 1547, IEEE 1547a, IEEE 1547.1, IEEE 2030.5, CSIP, CA Rule 21, Rule 14H (HECO SRD V2.0), ISO-NE, PSC-024, regulation No. 8915 (PKEPA), FCC Part 15 Class B |
| Over-voltage Category               | IV                                                                                                          | Emissions                      | FCC Part 15 Class B                                                                                                                                                                                                                       |
| Primary Connectivity                | Wi-Fi                                                                                                       | INTERCONNECTION                |                                                                                                                                                                                                                                           |
| Secondary Connectivity              | Cellular (LTE CAT-M), Ethernet                                                                              | Maximum Back Up Load Panel     | 200 A                                                                                                                                                                                                                                     |
| System Control Method               | CAN                                                                                                         | Maximum Non-Back Up Load Panel | 100 A                                                                                                                                                                                                                                     |
| Warranty                            | 10 years                                                                                                    | Generac Generator <sup>2</sup> | Up to 28 kW <sup>1</sup>                                                                                                                                                                                                                  |
| MECHANICAL                          |                                                                                                             | Max. AC PV Breaker Size        | 60 A <sup>1</sup>                                                                                                                                                                                                                         |
| Dimensions (L x W x H)              | 17 7/8 in x 7 7/8 in x 36 1/4 in (45.46 cm x 18.03 cm x 92.71 cm)                                           | ESS                            | 60 A <sup>1</sup>                                                                                                                                                                                                                         |
| Weight                              | 54 lbs (24.49 kg)                                                                                           |                                |                                                                                                                                                                                                                                           |
| Mounting Options                    | Wall                                                                                                        |                                |                                                                                                                                                                                                                                           |

<sup>1</sup>Check with your Generac representative for the latest updates.

<sup>2</sup>Compatible with Generac air-cooled home standby generators only.

## CONTRACTOR

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PROJECT NAME & ADDRESS  
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54 BANEERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

## SYSTEM DETAILS

10, 120 KW (DC+STC) / 8,740 KW AC  
(23) HYUNDAI HIN1740NFBK)  
(1) INVERTER (1) 100A DC-AC  
(1) PWRCELL 2 APKE00075 w/ (4) 3.0 kWh  
DCB BATTERY

## REVISIONS

| REV | DESCRIPTION | DATE |
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## SHEET TITLE INSTALLATION RESOURCE

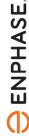
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## SHEET NUMBER

R-5





X-IQ-AMT-240-5-HDK  
X-IQ-AMT-240-5C-HDK  
X-IQ-AMT-240-5  
X-IQ-AMT-240-5C

## IQ Combiner 5/5C

The IQ Combiner 5/5C consolidates interconnection into a single enclosure and streamlines IQ Series Microinverters and IQ Gateway installation by providing a consistent, pre-wired solution for residential applications. IQ Combiner 5/5C uses wired control communication and is compatible with IQ System Controller 3/3G and IQ Battery 5P.

The IQ Combiner 5/5C, IQ Series Microinverters, IQ System Controller 3/3G, and IQ Battery 5P provide a complete grid-tied Enphase Energy System.



**IQ Series Microinverters**  
The high-powered smart grid-roof IQ Series Microinverters (IQ6, IQ7, and IQ8 Series) simplify the installation process.



**IQ System Controller 3/3G**  
Provides microgrid interconnection device (MID) functionality by automatically detecting grid failures and seamlessly transitioning the home energy system from grid power to backup power.



**IQ Load Controller**  
Fully integrated AC battery system. Includes six field-replaceable IQ8-BAT Microinverters, and prolongs battery life.



**IQ Battery 5P**  
Fully integrated AC battery system. Includes six field-replaceable IQ8-BAT Microinverters, and prolongs battery life.



