

DeKalb County Historic Preservation Commission

Tuesday, January 21, 2025 - 6:00 P.M.

Staff Report

Regular Agenda

D. 1722 Coventry Road, Gaines Moore. Install solar panels on front roof of house. **1247315**

Built in 1946 (18 004 05 024)

This property is in the Chelsea Height Character Area but is not in a National Register Historic District.

- 05-00 1722 Coventry Road (DH), James J. Hasken. Construct wooden storage shed in backyard. **Approved.**
- 03-17 1722 Coventry Road (DH), Alice Johnson Design. Replace nonhistoric windows in an enclosed porch, build a rear addition and modify the front steps. 21441. **Approved.**
- 01-21 1722 Coventry Road (DH), Marion Carter. Add a shed dormer to the rear roof slope. 1244662. **Approved.**
- 11-24 1722 Coventry Road, Gaines Moore. Install solar panels on front roof of house. 1247315. **Deferred.**

Summary

January 2025

The applicant provided a planting plan to assist in mitigating the appearance of the installed solar panels. The applicant proposes planting four (4) Sweet shrub bushes along the retaining wall in the front yard, near the sidewalk running along Coventry Road. The retaining wall measures three feet in height and the bushes will be planted three feet from the retaining wall. The applicant also proposes planting two (2) small Redbud trees closer to the house, estimated at 20 feet from the house, and an estimated 15 feet apart.

November 2024

The applicant proposes installing a solar energy system to the roof of a historic house. The solar energy system will consist of a total of 16 solar panels installed on the roof of the house, facing toward Coventry Road. The panels will be located on the main roof of the house and the attached sunroom located on the right side of the house.

Recommendation

Approve. The proposed changes do not appear to have a substantial adverse effect on the property or the district. This application appears to meet the guidelines and the staff recommends approval.

Relevant Guidelines

- 5.0 *Design Review Objective* (p45) - When making a material change to a structure that is in view from a public right-of-way, a higher standard is required to ensure that design changes are compatible with the architectural style of the structure and retain character-defining features. When a proposed material change to a structure is not in view from the public-right-way, the Preservation Commission may review the project with a less strict standard so as to allow the owner more flexibility. Such changes, however, shall not have a substantial adverse effect on the overall architectural character of the structure.

- 9.3 *Vegetation (p83) Recommendation* – The plant list is intended to assist in the selection of appropriate plant materials. Olmsted's list and the list from the Georgia Landscapes Project provide guidance in selecting materials appropriate for historic landscape projects. There are other sources that can be consulted to identify additional plants used by Olmsted in Druid Hills, such as historic planting plans and particularly the archival record at the Olmsted National Historic Site in Brookline, Massachusetts. The Olmsted list presented in this document should be considered a beginning. Residents of Druid Hills are encouraged to add to this list with historic plants that can be documented as having been used by Olmsted. The native list should be used for natural areas within the district, such as creek corridors and drainage ways. Places within the district where the retention of healthy ecological environments is critical are best landscaped with native varieties. Since native plants have been available since the colony of Georgia was established in 1733, native plants are also appropriate for historic landscapes.
- 17.0 *Special note regarding materials* – In general, materials should be in keeping with those that are endemic to the neighborhood, namely, wood, granite, brick and asphalt. However, newer material may be introduced into the neighborhood if in keeping with the historical context of these older materials. For example, the use of cementitious siding that mimics the profile and texture of wood (commonly referred to as Hardieplank) may be consistent with some exterior applications. The introduction of some “green” materials, for example, solar shingling and panels, may be appropriate and should be given special design consideration.

Chief Executive Officer
Michael Thurmond

DEPARTMENT OF PLANNING & SUSTAINABILITY

Interim Director
Cedric Hudson

Application for Certificate of Appropriateness

Date submitted: 10/14/24 Date Received: _____

Address of Subject Property: 1722 Coventry Rd Decatur, Ga 30030

Applicant: Gaines Moore E-Mail: gaines@bettertomorrowsolar.com

Applicant Mailing Address: 1074 Memorial Dr SE Atlanta, GA 30316

Applicant Phone: 404-398-2840

Applicant's relationship to the owner: Owner Architect Contractor/Builder Other

Owner(s): Marion Carter Email: mwcarter@fastmail.com

Owner(s): _____ Email: _____

Owner(s) Mailing Address: 1722 Coventry Rd Decatur, Ga 30030

Owner(s) Telephone Number: 404-825-6101

Approximate date of construction of the primary structure on the property and any other structures affected by this project: _____

Nature of work (check all that apply):

New construction	<input type="checkbox"/>	New Accessory Building	<input type="checkbox"/>	Other Building Changes	<input type="checkbox"/>
Demolition	<input type="checkbox"/>	Landscaping	<input type="checkbox"/>	Other Environmental Changes	<input type="checkbox"/>
Addition	<input type="checkbox"/>	Fence/Wall	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>
Moving a Building	<input type="checkbox"/>	Sign Installation	<input type="checkbox"/>	Solar Panels	

Description of Work:

Installation of rooftop solar system

This form must be completed in its entirety and be accompanied by supporting documents, such as plans, list of materials, color samples, photographs, etc. All documents should be in PDF format, except for photographs, which may be in JPEG format. Email the application and supporting material to plansustain@dekalbcountyga.gov and pvjennings@dekalbcountyga.gov. An incomplete application will not be accepted.

Signature of Applicant: 



DEPARTMENT OF PLANNING & SUSTAINABILITY

Authorization of a Second Party to Apply for a Certificate of Appropriateness

This form is required if the individual making the request is not the owner of the property.

I/ We: Marion Carter

being owner(s) of the property at: 1722 Coventry Rd Decatur, Ga 30033

hereby delegate authority to: Gaines Moore

to file an application for a certificate of appropriateness in my/our behalf.

Signature of Owner(s): Marion Carter

Date:

Please review the following information

Approval of this Certificate of Appropriateness does not release the recipient from compliance with all other pertinent county, state, and federal regulations.

Before making any changes to your approved plans, contact the preservation planner (404/371- 2155). Some changes may fall within the scope of the existing approval, but others will require review by the preservation commission. If work is performed which is not in accordance with your certificate, a Stop Work Order may be issued.

If your project requires that the county issue a Certificate of Occupancy at the end of construction, an inspection may be made to verify that the work has been completed in accord with the Certificate of Appropriateness. If the work as completed is not the same as that approved in the Certificate of Appropriateness you will not receive a Certificate of Occupancy. You may also be subject to other penalties including fines and/or required demolition of the non-conforming work.

If you do not commence construction within twelve months of the date of approval, your Certificate of Appropriateness will become void and you will need to apply for a new certificate if you still intend to do the work.

PHOTOVOLTAIC ROOF MOUNT SYSTEM

16 MODULES-ROOF MOUNTED - 6.400 kW DC, 7.600 kW AC
1722 COVENTRY RD, DECATUR GA 30030, USA

PHOTOVOLTAIC SYSTEM SPECIFICATIONS:

SYSTEM SIZE: 6.400 kW DC
7.600 kW AC

MODULE TYPE & AMOUNT: (16) Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES

MODULE DIMENSIONS: (L/W/H) 74.0"/41.1"/1.26"

INVERTER: (1) EP CUBE HYBRID INVERTER

RAPID SHUTDOWN (16) TIGO: TS4-A-F MODULE-LEVEL RAPID SHUTDOWN

INTERCONNECTION METHOD: BACKFEED BREAKER

BATTERY:- EP CUBE HYBRID NA510G BATTERY (9.9kwh)

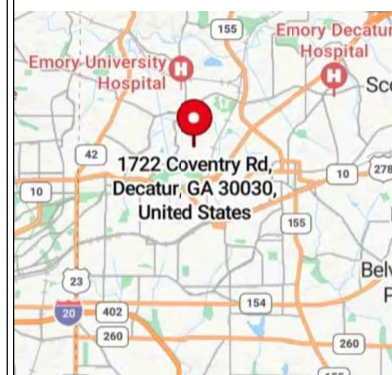
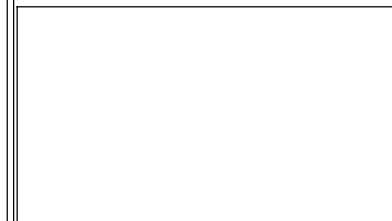
SMART GATEWAY:- (1) EP CUBE: SMART GATEWAY

- ALL COMPONENTS ARE UL LISTED AND NEC CERTIFIED, WHERE WARRANTED.
- THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2020.
- THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
- ALL CONDUCTORS OF A CIRCUIT, INCLUDING THE EGC, MUST BE INSTALLED IN THE SAME RACEWAY, OR CABLE, OR OTHERWISE RUN WITH THE PV ARRAY CIRCUIT CONDUCTORS WHEN THEY LEAVE THE VICINITY OF THE PV ARRAY.
- WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
- HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6-7" PER NEC CODE 240.24.
- A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 2020 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED, PER NEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #6 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
- PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
- PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
- ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF THE ROOF SURFACE.
- ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH THE 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.
- INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
- THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
- ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
- ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
- SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
- PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
- DISCONNECTING MEANS SHALL BE LOCATED IN A VISIBLE, READILY ACCESSIBLE LOCATION WITHIN THE PV SYSTEM EQUIPMENT OR A MAXIMUM OF 10 FEET AWAY FROM THE SYSTEM [NEC 690.13(A)]
- ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
- WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
- ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED & IDENTIFIED IN ACCORDANCE WITH UL1703
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.
- THE ENCHARGE BATTERY AS PART OF THE ENSEMBLE SYSTEM DOES NOT EXPORT POWER TO THE GRID IN ANY STORAGE MODE.
- IN ACCORDANCE WITH 2021 IFC 1205.5, 2018 IFC 1204.4, AND 2015 IFC 605.11.2 A CLEAR, BRUSH-FREE AREA OF 10 FEET(3048 MM) SHALL BE REQUIRED FOR GROUND-MOUNTED PHOTOVOLTAIC ARRAYS.
- PANEL LAYOUT ORIENTATION IS SUBJECT TO CHANGE ON DESIGNED MOUNTING PLANES.
- ALL PERMANENTLY INSTALLED LUMINARIES, EXCLUDING THOSE IN KITCHEN APPLIANCES, SHALL HAVE AN EFFICIENCY OF AT LEAST 45 LUMENS-PER-WATT OR SHALL UTILIZE LAMPS WITH AN EFFICIENCY OF NOT LESS THAN 65 LUMENS-PER-WATT.