5-year limited warranty



\*For country-specific warranty information, see the <https://enphase.com/installer/resources/warranty> page.  
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## IQ Combiner 5/5C

| MODEL NUMBER                                                       | WHAT'S IN THE BOX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IQ Combiner 5<br>X-IQ-AMT-240-5/ X-IQ-AMT-240-5-HDK                | IQ Combiner 5 with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20, IQ 5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes a silver solar shield to deflect heat.<br>IQ-AMT-240-5-HDK includes a factory installed hold-down kit compatible with all the circuit breakers mentioned in the <b>Accessories</b> and <b>Replacement Parts</b> section.                                                                          |
| IQ Combiner 5C<br>X-IQ-AMT-240-5C / X-IQ-AMT-240-5C-HDK            | IQ Combiner 5C with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-MT-06-SP-05). Includes a silver solar shield to deflect heat.<br>IQ-AMT-240-5C-HDK includes a factory installed hold-down kit compatible with all the circuit breakers mentioned in the <b>Accessories</b> and <b>Replacement Parts</b> section. |
| WHAT'S IN THE BOX                                                  | WHAT'S IN THE BOX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| IQ Gateway printed circuit board                                   | IQ Gateway is the platform for total energy management for comprehensive, remote maintenance, and management of the Enphase Energy System.                                                                                                                                                                                                                                                                                                                                                                  |
| Busbar                                                             | 80 A busbar with support for one IQ Gateway breaker and four 20 A breakers for installing IQ Series Microinverters and IQ Battery 5P                                                                                                                                                                                                                                                                                                                                                                        |
| IQ Gateway breaker                                                 | Circuit breaker, 2-pole, 10 A/15 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Production CT                                                      | Pre-wired revenue-grade solid-core CT, accurate up to ±0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Consumption CT                                                     | Two consumption metering clamp CTs, shipped with the box, accurate up to ±2.5%                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IQ Battery CT                                                      | One battery metering clamp CT, shipped with the box, accurate up to ±2.5%                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CTRL board                                                         | Control board for wired communication with IQ System Controller 3/3G and the IQ Battery 5P                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Enphase Mobile Connect (only with IQ Combiner 5C)                  | 4G-based LTE-MT cellular modem (CELLMODEM-MT-06-SP-05) with a 5-year T-Mobile data plan                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Accessories kit                                                    | Spare control headers for the COMMS-KIT-2 board                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY) | ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CELLMODEM-MT-06-SP-05                                              | 4G-based LTE-MT cellular modem with a 5-year T-Mobile data plan                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| CELLMODEM-MT-06-AT-05                                              | 4G-based LTE-MT cellular modem with a 5-year AT&T data plan                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Circuit breakers (off-the-shelf)                                   | Supports Eaton BR2XX, Siemens C2XX, and GE/ABB THQ1.21XX Series circuit breakers (XX represents 10, 15, 20, 30, 40, 50, or 60). Also supports Eaton BR220B, BR230B, and BR240B circuit breakers compatible with the hold-down kit.                                                                                                                                                                                                                                                                          |
| Circuit breakers (provided by Enphase)                             | BRK-10A-2P-240V, BRK-15A-2P-240V, BRK-20A-2P-240V, BRK-15A-2P-240V-B, and BRK-20A-2P-240V-B (more details in the "Accessories" section)                                                                                                                                                                                                                                                                                                                                                                     |
| XA-SOLARSHIELD-E3                                                  | Replacement solar shield for IQ Combiner 5/5C                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| XA-ENV2-FCBA-5                                                     | IQ Gateway replacement printed circuit board (PCB) for IQ Combiner 5/5C                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| X-IQ-NA-HD-125A                                                    | Hold-down kit compatible with Eaton BR-8 Series circuit breakers (with screws). Not required for X-IQ-AMT-240-5-HDK/X-IQ-AMT-240-5C-HDK.                                                                                                                                                                                                                                                                                                                                                                    |
| XA-COMMS2-PCBA-5                                                   | Replacement COMMS-KIT-2 printed circuit board (PCB) for IQ Combiner 5/5C                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ELECTRICAL SPECIFICATIONS                                          | ELECTRICAL SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Rating                                                             | 80 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| System voltage and frequency                                       | 120/240 VAC o 120/208 VAC, 60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Busbar rating                                                      | 125 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Fault current rating                                               | 10 kAIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Maximum continuous current rating (input from PV/storage)          | 64 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Branch circuits (solar and/or storage)                             | Up to four 2-pole Eaton BR, Siemens Q, or GE/ABB THQ1 Series distributed generation (DG) breakers only (not included)                                                                                                                                                                                                                                                                                                                                                                                       |
| Maximum total branch circuit breaker rating (input)                | 80 A of distributed generation/95 A with IQ Gateway breaker included                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IQ Gateway breaker                                                 | 10 A or 15 A rating GE/Siemens/Eaton included                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Production metering CT                                             | 200 A solid core pre-installed and wired to IQ Gateway                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

\*A plug-and-play industrial-grade cell modem for systems of up to 60 microinverters. Available in the United States, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.