SHEET INDEX:

PV 0.0: COVER SHEET
 PV 1.0: PLOT PLAN WITH ROOF PLAN
 PV 1.1: ROOF PLAN WITH MODULES
 PV1.2: STRING LAYOUT
 PV1.3: ATTACHMENT DETAIL
 PV1.4: ATTACHMENT DETAIL
 PV1.5: ATTACHMENT DETAIL
 PV1.6: BOM
 E 1.1: 3-LINE DIAGRAM
 E 1.2: WIRE CALCULATION
 E 1.3: LABELS
 E 1.4: PLACARDS
 D 1.1: EQUIPMENT SPEC SHEET

SIGNATURE



2 VICINITY MAP

PV 0.0

SCALE: NTS

GOVERNING CODES

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES

INTERNATIONAL BUILDING CODE 2018 (IBC 2018),
 INTERNATIONAL RESIDENTIAL CODE 2018 (IRC 2018),
 INTERNATIONAL FIRE CODE 2018 (IFC 2018),
 INTERNATIONAL ENERGY CONSERVATION CODE 2015 (IECC 2015),
 NATIONAL ELECTRICAL CODE, 2020,



1

SATELLITE VIEW

FV 0.0

SCALE: NTS



BETTER TOMORROW
SOLAR
1074 Memorial Dr SE, Atlanta, GA 30316

CONTRACTOR

REVISIONS

Description	Date	Rev
Initial Design	10-02-2024	
	10-05-2024	01

Signature with Seal

Project Name & Address

MARION CARTER RESIDENCE
1722 COVENTRY RD
DECATUR GA 30030, USA
APN #: 1800406024

Service #

Sheet Name

COVER SHEET

Sheet Size

ANSI B
11" X 17"

Sheet Number

PV 0.0

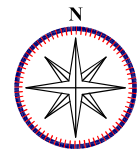
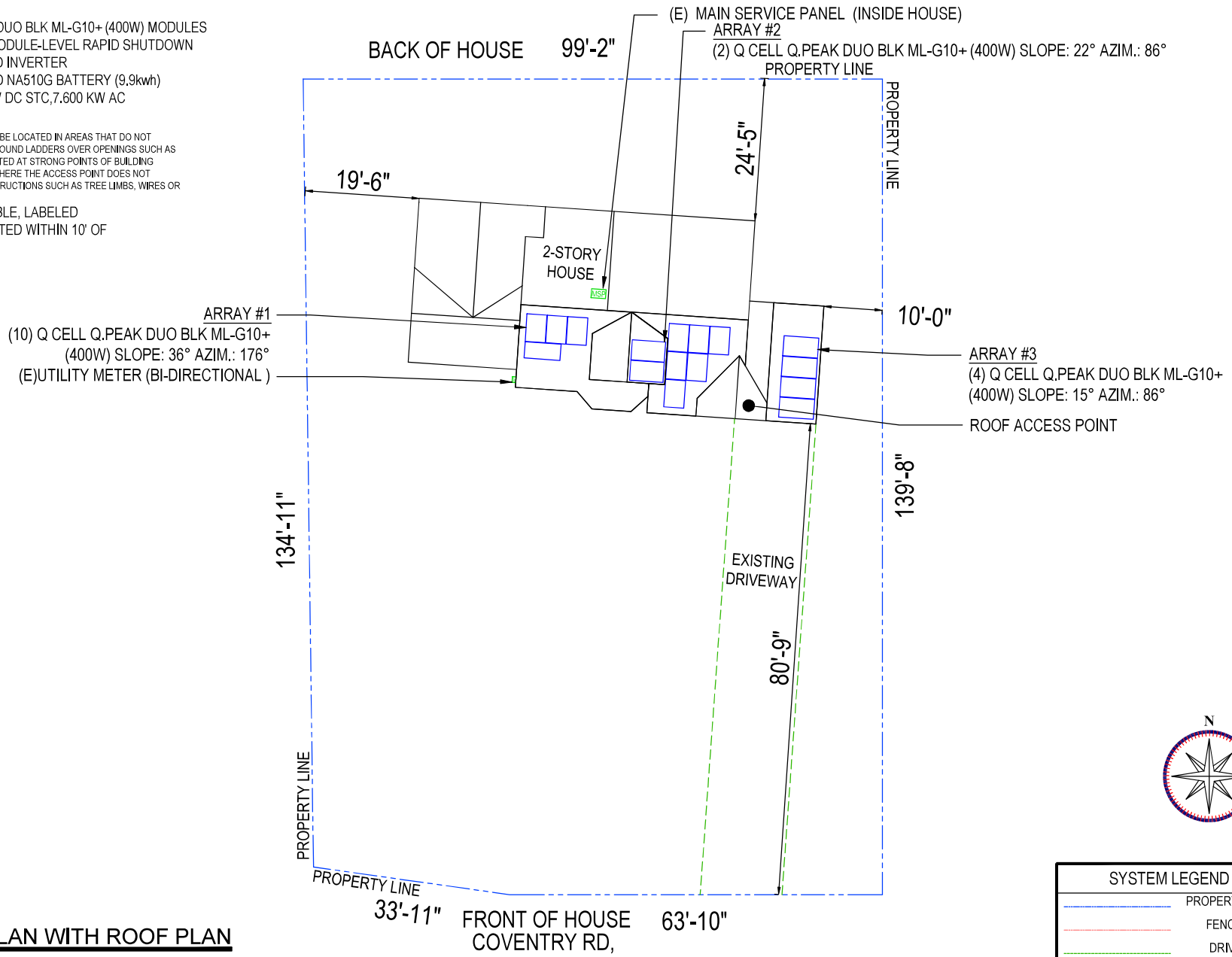
SYSTEM SUMMARY

- 16 Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
 - 16 TIGO: TS4-A-F MODULE-LEVEL RAPID SHUTDOWN
 - 1 EP CUBE HYBRID INVERTER
 - 1 EP CUBE HYBRID NA510G BATTERY (9.9kwh)
- SYSTEM SIZE: 6.400 KW DC STC, 7.600 KW AC

ROOF ACCESS POINT

ROOF ACCESS POINT SHALL NOT BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.

NOTE: VISIBLE, LOCKABLE, LABELED
AC DISCONNECT LOCATED WITHIN 10' OF UTILITY METER



SYSTEM LEGEND	
	PROPERTY LINE
	FENCE LINE
	DRIVEWAY

 BETTER TOMORROW SOLAR 1074 Memorial Dr SE, Atlanta, GA 30316		
CONTRACTOR		
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MARION CARTER RESIDENCE 1722 COVENTRY RD DECATUR GA 30030, USA APN #: 18000406024		
Service #		
Sheet Name		
PLOT PLAN WITH ROOF PLAN		
Sheet Size		
ANSI B 11" X 17"		
Sheet Number		
PV 0.1		

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 16 MODULES
 MODULE TYPE = Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
 MODULE WEIGHT = 48.5 LBS / 22.0 KG.
 MODULE DIMENSIONS = 74.0"X 41.1" = 21.12 SF
 UNIT WEIGHT OF ARRAY = 2.30 PSF
SYSTEM SUMMARY
 16 Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
 16 TIGO: TS4-A-F MODULE-LEVEL RAPID SHUTDOWN
 1 EP CUBE HYBRID INVERTER
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 SYSTEM SIZE: 6.400 KW DC STC, 7.600 KW AC

RACKING MATERIAL LIST		
RAIL:		8
END CLAMP:		28
MID CLAMP:		18
ATTACHMENT:		48
GROUNDING LUG:		7
SPLICE KIT:		0

ROOF DESCRIPTION					
ROOF TYPE			COMPOSITE SHINGLE		
ROOF	ROOF TILT	AZIMUTH	FRAMING SIZE	FRAMING SPACING	
#1	36°	176°	2"X4"	16"	
#2	22°	86°	2"X4"	16"	
#3	15°	86°	2"X4"	16"	

SYSTEM LEGEND

- M (E) MAIN SERVICE PANEL (INSIDE OF HOUSE)
- UM (E) UTILITY METER (BI-DIRECTIONAL) NA
- ACD (N) PHOTOVOLTAIC UTILITY DISCONNECT SWITCH, LOCATED WITHIN 10'
- INV (N) EP CUBE HYBRID INVERTER
- BAT (N) EP CUBE HYBRID BATTERY (9.9kwh)
- BLP (E) BACKUP LOAD PANEL
- SD (N) SOLADECK BOX

/ FIRE SETBACK

O = ROOF OBSTRUCTIONS

= EMT CONDUIT

= ROOF RAIL

● = ROOF ATTACHMENT

BETTER TOMORROW SOLAR
 1074 Memorial Dr SE, Atlanta, GA 30316

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 DECATUR GA 30030, USA
 APN #: 1800406024

Service #

Sheet Name
ROOF PLAN WITH MODULES

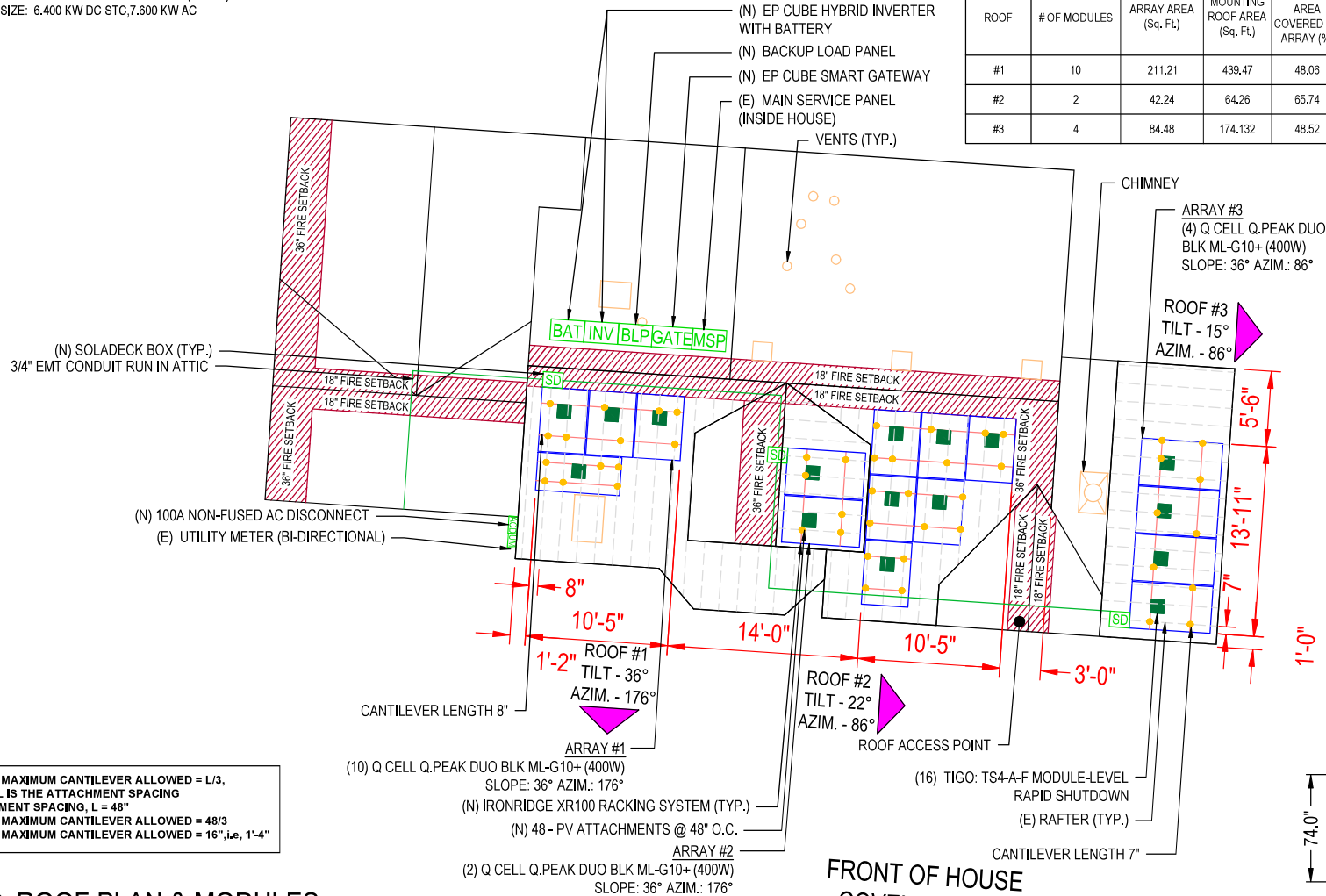
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 11" X 17"**

Sheet Number
PV 1.1

TOTAL ARRAY AREA WITH MOUNTING ROOF AREA				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	MOUNTING ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	10	211.21	439.47	48.06
#2	2	42.24	64.26	65.74
#3	4	84.48	174.132	48.52

BACK OF HOUSE

FRONT OF HOUSE
 COVENTRY RD,

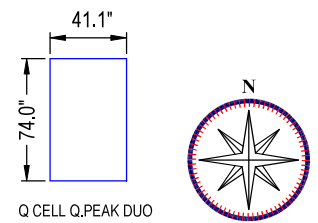


ROOF SECTIONS

Roof #	Module Count	Slope	Azimuth	Material	Rafter Spacing
ROOF #01	10	36°	176°	COMP SHINGLE	2"X4" @ 16" O.C.
ROOF #02	2	22°	86°	COMP SHINGLE	2"X4" @ 16" O.C.
ROOF #03	4	15°	86°	COMP SHINGLE	2"X4" @ 16" O.C.

ACTUAL MAXIMUM CANTILEVER ALLOWED = L/3, WHERE L IS THE ATTACHMENT SPACING
 ATTACHMENT SPACING, L = 48"
 ACTUAL MAXIMUM CANTILEVER ALLOWED = 48/3
 ACTUAL MAXIMUM CANTILEVER ALLOWED = 16", i.e., 1'-4"

1 ROOF PLAN & MODULES
 SCALE: 1/8" = 1'-0"

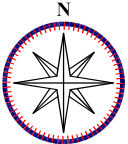


SYSTEM SUMMARY

- 16 Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
 - 16 TIGO: TS4-A-F MODULE-LEVEL RAPID SHUTDOWN
 - 1 EP CUBE HYBRID INVERTER
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- SYSTEM SIZE: 6.400 KW DC STC, 7.600 KW AC



FRONT OF HOUSE
COVENTRY RD,



CIRCUIT(S)	
	CIRCUIT #1 - 8 MODULES
	CIRCUIT #2 - 8 MODULES

1 **CIRCUIT LAYOUT**
PV 1.2 SCALE: 3/16" = 1'-0"



BETTER TOMORROW SOLAR
1074 Memorial Dr SE, Atlanta, GA 30316

CONTRACTOR

REVISIONS

Description	Date	Rev
Initial Design	10-02-2024	
	10-05-2024	01

Signature with Seal

Project Name & Address

MARION CARTER RESIDENCE
1722 COVENTRY RD
DECATUR GA 30030, USA
APN #: 1800040024

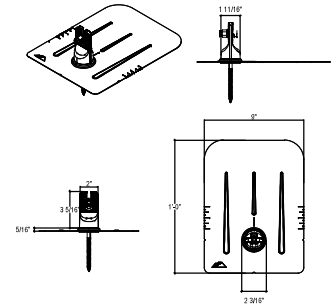
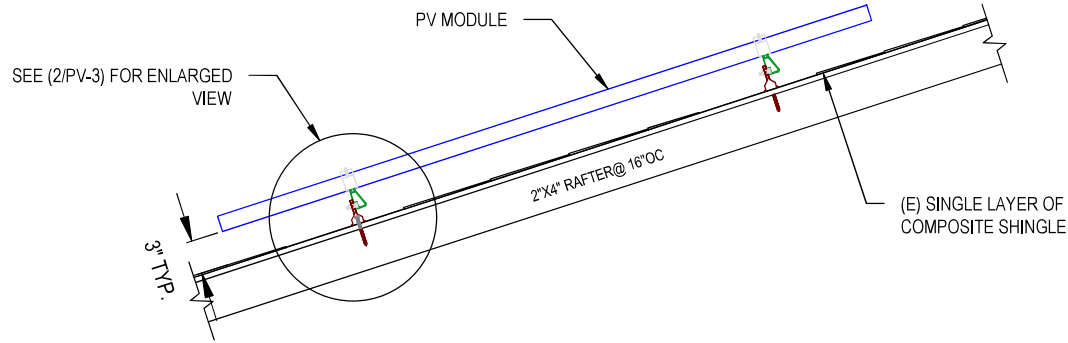
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Sheet Name
STRING LAYOUT

Sheet Size
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11" X 17"**

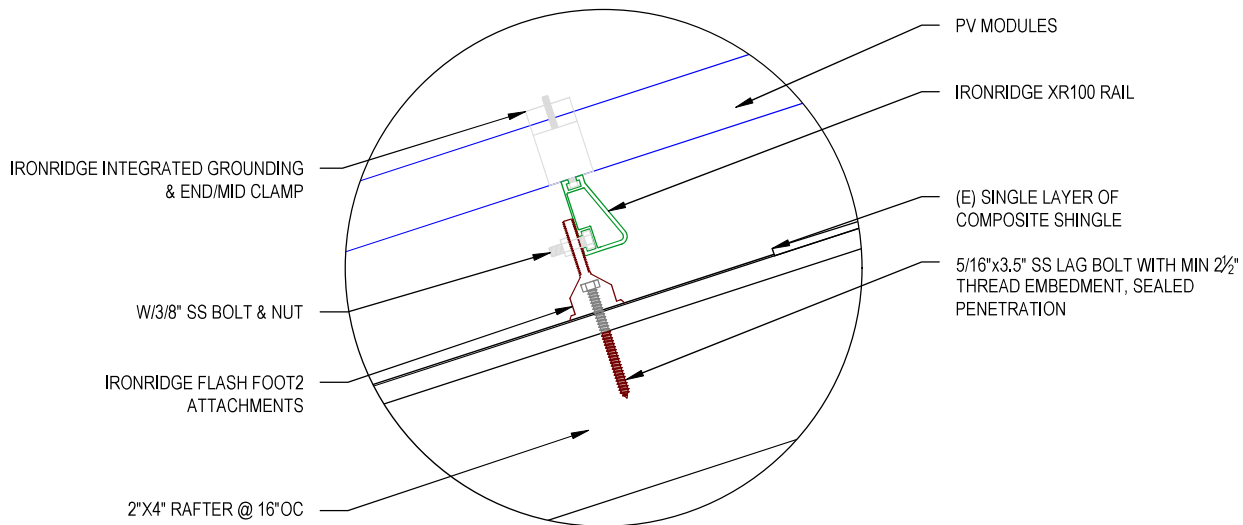
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SYSTEM SUMMARY
 16 Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
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 1 EP CUBE HYBRID INVERTER
 1 EP CUBE HYBRID NA510G BATTERY (9.9kwh)
 SYSTEM SIZE: 6.400 KW DC STC, 7.600 KW AC



1 ATTACHMENT DETAIL

PV-3 SCALE: NTS



2 ATTACHMENT DETAIL (ENLARGED VIEW)

PV-3 SCALE: NTS



BETTER TOMORROW SOLAR
 1074 Memorial Dr SE, Atlanta, GA 30316

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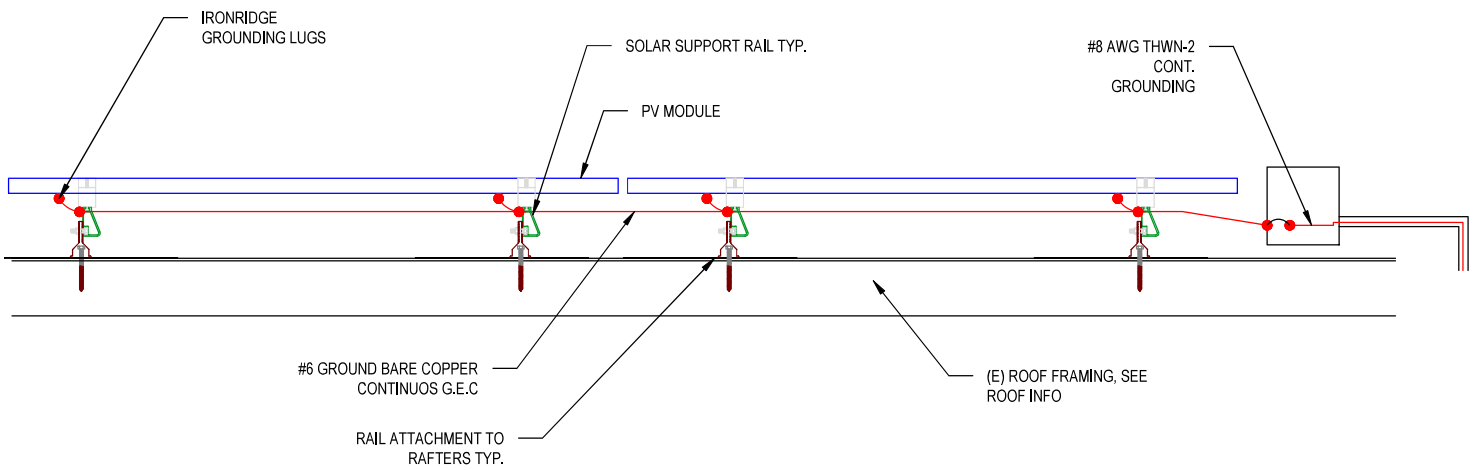
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 1722 COVENTRY RD
 DECATUR GA 30030, USA
 APN #: 18000406024