IOC-5-SC-DSH-00007-6.0-EN-US-2024-09-30

## CONTRACTOR

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54 BANEERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

SYSTEM DETAILS  
10, 120 KW (DC+STC) / 7.8/40 KW AC  
(23) HYUNDAI NINJA+40NFBK)  
(1) 100AH 12V 100AH 12V AGM BATTERY  
(1) PWRCELL 2-APKE00075 W/ (4) 3.0 KWH  
DCB BATTERY

## REVISIONS

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## SHEET NUMBER

R-7

## Enphase Q Cable and Accessories

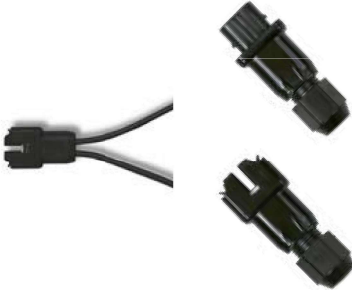
The **Enphase Q Cable™** and accessories are part of the sixth generation Enphase IQ System™. These products provide simplicity, reliability, and faster installation times.

### Enphase Q Cable

- Two-wire, double-insulated Enphase Q Cable is 50% lighter than the previous generation Enphase cable
- Four-wire (three-phase) option also available
- New cable numbering and plug and play connectors speed up installation and simplify wire management
- Link connectors eliminate cable waste

### Field-Wireable Connectors

- Easily connect Q cables on the roof without complex wiring
- Make connections from any open connector and center feed any section of cable within branch limits
- Available in male and female connector types



To learn more about Enphase offerings, visit [enphase.com/au](https://enphase.com/au)



## Enphase Q Cable Accessories

| Q CABLE SPECIFICATIONS          |                                     |  |  |  |
|---------------------------------|-------------------------------------|--|--|--|
| Voltage rating                  | 600V (connector rating up to 250 V) |  |  |  |
| Cable temperature rating        | 90° C wet/dry                       |  |  |  |
| UV exposure rating              | EN ISO 492-2                        |  |  |  |
| Environmental protection rating | IEC 60529 IP67                      |  |  |  |
| Compliance                      | ROHS, OIL RES I, CE, UV resists ant |  |  |  |
| Cable insulation rating         | H07BO-F                             |  |  |  |
| Flame rating                    | IEC 60332-1-2                       |  |  |  |

| Q CABLE TYPES / ORDERING OPTIONS |                     |                 |                   |                       |
|----------------------------------|---------------------|-----------------|-------------------|-----------------------|
| Model Number                     | Max Nominal Voltage | Amperage Rating | Connector Spacing | PV Module Orientation |
| Q-25-10-240 (single-phase)       | 250 VAC             | 25 A            | 1.3 m             | Portrait              |
| Q-25-10-240-A* (single-phase)    | 250 VAC             | 25 A            | 2.0 m             | Portrait              |
| Q-25-17-240 (single-phase)       | 250 VAC             | 25 A            | 2.3 m             | Portrait              |
| Q-25-17-240-A* (single-phase)    | 250 VAC             | 25 A            | 2.3 m             | Portrait              |
| Q-25-20-200 (single-phase)       | 250 VAC             | 25 A            | 2.3 m             | Portrait              |
| Q-25-20-200-A* (single-phase)    | 250 VAC             | 25 A            | 2.3 m             | Portrait              |
| Q-25-10-3P-200 (three-phase)     | 250 VAC             | 25 A            | 2.3 m             | Portrait              |
| Q-25-17-3P-160 (three-phase)     | 250 VAC             | 25 A            | 2.3 m             | Portrait              |
| Q-25-20-3P-160 (three-phase)     | 250 VAC             | 25 A            | 2.3 m             | Portrait              |

| ENPHASE Q CABLE ACCESSORIES       |                 |
|-----------------------------------|-----------------|
| Name                              | Model Number    |
| Raw Q Cable (single-phase)        | Q-25-RAW-300    |
| Raw Q Cable (three-phase)         | Q-25-RAW-3P-300 |
| Field-wireable connector (male)   | Q-CONN-R-10M    |
| Field-wireable connector (female) | Q-CONN-F-10M    |
| Field-wireable connector (male)   | Q-CONN-3P-10M   |
| Field-wireable connector (female) | Q-CONN-R-10F    |
| Field-wireable connector (female) | Q-CONN-3P-10F   |
| Cable Clip                        | ET-CLIP-00      |
| Disconnect tool                   | Q-DISC-11       |
| Q Cable sealing caps (female)     | Q-DISC-3P-10    |
| Terminator (single-phase)         | Q-SEAL-10       |
| Terminator (three-phase)          | Q-TERM-3P-10    |
| Replacement DC Adaptor (MC4)      | Q-DCC-2-INT     |