Service #

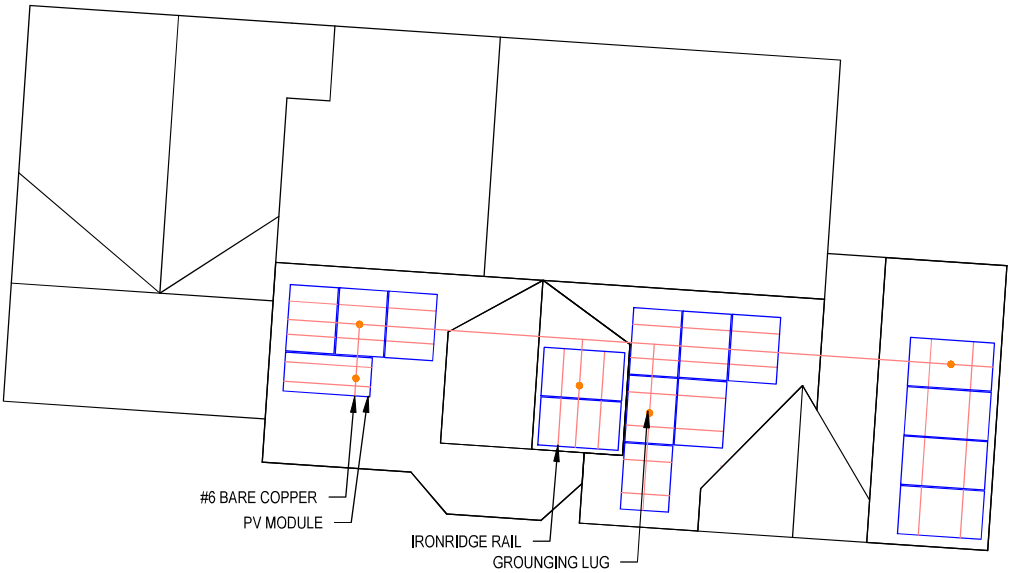
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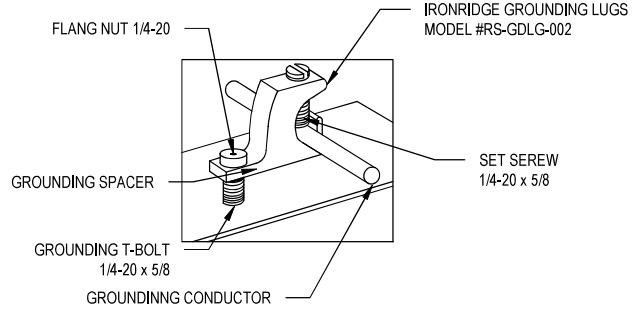
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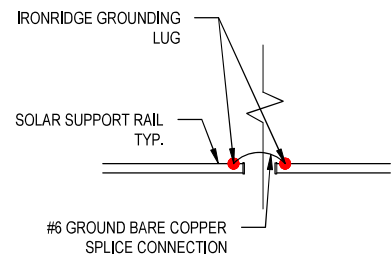
1 | **GROUNDING DETAIL**
PV-3A | SCALE: N.T.S.



2 | **GROUNDING DETAIL**
PV 1.4 | SCALE: N.T.S.



3 | **DETAIL**
PV-3A | SCALE: N.T.S.



4 | **DETAIL**
PV-3A | SCALE: N.T.S.

BETTER TOMORROW SOLAR
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Signature with Seal

Project Name & Address
MARION CARTER RESIDENCE
1722 COVENTRY RD
DECATUR GA 30030, USA
APN #: 1800040024

Service #

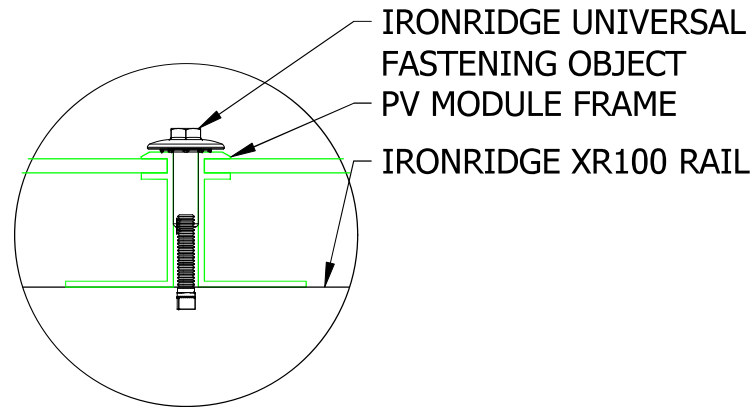
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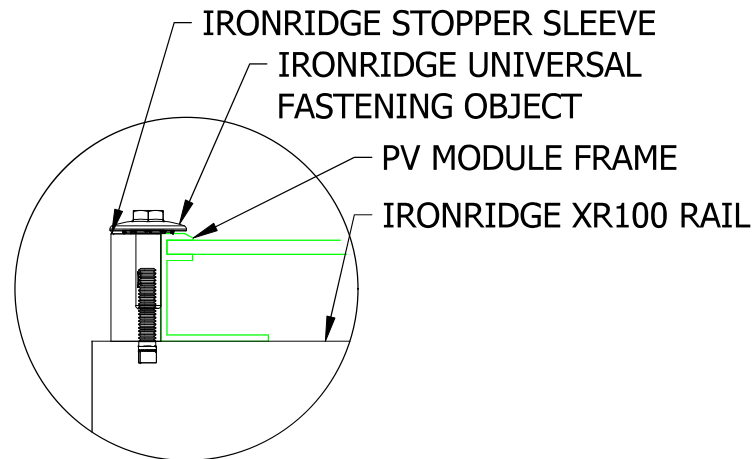
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SYSTEM SUMMARY

- 16 Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
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- SYSTEM SIZE: 6.400 KW DC STC, 7.600 KW AC



1 | **DETAIL, MID CLAMP FRONT**
PV 1.5 | Scale: 6" = 1'-0"



2 | **DETAIL, END CLAMP (UFO) FRONT**
PV 1.5 | Scale: 6" = 1'-0"



BETTER TOMORROW SOLAR
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Signature with Seal

Project Name & Address

MARION CARTER RESIDENCE
1722 COVENTRY RD
DECATUR GA 30030, USA
APN #: 1800040024

Service #

Sheet Name
ATTACHMENT DETAIL

Sheet Size

ANSI B
11" X 17"

Sheet Number

PV 1.5

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 16 MODULES
 MODULE TYPE = Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
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 MODULE DIMENSIONS = 74.0"X 41.1" = 21.12 SF
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 1 EP CUBE HYBRID NA510G BATTERY (9.9kwh)
 SYSTEM SIZE: 6.400 KW DC STC,7.600 KW AC

BILL OF MATERIALS

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	16	Q CELL Q.PEAK DUO BLK ML-G10+ (400W) MODULES
INVERTER	1	EP CUBE HYBRID INVERTER
RAPID SHUTDOWN	16	TIGO: TS4-A-F MODULE-LEVEL RAPID SHUTDOWN
BATTERY	1	EP CUBE HYBRID NA510G BATTERY (9.9kwh)
SOLADECK	3	SOLADECK
AC DISCONNECT	1	100A NON-FUSED AC DISCONNECT 240A UL LISTED
ATTACHMENTS	48	FALSHFOOT 2 PV ATTACHMENTS [FF2-01-B1]
RAILS	8	IRONRIDGE XR100 RAIL-168" SECTION
RAIL SPLICE	0	SPLICE KIT
MID CLAMPS	18	MID CLAMPS / UFO
END CLAMPS	28	END CLAMPS / STOPPER SLEEVE
GROUNDING LUG	7	GROUNDING LUG

DISCLAIMER: MATERIALS REQUIRED LIST FOR CONCEPTUAL USE ONLY THE INTENT IS TO AID CONTRACTOR FOR ORDERING REQUIRED MATERIALS FOR THE PROJECT. CONTRACTOR RESPONSIBLE TO VERIFY PRIOR TO SOLAR EQUIPMENT ORDERING



BETTER TOMORROW SOLAR
 1074 Memorial Dr SE, Atlanta, GA 30316

CONTRACTOR

REVISIONS		
Description	Date	Rev
Initial Design	10-02-2024	
	10-05-2024	01

Signature with Seal

Project Name & Address

MARION CARTER RESIDENCE
 1722 COVENTRY RD
 DECATUR GA 30030, USA
 APN #: 1800403024

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Sheet Name
EQUIPMENT SPECIFICATION

Sheet Size
**ANSI B
 11" X 17"**

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BOM1.1

SYSTEM SIZE: 6,400 KW DC STC, 7,600 KW AC
 (16) Q CELL Q-PEAK DUO BLK ML-G10+ (400W) MODULES
 (16) TIGO: TS4-A-F MODULE-LEVEL RAPID SHUTDOWN
 (1) EP CUBE HYBRID INVERTER
 (1) EP CUBE HYBRID NA510G BATTERY (9.9kwh)
 (02) STRINGS OF 08 MODULES CONNECTED IN SERIES PER STRING