\* Models with "A" designation for use only in Australia and New Zealand.

|  |                                                                                                                                           |  |                                                                                                                                   |
|--|-------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------|
|  | <b>TERMINATOR</b><br>Terminator cap for unused cable (Q-TERM-R-11 / Q-TERM-3P-10)                                                         |  | <b>SEALING CAPS</b><br>Sealing caps for unused cable (Q-SEAL-10)                                                                  |
|  | <b>DISCONNECT TOOL</b><br>Plan to use at least one per installation, sold in packs of ten (Q-DISC-11)<br>Three-phase model (Q-DISC-3P-10) |  | <b>CABLE CLIP</b><br>Used to fasten cabling to the racking or to secure looped cabling, sold in packs of one hundred (ET-CLIP-00) |

To learn more about Enphase offerings, visit [enphase.com/au](https://enphase.com/au)

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## CONTRACTOR

SOLARTYME BY AAPCO  
6710 JEFFERSON DAVIS HWY  
RICHMOND, VIRGINIA 23237  
PHONE - (804) 271-2500  
LIC. NO. - 2705036452

PROJECT NAME & ADDRESS  
ALBERTO VELEZ  
54 BANEERRY PLACE,  
BROADWAY, NC 27505

AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

SYSTEM DETAILS  
10, 120 KW (DC+STC) / 8,740 KW AC  
(23) HYBRID INVERTER (HIBK)  
(1) 100A DC BUS  
(1) PV CELL 2 APR50075 W / 4) 3.0 MWH  
DCB BATTERY

## REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
|     |             |      |
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SHEET TITLE  
INSTALLATION  
RESOURCE

DRAWN DATE 10/13/2025

DRAWN BY VHN

## SHEET NUMBER

R-8

**UNIRAC**  
BETTER SOLAR STARTS HERE

**25 YEAR** FULL-SYSTEM WARRANTY

**NXT UMOUNT™ COMBO CLAMP**

DARK: CCLAMPDT  
MILL: CCLAMPMT

Clicks into rail anywhere (even where there are cables) Self-standing clamp with spring combines as both mid and end clamp. Clamps 30-40 mm modules. 1/2 inch module spacing for efficiency.

Non-reversible, heat-treated, works both on rail and end plates

**STRONGHOLD™ RAIL CLAMP**

**NUHECLAMP**

The NXT Hidden end clamp comes preassembled to the end cap with a pull wire, allowing the installer to easily slide the clamp into the rail. Set the module, pull and hold the clamp in place while fastening in place, then cover the end of the rail for a sleek finish. Clamps any module with a return flange.

**NXT UMount™  
CAP KIT**



The pre-applied butyl pad removes the need for additional flashing. Just peel the liner, place the attachment, and fasten it to the roof. Butyl conforms to the screws and roof for a robust, dependable seal with no extra work!

003251W  
BUTYL™ PADS  
XTRABRITI™ SH

The pre-applied butyl pad removes the need for additional flashing. Just peel the liner, place the attachment, and fasten it to the roof. Butyl conforms to the screws and roof for a robust, dependable seal with no extra work!

## MILL-168RLM1

Strong, lightweight open channel rail with invisible, easy, unfurling and integrated wire management systems



Structural internal splice that does not interfere with roof connection nor module connection, and can even install outside the cantilever! Pre-assembled thread cutting bolts

**LUG/MLEI**

Works as either MLPE Mount or Grounding Lug connection to the rail. Why source two parts when one can do the job?

esthetic, yet functional accessory that will help installers keep wires inside the rail to zip-ties required. Optional zip tie loop for extra wire management capabilities!

...aesthetic, yet functional accessory that will help installers keep wires inside the rail to zip-ties required. Optional zip tie loop for extra wire management capabilities!