NOTE:
 VISIBLE, LABELED, LOCKABLE DISCONNECT LOCATED LESS THAN 10' FROM UTILITY METER

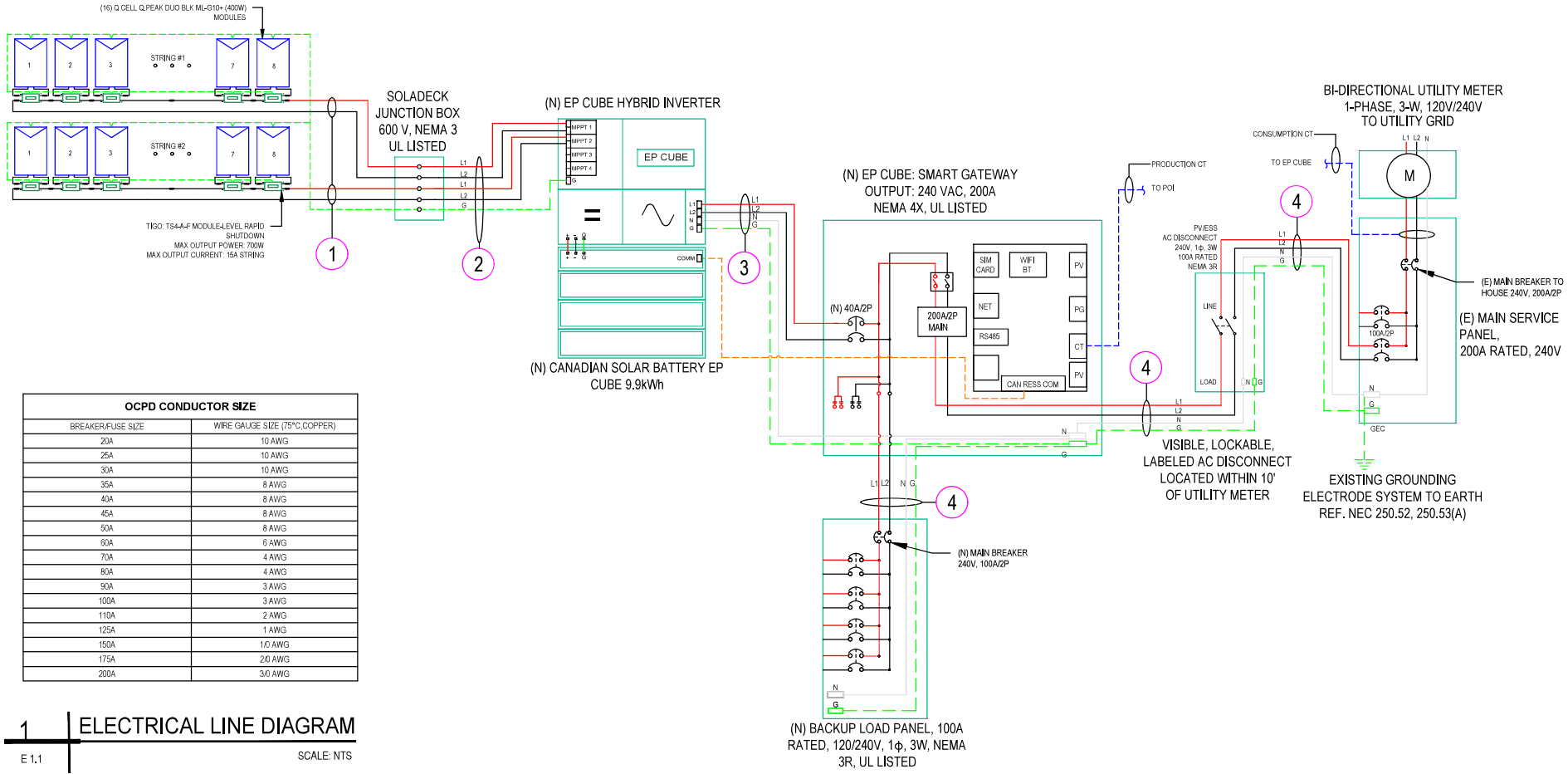
QTY	CONDUCTOR INFORMATION	CONDUIT TYPE	CONDUIT SIZE
(4)	#10AWG - PV WIRE/USE-2	N/A	N/A
(1)	#8AWG - BARE COPPER IN FREE AIR		
(4)	#10AWG - THWN-2		
(1)	#8AWG - THWN-2 GND	EMT OR LFMC IN ATTIC	3/4"
(2)	#8AWG - THWN-2		
(1)	#8AWG - THWN-2 N	EMT, LFMC OR PVC	3/4"
(1)	#8AWG - THWN-2 GND		
(2)	#3AWG - THWN-2		
(1)	#3AWG - THWN-2 N	EMT, LFMC OR PVC	1"
(1)	#8AWG - THWN-2 GND		

INTERCONNECTION NOTES:
 1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12], AND [NEC 690.59],
 2. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95],
 3. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING,
 4. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.

DISCONNECT NOTES:
 1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED 'LINE SIDE' (TYPICALLY THE UPPER TERMINALS)
 2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
 3. DISCONNECT MEANS AND THEIR LOCATION SHALL BE IN ACCORDANCE WITH [NEC 225.31] AND [NEC 225.32].

RACKING NOTE:
 1. BOND EVERY OTHER RAIL WITH #6 BARE COPPER

GROUNDING & GENERAL NOTES:
 1. PV GROUNDING ELECTRODE SYSTEM NEEDS TO BE INSTALLED IN ACCORDANCE WITH [NEC 690.43]
 2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE,
 3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
 4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
 5. SOLADECK BOX QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - SOLADECK BOX DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
 6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.
 7. RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS SHOULD BE INSTALLED MORE THAN 7/8" ABOVE THE ROOF USING CONDUIT SUPPORTS.



OCPD CONDUCTOR SIZE	
BREAKER/FUSE SIZE	WIRE GAUGE SIZE (75°C COPPER)
20A	10 AWG
25A	10 AWG
30A	10 AWG
35A	8 AWG
40A	8 AWG
45A	8 AWG
50A	8 AWG
60A	6 AWG
70A	4 AWG
80A	4 AWG
90A	3 AWG
100A	3 AWG
110A	2 AWG
125A	1 AWG
150A	1/0 AWG
175A	2/0 AWG
200A	3/0 AWG

1 ELECTRICAL LINE DIAGRAM
 SCALE: NTS

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Sheet Name
3-LINE DIAGRAM

Sheet Size
ANSI B 11" X 17"

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PV MODULE RATING @ STC	
MANUFACTURER	G CELL Q-PEAK DUO BLK ML-G10+ (400W)
MAX. POWER-POINT CURRENT (MPP)	10.77 AMPS
MAX. POWER-POINT VOLTAGE (VMP)	37.13 VOLTS
OPEN-CIRCUIT VOLTAGE (VOC)	45.30 VOLTS
SHORT-CIRCUIT CURRENT (ISC)	11.14 AMPS
MAX. SERIES FUSE (OCPD)	20 AMPS
NOM. MAX. POWER AT STC (P _{MAX})	400 WATTS
MAX. SYSTEM VOLTAGE	1000V
VOC TEMPERATURE COEFFICIENT	-0.27% /°C

Rooftop conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(2)(a), 310.15(B)(3)(a), 310.15(B)(3)(c), 310.15(B)(16), Chapter 9 Table 4, 5, & 9. Location specific temperature obtained from ASHRAE 2017 data tables

RECORD LOW TEMP	-9°
AMBIENT TEMP (HIGH TEMP 2%)	36°
CONDUIT HEIGHT	0.5"
ROOF TOP TEMP	58°
CONDUCTOR TEMPERATURE RATE	90°

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	EP CUBE HYBRID INVERTER
AC POWER(PV+ BATTERY)	7,600 KW
NOMINAL OUTPUT VOLTAGE	240 VAC
NOMINAL OUTPUT CURRENT(FULL SUN)	31.6A
NOMINAL OUTPUT CURRENT(NO SUN)	20.6A

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN CONDUIT
.80	4-6
.70	7-9
.50	10-20

DC FEEDER CALCULATIONS																						
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OCPD SIZE (A)	GROUND SIZE	CONDUCTOR SIZE	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCTORS IN RACEWAY	90°C AMPACITY (A)	DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(2)(a)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(B)(3)(a)	90°C AMPACITY DERATED (A)	AMPACITY CHECK #2	FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT SIZE	CONDUIT FILL (%)	
STRING 1	JUNCTION BOX	600	15.00	18.75	20	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	36	2	40	0.91	1	36.4	PASS	38	1.24	0.236	N/A	#N/A	
STRING 2	JUNCTION BOX	600	15.00	18.75	20	BARE COPPER #6 AWG	CU #10 AWG	35	PASS	36	2	40	0.91	1	36.4	PASS	37	1.24	0.229	N/A	#N/A	
JUNCTION BOX	INVERTER	600	15.00	18.75	20	CU #6 AWG	CU #10 AWG	35	PASS	36	0	40	0.91	0.8	29.12	PASS	50	1.24	0.110	1 1/2" EMT	38.01914	
																			String 1 Voltage Drop	0.546		
																			String 2 Voltage Drop	0.539		

AC FEEDER CALCULATIONS																						
CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OCPD SIZE (A)	NEUTRAL SIZE	GROUND SIZE	CONDUCTOR SIZE	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCTORS IN RACEWAY	90°C AMPACITY (A)	DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(2)(a)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(B)(3)(a)	90°C AMPACITY DERATED (A)	AMPACITY CHECK #2	FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT SIZE	CONDUIT FILL (%)
INVERTER	GATEWAY	240	31.6	39.5	40	CU #8 AWG	CU #8 AWG	CU #8 AWG	50	PASS	36	2	55	0.91	1	50.05	PASS	5	0.778	0.102	3/4" EMT	27.4672
GATEWAY	BACKUP LOAD PANEL	240	100	100	100	CU #8 AWG	CU #8 AWG	CU #8 AWG	100	PASS	36	2	115	0.91	1	104.65	PASS	5	0.245	0.102	1" EMT	38.0208
BACKUP LOAD PANEL	AC DISCONNECT	240	100	100	100	CU #8 AWG	CU #8 AWG	CU #8 AWG	100	PASS	36	2	115	0.91	1	104.65	PASS	5	0.245	0.102	1" EMT	38.0208
AC DISCONNECT	MSP	240	100	100	100	CU #8 AWG	CU #8 AWG	CU #8 AWG	100	PASS	36	2	115	0.91	1	104.65	PASS	19	0.245	0.388	1" EMT	38.0208
																			CUMULATIVE VOLTAGE	0.695		

ELECTRICAL NOTES

- ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
- ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
- WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
- WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
- DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
- WHERE SIZES OF SOLADECK BOX, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
- ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
- MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
- MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
- TEMPERATURE RATINGS OF ALL CONDUCTORS, TERMINATIONS, BREAKERS, OR OTHER DEVICES ASSOCIATED WITH THE SOLAR PV SYSTEM SHALL BE RATED FOR AT LEAST 75 DEGREE C.
- CONDUIT INSTALLED AT MINIMUM DISTANCE OF 7/8 INCHES ABOVE ROOFNEC 310.15(B)(3)(C)



BETTER TOMORROW SOLAR
1074 Mendenhall Dr SE, Atlanta, GA 30316

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REVISIONS

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Signature with Seal

Project Name & Address

MARION CARTER RESIDENCE
1722 COVENTRY RD
DECATUR GA 30030, USA
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Service #

Sheet Name
WIRE CALCS

Sheet Size
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WARNING
SOLAR SYSTEM CONNECTED AND ENERGISED

LABEL 6
AT UTILITY METER [NEC 690.13(B)]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION:
UTILITY SERVICE ENTRANCE/METER, INVERTER/DC DISCONNECT IF REQUIRED BY LOCAL AHJ, OR OTHER LOCATIONS AS REQUIRED BY LOCAL AHJ.
PER CODE(S): NEC 2020: 690.56(C)(2)

WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
ADJACENT TO PV BREAKER AND ESS OCPD (IF APPLICABLE).
PER CODE(S): NEC 2020: 705.12(B)(3)(2)

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: 31.60A
NOMINAL OPERATING AC VOLTAGE: 240V

NEC 690.54

MAXIMUM DC VOLTAGE OF PV SYSTEM

PER CODE(S): NEC 690.53

WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN POWER SUPPLY SHALL NOT EXCEED AMPACITY OF BUSBAR

WARNING DAUL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL 8
POINT OF INTERCONNECTION (PER NEC 705.12(D)(3) & NEC 690.59) NET METER, PRODUCTION METER (PER AHJ, UTILITY OPERATIONS)

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

LABEL LOCATION:
INVERTER(S), AC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE).
PER CODE(S): NEC 2020: 690.13(B)