**WIRMSCHSD1**

An elegant solution to help installers get to the home run. The same hardware works to provide both easy entry to rail and adjustability for cable thickness.

An elegant solution to help installers get to the home run. The same hardware works to provide both easy entry to rail and adjustability for cable thickness.

10.120 KW DC-(STC) / 8.740 KW AC  
(23) HYUNDAI HIN-T440NF(BK)  
(23) ENPHASE IQ8HC-72-M-DOM-US  
(1) PWRCELL 2 APKE00075 w/ (4) 3.0  
DCR BATTERY

| REV | DESCRIPTION | DATE |
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|            |            |
|------------|------------|
| DRAWN DATE | 10/13/2025 |
| DRAWN BY   | VHN        |

## R-9

# STRONGHOLD™ | BUTYL



Unirac's STRONGHOLD™ Butyl is efficient, dependable, and optimized for UNIRAC's NXT UMOUNT™ system. The pre-applied butyl pad removes the need for additional flashing. Just peel the liner, place the attachment, and fasten it to the roof. In addition, the butyl, used throughout the roofing and solar industries for its reliability, conforms to the screws and roof for a robust, dependable seal with no extra work! Couple this with the NXT UMOUNT™ system, and you have a highly reliable, easy-to-install system with integrated wire management.



### KITTED WITH

- ONE (1) STRONGHOLD™ Butyl direct-to-deck attachment with pre-applied butyl patch (Extra patches for shimming available.)
- TWO (2) screws for rafter installation (Additional screws for direct-to-deck applications available.)
- ONE (1) NXT Rail Clamp

FOR QUESTIONS OR CUSTOMER SERVICE CONTACT: 505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM

# STRONGHOLD™ | BUTYL



### SIMPLIFIED FLASHLESS SOLUTION

- One-step Butyl application
- Reliable waterproofing without messy sealant
- Eliminate roof disturbance
- Minimize labor

### OPTIMIZED FOR NXT UMOUNT, UNIRAC'S OPEN CHANNEL RAIL SYSTEM

- Open slot design for ease of rail connectivity with included STRONGHOLD™ NXT rail clamp
- STRONGHOLD™ Butyl combined with the NXT UMOUNT system make installation and wire management a breeze

### DUAL MOUNTING OPTIONS

- UL Certified with NXT UMOUNT
- Pre attached butyl pad. Simply peel, stick, and fasten with the two (2) included screws for rafter mount
- For direct-to-deck applications, additional decking screws are available

### ADDITIONAL BENEFITS

- Mill and Dark Finishes
- Option for extra cross-source butyl patches
- Competitively priced with standard rafter attachments

## UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT



UNMATCHED EXPERIENCE



CERTIFIED QUALITY



ENGINEERING EXCELLENCE



BANKABLE WARRANTY



DESIGN TOOLS



PERMIT DOCUMENTATION

### TECHNICAL SUPPORT

UNIRAC's technical support team is dedicated to answering questions & addressing issues in real time. An online library of documents including engineering reports, stamped letters and technical data sheets greatly simplifies your permitting and project planning process.

### CERTIFIED QUALITY PROVIDER

UNIRAC is the only PV mounting vendor with ISO certifications for 9001:2015, 14001:2015 and OHSAS 18001:2007, which means we deliver the highest standards for fit, form, and function. These certifications demonstrate our excellence and commitment to first class business practices.

### BANKABLE WARRANTY

Don't leave your project to chance. UNIRAC has the financial strength to back our products and reduce your risk. Have peace of mind knowing you are receiving products of exceptional quality. STRONGHOLD™ products are covered by a twenty five (25) year limited product warranty.

### CONTRACTOR

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AHJ: HARNETT COUNTY  
UTILITY: DUKE ENERGY  
PROGRESS

SYSTEM DETAILS  
10, 120 KW (DC+STC) / 8,740 KW AC  
(23) HYBRID (HIN+HOUT+BP)  
(1) PV INVERTER: SMA 15000TL  
(1) PVWCELL: 2-APR50075 W / (4) 3.0 MWH  
DCB BATTERY

### REVISIONS

| REV | DESCRIPTION | DATE |
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### SHEET TITLE INSTALLATION RESOURCE

DRAWN DATE 10/13/2025

DRAWN BY VHN

### SHEET NUMBER

R-10