WARNING: PHOTOVOLTAIC POWER SOURCE

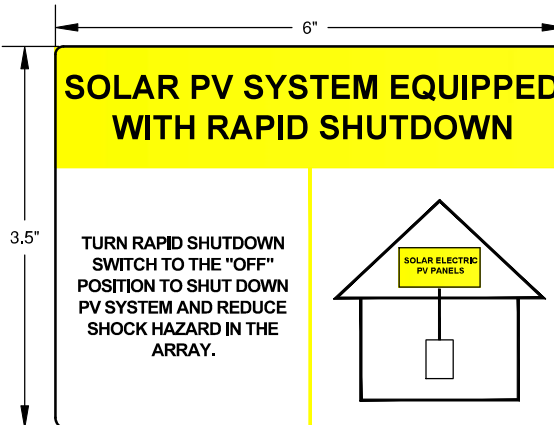
LABEL LOCATION:
INTERIOR AND EXTERIOR DC CONDUIT EVERY 10 FT, AT EACH TURN, ABOVE AND BELOW PENETRATIONS, ON EVERY JB/PULL BOX CONTAINING DC CIRCUITS.
PER CODE(S): NEC 2020: 690.31(D)(2)

CAUTION: MULTIPLE POWER SOURCES

PER CODE(S): NEC 2020 690.56(B), NEC 2020 705.10

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

NEC 690.31 (E)



LABEL LOCATION:
ON OR NO MORE THAN 1 M (3 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.
PER CODE(S): NEC 2020: 690.56(C), NEC 2020: 690.56(C)(1)(a)

WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANNEL

LABEL 8
AT MAIN SERVICE DISCONNECT [NEC 110.27(C)]

CAUTION: BATTERY AC INVERTER POWER SOURCE

LABEL LOCATION:
ON HYBRID INVERTER CONDUIT & RACEWAYS EVERY 10 FEET
CODE REF: NEC 690.31(G)(3)

PV & BATTERY INVERTER AC DISCONNECT LOCATED INSIDE EP CUBE SMART GATEWAY MAXIMUM VOLTAGE – 240VAC MAXIMUM CURRENT – 32A AC

LABEL LOCATION:
EP CUBE SMART GATEWAY COVER
CODE REF: NEC 706.15(C) & 690.54

ESS & PV REMOTE DISCONNECT & RAPID POWER SHUTDOWN

LABEL LOCATION:
EMERGENCY STOP BUTTON

BATTERY SYSTEM FUSE LOCATED INSIDE HYBRID INVERTER COVER DO NOT DISCONNECT OR OPEN UNDER LOAD MAXIMUM VOLTAGE – 263VDC MAXIMUM CURRENT – 55A DC

LABEL LOCATION:
RIGHT SIDE OF EP CUBE HYBRID INVERTER

PV SYSTEM RAPID SHUTDOWN SWITCH DC DISCONNECT LOCATED INSIDE EP CUBE HYBRID INVERTER COVER

LABEL LOCATION:
LEFT SIDE OF EP CUBE HYBRID INVERTER COVER

PHOTOVOLTAIC SYSTEM DC DISCONNECT OPERATING VOLTAGE – 445VDC OPERATING CURRENT – 12.84A DC MAXIMUM SYSTEM VOLTAGE – 579VDC MAXIMUM SHORT CIRCUIT CURRENT – 13.6A DC

LABEL LOCATION:
PV SYSTEM DC DISCONNECT ON HYBRID INVERTER
CODE REF: 690.59

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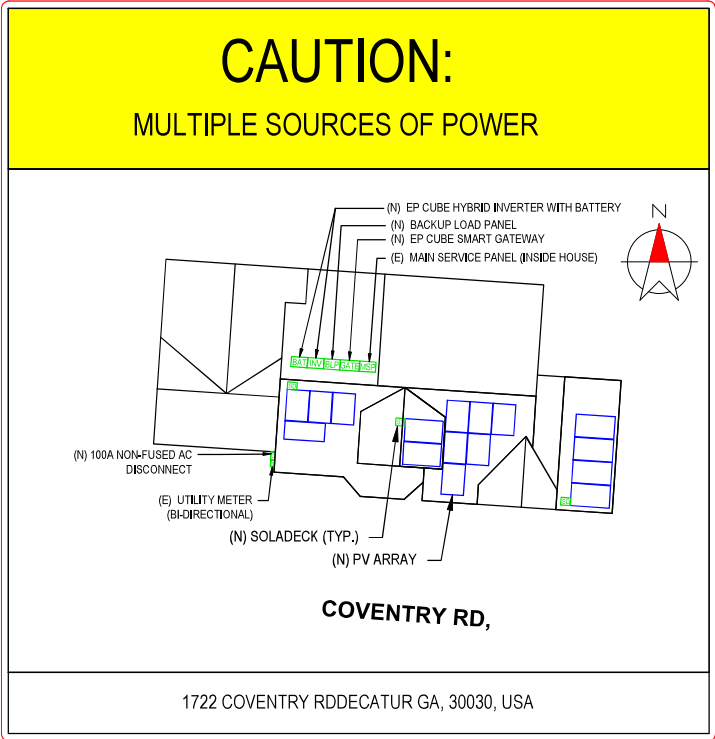
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DIRECTORY PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN: NEC 690.56(A)(B), NEC 705.10)

- LABELING NOTES:**
1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS, ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
 2. LABELING REQUIREMENTS BASED ON THE 2020 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145(f)(7), ANSI Z535.4-2011
 3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
 4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21(B)(1)]
 5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [FC 605.11.1.3]



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Sheet Name
PLACARDS

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powered by

Q.PEAK DUO BLK ML-G10+

385-405

ENDURING HIGH PERFORMANCE

Quality Controlled PV
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BREAKING THE 20% EFFICIENCY BARRIER
Q.ANTUM DUO Z technology with zero gap cell layout boosts module efficiency up to 20.8%.

THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry. The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather, with excellent low-light and temperature behavior.

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Long-term yield security with Anti-LiO Technology, Anti PID Technology, Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminum alloy frame, certified for high snow (6400 Pa) and wind loads (4100 Pa).

A RELIABLE INVESTMENT
Inclusive 25-year product warranty and 35-year linear performance warranty*.

8 BUSBAR CELL TECHNOLOGY

12 BUSBAR CELL TECHNOLOGY

THE IDEAL SOLUTION FOR

Rooftop arrays on residential buildings

Engineered in Germany

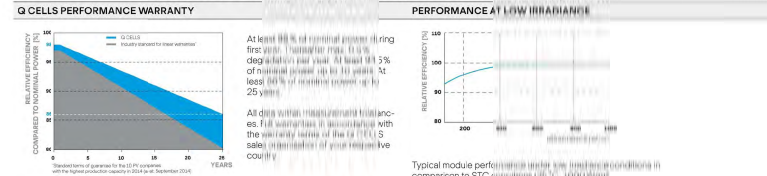
MECHANICAL SPECIFICATION

Format	74.0 in x 41.1 in x 1.26 in (including frame) (1879 mm x 1045 mm x 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 x 22 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.36 in x 1.26-2.36 in x 0.69-0.71 in (53-101 mm x 32-60 mm x 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) x 49.2 in (1260 mm), (-) x 40.2 in (1020 mm)
Connector	Stäubli MC4, IP68

ELECTRICAL CHARACTERISTICS

POWER CLASS	385	391	398	400	408
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS (1000 W/m² IRRADIANCE, 25°C TEMPERATURE)					
Power at MPP ¹	395	391	398	400	408
Short Circuit Current ¹	11.04	11.0	11.10	11.14	11.17
Open Circuit Voltage ¹	45.19	45.2	45.77	46.30	46.34
Current at MPP	10.59	10.6	10.71	10.77	10.83
Voltage at MPP	36.36	36.6	36.88	37.13	37.36
Efficiency ¹	≥19.6	≥19.8	≥20.1	≥20.4	≥20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS (1000 W/m² IRRADIANCE, 20°C TEMPERATURE)					
Power at MPP	288.8	292.1	296.3	300.1	303.8
Short Circuit Current	8.90	8.9	8.98	9.07	9.10
Open Circuit Voltage	42.62	42.6	42.80	42.77	42.78
Current at MPP	8.35	8.4	8.48	8.51	8.57
Voltage at MPP	34.59	34.8	35.03	35.26	35.46

¹Measurement tolerances P_{max} ±3%; I_{sc} V_{oc} ±5% at STC; I₀₁ V₀₁ ±1% at NOCT; P_{NOCT} ±1% according to IEC 60904-3 • 601 (with 1000 W/m² irradiance and 20°C temperature)



TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{sc}	α (%/K)	+0.04	Temperature Coefficient of V _{oc}	β (%/K)	-0.37
Temperature Coefficient of P _{MPP}	γ (%/K)	-0.34	Nominal Module Operating Temperature (NOCT)	(°F)	109 ± 6.8 (43 ± 3.7)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys}	[V]	1000 (UL)	PV module classification	Class 1
Maximum Series Fuse Rating	[A DC]	15	Fire Rating based on ANSI/UL 1709	1 (UL)
Max. Design Load, Push/Pull ¹	[lbs/ft ²]	70 (3000/3000) (Snowing)	Permitted Module Temperature on Continuous Duty	-40°F up to 140°F (-40°C up to 60°C)
Max. Test Load, Push/Pull ¹	[lbs/ft ²]	113 (5000/5000) (Snowing)		

¹ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61708, CE compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215-2016, IEC 61730-2016, U.S. Patent No. 9,993,215 (solar cells).

PACKAGING INFORMATION

Horizontal packaging	76.4 in 1940mm	43.3 in 1100mm	40.0 in 1016mm	10.0 in 254mm	24 in 610mm	24 in 610mm	32 in 813mm
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Note: Installation instructions must be followed. See the installation and commissioning manual or contact our technical service department for further information on approved installation and use of this product.

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TS4-A-F

Module-level rapid shutdown

The TS4-A-F (Fire Safety) is the advanced add-on rapid shutdown solution that brings smart module functionality to standard PV modules for higher reliability. Ensure safety by upgrading existing PV systems or by adding safety features to new installations.

The TS4-A-F complies with NEC 2017, 2020, and 2023 690.12 Rapid Shutdown specifications when installed with the Tigo RSS Transmitter or an inverter with a built-in Tigo certified transmitter.

Features

- High input current rating – now rated for 20 A I_{MP} /25 A I_{SC} to better accommodate bifacial and high-current modules
- Simple, fast installation – snaps to a standard PV module frame or mounts to racking
- Power-line communications (PLC) signaling – rapid shutdown signaling over PV conductors
- Automatic shutdown – PV array enters rapid shutdown mode in the event of AC grid loss
- UL Standards-certified – tested and certified with hundreds of top inverter models
- 25-year warranty

Specifications

	20 A	25 A
Electrical		
Maximum current (I_{MP}/I_{SC})	15 A/20 A	20 A/25 A
Input voltage range (V_{MP})	16 – 80 V	
Maximum input voltage	80 V	
Maximum system voltage (V_{MAX})	1000 V/1500 V*	
Maximum output current (I_{MAX})	15 A	
Maximum output power (P_{MAX})	700 W	
Maximum fuse rating	25 A	30 A
Maximum efficiency	99.9%	
Rapid Shutdown		
TS4 conductor AWG	12	
Rapid shutdown time limit	<30 sec.	
PVRSE-controlled conductor limits	≤240 VA, ≤8 A, ≤30 V _{DC}	
UL 1741-compliant PVRSE	Yes	
Communications	PLC	
Connections		
Input (from module) cable lengths	0.12/0.62 m	
Output (to string) cable lengths	1.2/2 m	
Connectors	MC4/EVO2	

* Depending on UL/IEC certification



tigoenergy.com

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Specifications

	20 A	25 A
Environmental		
Operating temperature range	-40 – 85 °C (-40 – 185 °F)	
Storage temperature range	-40 – 85 °C (-40 – 185 °F)	
Maximum elevation	3000 m (9840 ft.)	
Outdoor IP rating	IP68/NEMA 3R	
Mechanical		
Dimensions (H/W/D)	139.7 x 138.4 x 22.9 mm (5.4 x 5.5 x 0.9 in.)	
Weight	490 g (1.1 lb.)	
General		
Standards compliance	UL 1741 PVSRE, UL 1741 PVRSS, CSA 22.2, IEC 62109, NEC 690.12	
Warranty	25 years	

* 20 A UL rating: -30 – 75 °C (-22 – 167 °F)

More Resources



Ordering Information

Part Number	V _{MAX} Certifications UL/IEC	Cable Lengths	Connectors
20 A I_{SC}			
481-00252-20	1500 V/1000 V	1.2/2 m	MC4
481-00252-32	1500 V/1000 V	0.12/1.2 m	MC4
481-00252-62	1500 V/1000 V	0.62/1.2 m	MC4
481-00261-32	1500 V/1500 V	0.12/1.2 m	EVO2
481-00261-62	1500 V/1500 V	0.62/1.2 m	EVO2
481-01252-32	1500 V/1000 V	0.12/1.2 m	MC4
481-01252-62	1500 V/1000 V	0.62/1.2 m	MC4
481-01261-32	1500 V/1500 V	0.12/1.2 m	EVO2
481-01261-62	1500 V/1500 V	0.62/1.2 m	EVO2
25 A I_{SC}			
486-00252-32	1500 V/1000 V	0.12/1.2 m	MC4
486-00252-62	1500 V/1000 V	0.62/1.2 m	MC4
486-00261-32	1500 V/1500 V	0.12/1.2 m	EVO2
486-00261-62	1500 V/1500 V	0.62/1.2 m	EVO2
488-00252-32	1000 V*	0.12/1.2 m	MC4
488-00252-62	1000 V*	0.62/1.2 m	MC4
488-00261-32	1500 V*	0.12/1.2 m	EVO2
488-00261-62	1500 V*	0.62/1.2 m	EVO2

* IEC certified only

TS4-A-F Specifications and Ordering Information

tigoenergy.com



BETTER TOMORROW
SOLAR
1074 Memorial Dr SE, Atlanta, GA 30316

CONTRACTOR

REVISIONS

Description	Date	Rev
Initial Design	10-02-2024	
	10-05-2024	01

Signature with Seal

Project Name & Address

MARION CARTER RESIDENCE
1722 COVENTRY RD
DECATUR GA 30030, USA
APN #: 1800403024

Service #

Sheet Name
EQUIPMENT
SPECIFICATION

Sheet Size

ANSI B
11" X 17"

Sheet Number

D 1.2



EP CUBE HYBRID INVERTER + BATTERIES



Hybrid NA510G



Hybrid NA613G



Hybrid NA716G



Hybrid NA720G

EP Cube system	3	4	5	6
Hybrid inverter			1	
Battery module				
Base			1	
Hybrid inverter				
MPPTs			4	
Input current			I _{mp} 16A / I _{sc} 20A per MPPT	
PV maximum input voltage			600V _{DC}	
MPPT operating voltage			90V _{DC} - 550V _{DC}	
Allowable DC-AC ratio			2	
Nominal grid voltage			240V _{AC}	
Frequency			60Hz	
Maximum AC output, on-grid			7.6 kW	
Maximum inverter CEC efficiency			93.93%	
Imbalance for split-phase loads			100%, maximum 3.8kW for each phase	
Energy storage				
Total energy	9.9 kWh	13.3 kWh	16.6 kWh	19.9 kWh
AC output, PV + battery				
Full Sun, off-grid		7.6 kW, 31.6A (Continuous)		
		22 kVA (10s)		
AC output, battery only				
No Sun, off-grid	5 kW, 20.8A (Continuous) 7.6 kVA (10s)	6.5 kW, 27.0A (Continuous) 9.7 kVA (10s)	7.6 kW, 31.6A (Continuous) 11.4 kVA (10s)	7.6 kW, 31.6A (Continuous) 11.4 kVA (10s)
Safety & compliance				
Protections	Integrated arc fault circuit interrupter (AFCI), PV RSD *			
Certifications	UL 1699B, UL 1741-SB, IEC 1547, IEC 1547BEE 2030.5, UL 1998, UL 1642, UL 1973, UL 9540, UL 9540A, UN 38.3, UL 60730-1 ANNEX H, FCC Part 15 (Class B), IEC 693-2005 (high), CEC, HECO			
Listing	CEC, HECO			
General parameters				
Enclosure	NEMA 4X			
Noise	< 50dB @ 1m, front side			
Dimensions	23.62" x 48.03" x 9.25" 600 x 1220 x 235 mm	23.62" x 56.50" x 9.25" 600 x 1435 x 235 mm	23.62" x 64.96" x 9.25" 600 x 1650 x 235 mm	23.62" x 73.43" x 9.25" 600 x 1865 x 235 mm
System weight	286.6 lbs / 130 kg	352.7 lbs / 160 kg	418.9 lbs / 190 kg	485 lbs / 220 kg
Battery module weight		70lbs / 32kg		
Inverter weight		77lbs / 35kg		
Base weight		5.5lbs / 2.5kg		
Mounting options	Floor or wall mount			
Max. elevation	9,843 ft / 3,000 m			
Ambient operating temperature	14°F to 122°F / -10°C to 50°C **			
Recommended operating temperature	32°F to 86°F / 0°C to 30°C			
Limited warranty				
System warranty	> 80% capacity, up to 10 years or 6,000 cycles ***			

Notes
 * PVRSD support Tigo and APSmart transmitter.
 ** Performance may be de-rated in extreme operating temperatures.
 *** Battery capacity warranty up to 10 years or 6,000 cycles (whichever occurs first)

EP CUBE SMART GATEWAY



Smart Gateway

Grid and load	
Nominal grid voltage	120 / 240V _{AC}
Frequency	60 Hz
Max current	200A
Short circuit current protection	10 kA
Microgrid interconnection	
Rated current	200A
Switchover time (on-grid / off-grid)	Seamless
EP Cube hybrid interface *	
Output voltage	120 / 240V _{AC}
Overcurrent protection	40A
AC extend interface **	
Output voltage	120 / 240V _{AC}
Max current	100A
Generator control request	Yes
Generator start type	2-wire start (I/O)
EV Charger communication (optional)	RS-485
Communication	
Internet connection	Wifi, Cellular (LTE 4G)
User interface	EP Cube APP (Android & IOS)
Safety & compliance	
Certifications	UL1741, ICES-003 (Class B) FCC Part 15 (Class B), FCC ID IEEE 693-2005 (high)
General parameters	
Enclosure	NEMA 4X
Noise	< 50dB
Dimensions	23.62" x 23.62" x 7.09" 600 x 600 x 180 mm
Weight	44.1 lbs 20 kg
Mounting options	Wall mount
Max. elevation	9,843 ft / 3,000 m
Ambient operating temperature	-40 °F to 122 °F / -40 °C to 50 °C
Limited warranty	
System warranty	10 years

Notes
 * The Smart Gateway EP Cube interface includes one EP Cube hybrid connection.
 ** The Smart Gateway includes two AC extend interface hardware.



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 DECATUR GA 30030, USA
 APN #: 1800403024

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Sheet Name
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 SPECIFICATION

Sheet Size

ANSI B
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Sheet Number

D 1.3



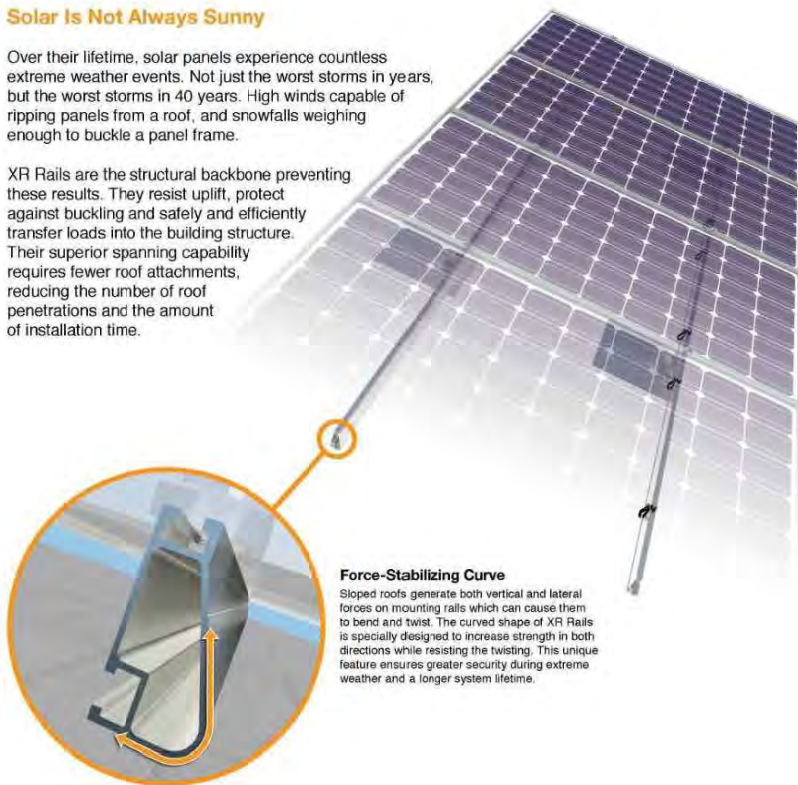
XR Rail Family

Tech Brief

Solar is Not Always Sunny

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

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



Force-Stabilizing Curve

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

Compatible with Flat & Pitched Roofs



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



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

Corrosion-Resistant Materials

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



Datasheet

XR Rails

XR10 Rail



A low-profile mounting rail for regions with light snow.

- 6' spanning capability
- Moderate load capability
- Clear & black anod. finish

XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear & black anod. finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish

Internal Splices



All rails use internal splices for seamless connections.

- Self-tapping screws
- Varying versions for rails
- Grounding Straps offered

Attachments

FlashFoot



Anchor, flash, and mount with all-in-one attachments.

- Ships with all hardware
- IBC & IRC compliant
- Certified with XR Rails

Slotted L-Feet



Drop-in design for rapid rail attachment.

- High-friction serrated face
- Heavy-duty profile shape
- Clear & black anod. finish

Standoffs



Raise flush or tilted systems to various heights.

- Works with vent flashing
- Ships pre-assembled
- 4" and 7" Lengths

Tilt Legs



Tilt assembly to desired angle, up to 45 degrees.

- Attaches directly to rail
- Ships with all hardware
- Fixed and adjustable

Clamps & Grounding

End Clamps



Slide in clamps and secure modules at ends of rails.

- Mill finish & black anod.
- Sizes from 1.22" to 2.3"
- Optional Under Clamps

Grounding Mid Clamps



Attach and ground modules in the middle of the rail.

- Parallel bonding T-bolt
- Reusable up to 10 times
- Mill & black stainless

T-Bolt Grounding Lugs



Ground system using the rail's top slot.

- Easy top-slot mounting
- Eliminates pre-drilling
- Swivels in any direction

Accessories



Provide a finished and organized look for rails.

- Snap-in Wire Clips
- Perfected End Caps
- UV-protected polymer

Free Resources



Design Assistant

Go from rough layout to fully engineered system. For free.
Go to IronRidge.com/rm



NABCEP Certified Training

Earn free continuing education credits, while learning more about our systems.
Go to IronRidge.com/training



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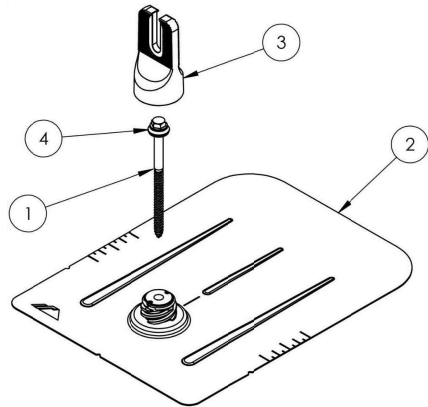
Sheet Number

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FlashFoot2

Cut Sheet

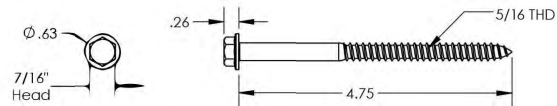


ITEM NO.	DESCRIPTION
1	BOLT LAG 5/16 X 4.75"
2	ASSY, FLASHING
3	ASSY, CAP
4	WASHER, EPDM BACKED

FLASHFOOT 2

Part Number	Description
FF2-01-M1	FLASHFOOT2, MILL
FF2-01-B1	FLASHFOOT2, BLACK

1) Bolt, Lag 5/16 x 4.75

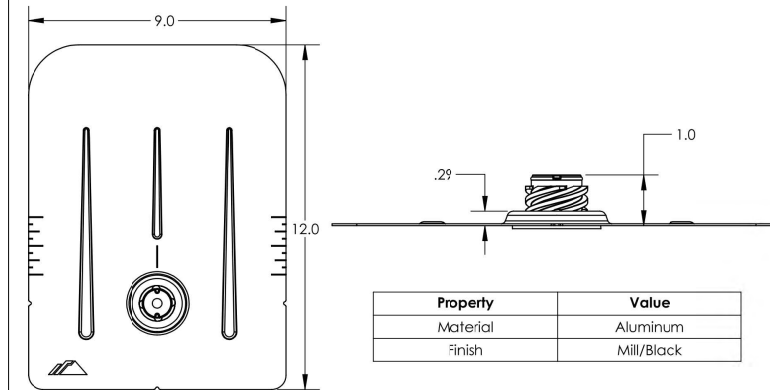


Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.21

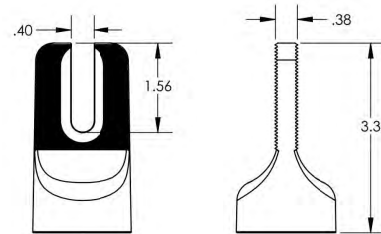
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2) Assy, Flashing



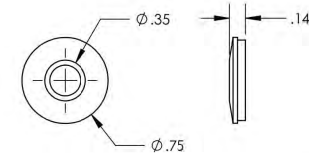
Property	Value
Material	Aluminum
Finish	Mill/Black

3) Assy, Cap



Property	Value
Material	Aluminum
Finish	Mill/Black

4) Washer, EPDM Backed



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.21



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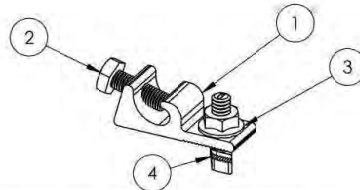
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Sheet Number

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Grounding Lug



ITEM NO.	DESCRIPTION
1	LUG, GROUNDING, LAY-IN - LOW PROFILE
2	BOLT, 1/4-28 X .750" HEX CS SST
3	NUT, FLANGE HEX 1/4-20 SST
4	BOLT, T CSTM 1/4-20 X 1.188" LOCK SS

Part Number	Description	Wire Size Range (AWG)
XR-LUG-03-A1	GROUNDING LUG, LOW PROFILE	4-10

1) Lug, Grounding

Property	Value
Material	Tin Plated Copper
Finish	Clear Matte

3) Nut, Flange Hex 1/4-20

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

2) Bolt, 1/4-28 x .750 Hex

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

4) Bolt, T CSTM 1/4-20 x .750

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.10



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Sheet Number

D 1.6



25800 Commercentre Drive
 Lake Forest, CA 92630 USA
 Telephone: 949.448.4100
 Facsimile: 949.448.4111
 www.intertek.com

Test Verification of Conformity

In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address:	IronRidge, Inc. 1495 Zephyr Ave. Hayward, CA 94544	
Product Description:	XR Rails with Integrated Grounding.	
Ratings & Principle Characteristics:	Fire Class Resistance Rating: - Class A for Steep Slope Flush-Mount (symmetrical) Applications when using Type 1 and Type 2, Listed Photovoltaic Module. - Class A for Low Slope Flush-Mount and Tilt-Mount (symmetrical and asymmetrical) Applications when using Type 1, Listed Photovoltaic Module.	
Models:	51-61GD-005, 51-61GD-005B, 51-5000-001, and 51-65-001	
Brand Name:	N/A	
Relevant Standards:	UL Subject 2703 (Section 15.2 and 15.3) Outline of Investigation for Rack Mounting Systems and Clamping Devices for Flat-Plate Photovoltaic Modules and Panels, Issue Number: 2, Nov 13, 2012 Referencing UL1703 (Section 31.2) Standard for Safety for Flat-Plate Photovoltaic Modules and Panels, May 20, 2014	
Verification Issuing Office:	Intertek Testing Services NA, Inc. 25800 Commercentre Dr. Lake Forest, CA 92630	
Date of Tests:	08/27/2014 to 01/07/2015	
Test Report Number(s):	101541132LAX-002	
This verification is part of the full test report(s) and should be read in conjunction with them. This report does not automatically imply product certification.		
Completed by:	Amar Kacel	Reviewed by: Andrew Koretoff
Title:	PV Engineer	Title: Reviewer
Signature:		Signature:
Date:	01/26/2015	Date: 01/26/2015

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

GFT-OP-11a (24-MAR-2014)



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11" X 17"**

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D 1.7



HARRIS
W
T



HARRIS
W



HARVEY
WILLIAMS





From: [Warner McConaughey](#)
To: [Paige V. Jennings](#)
Subject: Re: Questions Regarding COA Application - 1122 Springdale Road
Date: Thursday, November 14, 2024 9:09:21 AM

**** WARNING:** The sender of this email could not be validated and may not match the person in the "From" field. ******

Double hung. The addition built about 20 years ago is essentially one large living room. The windows on the north facing wall are double hung windows. For some reason they installed two oversized glass block openings on the southside. We will be changing these out to match the other regular windows.

Please let me know if you need additional information.

W

Warner McConaughey
HammerSmith, Inc
807 Church Street
Decatur, Georgia 30030
404.886.0847 c 404.377.1021 o

www.hammersmith.net

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we want to thank you for your trust and confidence as we celebrate
30 Years of Design-Build Excellence

On Thu, Nov 14, 2024 at 9:12 AM Paige V. Jennings <pvjennings@dekalbcountyga.gov> wrote:

Good Morning,

Hope that this email finds you well!

We are finalizing our staff reviews for the upcoming HPC meeting on Monday, November 18th. Before finalizing our report on the application for 1122 Springdale Road. , could you please provide information for the following questions?

1. Will the windows be casement or double-hung windows?

Please provide all information that you can, as soon as possible. Our reports will be finalized no later than Friday afternoon and will be sent out along with the agenda for the meeting to applicants.

Thank You,

Paige



Government Services Center
178 Samis Street
Decatur, GA 30030


Paige V. Jennings


Senior Planner (they/them)

Historic Preservation

Planning & Sustainability Department

Current Planning Division

 pvjennings@dekalbcountyga.gov

 470.829.7341 County Cell



DeKalbCountyGa.gov/planning

December 8, 2024

Vegetation proposal to accompany request to add solar panels to street-facing roof of house at 1722 Coventry Road

We were requested to return to the committee with a vegetation plan, to help mitigate the look of the house from the street and sidewalk, if solar panels were approved and installed on parts of the street-facing side of the roof.

Below are two photos of the home and yard. Both show the retaining wall. One shows the inflatable holiday tree as an example of how a tree in that location may assist with mitigation. The other shows how the existing trees would provide mitigation for houses on the other side of the street, which are all also up a gradient.

We propose two components to the vegetation plan.

- 1) Plant 4 bushes along the retaining wall by the sidewalk, to help block the view of people using the sidewalk. There is no sidewalk on the other side of the street. The retaining wall is 3 feet high. If we plant some bushes about 3 feet back from the wall, along the wall, it should provide about 7 feet of visual mitigation for people on the sidewalk.

From the Druid Hills manual, and based on availability from local nurseries, we propose to plant **Calycanthus floridus (Sweet shrub)**. These seem well suited to the mixed light available along the retaining wall and grow to 5-7 feet when mature.

- 2) Plant 2 understory (small trees) trees closer to the house, to help block the view of people using the sidewalk and those driving or biking by. They will be about 15 feet apart, about 20 feet away from the house, on the part of the yard that is somewhat flatter and before it starts to slope down much.

From the Druid Hills manual, and based on availability from local nurseries, we propose to plant **Cercis canadensis (Redbud)**. These seem well suited to the moisture and light levels in that area and fan out in a way that should help with mitigation. There are also other Redbuds nearby already.

Note that we are finding from landscapers at this time of year, generally trees in 15 gallon buckets. These generally are not going to be mature enough to be 3 inches in diameter at the time of planting, as recommended by one committee member during the consultation held prior to Thanksgiving. Obtaining appropriate trees of that diameter is proving to be difficult and quite expensive (requiring a trailer, special orders, etc.)

We are hopeful that the commission will accept smaller plantings, given we will also plant the bushes along the wall.

