Town of Chapel Hill
Planning Department
919-969-5040
planning@townofchapelhill.org

QUESTIONS?
Call or email us!

Chapel Hill Historic District

Certificate of Appropriateness Application

Project:	
Permit:	

Project Description:

Installation of 27 black solar panels flush mounted to the preexisting roof of the house. PV Array (A) consists of 24 South facing panels and PV Array (B) consists of 4 West facing panels. Via Opt 2 of DOI. Please see attached documentation for panel dimensions, location, & example photos.

STAFF REVIEW

☐ Application complete and accepted

☐ Application not complete and returned with a notation of deficiencies

BY:

DATE:

Instructions: Submit one paper copy and a digital copy of all application materials collated in one file (pdf preferred)

Deadlines: Applications are due by the close of business 30 calendar days prior to the scheduled meeting date.

Note: Only complete applications may be accepted for Certificate of Appropriateness review. Applications that are not complete will be returned with a notation of deficiencies.

A: Property Information

Property Address: 208 Spring Lane, Chapel Hill, NC 27514 **Parcel ID Number:**

Property Owner(s): Josh Gurlitz **Email:** dhmoreau60@gmail.com

Property Owner Address: 208 Spring Lane, Chapel Hill, NC 27514

City: Chapel Hill **State:** NC **Zip:** 27514 **Phone:** 919-537-5875

Historic District: ☐Cameron-McCauley ☐ Franklin-Rosemary ☐ Gimghoul **Zoning District:**

B: Applicant Information

Applicant: John Flanagan **Role (owner, architect, other):** Senior Program Manager

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Address (if different from above):			
City:	**State:**	**Zip:**	
Email: HOA@ncsolarnow.com		**Phone:** 919-833-9096	

C. Application Type *(check all boxes that apply)*

☑ **Minor Work** Exterior works that do not involve any substantial alterations, and do not involve additions or removals that could impair the integrity of the property and/or the district as a whole. See Design Guidelines (p. 69) for a list of minor works.

☐ **Historic District Commission Review** Includes all exterior changes to structures and features other than minor works

☐ **Site-work only (walkways, fencing, walls, etc.)**

☑ **Restoration or alteration**

☐ **New construction or additions**

☐ **Sign**

☐ **After-the-fact application** (for unauthorized work already performed).

☐ **Demolition or moving of a site feature.**

☐ **Request for review of new application after previous denial**

D. Basic information about size, scale, and lot placement.

Provide measurements in feet and square feet where applicable. Where possible, please provide accurate measurements from a licensed surveyor, architect, engineer, etc. If exact measurements are not available, please provide estimated information. Current estimated information about lots and buildings can be found on the Orange County Real Estate Data website. Information about lot placement can be found on the Chapel Hill and Orange County Interactive GIS portals.

Zoning District:	***Minimum setbacks***			***Maximum heights***			**Lot size**
	Street	**Interior**	**Solar**	**Primary**	**Secondary**		
Required by zoning			901				
Proposed			901				
	Existing	**Change +/-**	**Total**	**Total Floor Area Ratio**			
Floor Area (main structure)				**Existing**	**Proposed**	**ISA/NLA ratio**	

Floor Area (all other)						**Existing**	**Proposed**
Impervious Surface Area (ISA)							
New Land Disturbance							

E: Applicable Design Guidelines

The Town's Design Guidelines for the Chapel Hill Historic Districts are integral to the application and review process. These guidelines supplement the required review criteria for Certificate of Appropriateness applications (provided in Section 3.6.2(e)(4) of the Land Use Management Ordinance) by providing detailed, practical considerations for how to make changes to properties while preserving the special character of their Historic District context. Please review the Design Guidelines and consider their applicability to your proposed project. (Attach additional sheets, as necessary.)

Section/Page	Topic	Brief description of the applicable aspect of your proposal
pg.37 #9	Solar Panels	The proposed installation will not compromise the architectural integrity of the residence and has been carefully designed resulting in an aesthetically pleasing PV project .
pg. 49 #9	Solar Panels	There are no front facing panels in this proposed PV project to ensure no visibility of the panels. The proposed panels will be installed on an existing roof surface of the home.
		Please specification sheets in the comprehensive application attached.

F. Checklist of Application Materials

Attach the required elements in the order indicated.	**ATTACHED? TO BE COMPLETED BY APPLICANT**		**TO BE COMPLETED BY TOWN STAFF**		
	YES	**N/A**	**YES**	**N/A**	**NO**
1. **Written description of physical changes proposed.** Describe clearly and in detail the physical changes you are proposing to make. Identify the materials to be used (siding, windows, trim, roofing, pavements, decking, fencing, light fixtures, etc.), specify their dimensions, and provide names of manufacturers, model numbers, and specifications where applicable.	☑	☐	☐	☐	☐

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2. History, context, and character information. Please include a summary of what information you have relied on to understand the relevant character and history of the district and subject property—and briefly summarize that information. At a minimum, include: ☐ Current property information for the lot and all structures, including Building Sketches and Building Details, from Orange County Real Estate Data. ☐ The entry of your property on the most recent inventory of historic resources in the relevant National Register for Historic Places filing, available via the NC State Historic Preservation Office website: for McCauley-Cameron see *West Chapel Hill*, for Franklin-Rosemary see *Chapel Hill Historic District*, for Gimghoul see *Gimghoul*. (If yours is one of the few properties in McCauley-Cameron or Franklin-Rosemary that has not yet been inventoried, please indicate that.)	☑	☐	☐	☐	☐
3. Justification of appropriateness. Attach an annotated statement explaining how the proposed change(s) meets the following standards of appropriateness that the Commission considers in making findings of fact indicating the extent to which the application is or is not congruous with the historic aspects of the historic district. If a standard is not applicable, type "not applicable". A. The height of the building in relation to the average height of the nearest adjacent and opposite buildings. B. The setback and placement on lot of the building in relation to the average setback and placement of the nearest adjacent and opposite buildings. C. Exterior construction materials, including texture and pattern. D. Architectural detailing, such as lintels, cornices, brick bond, and foundation materials. E. Roof shapes, forms, and materials. F. Proportion, shape, positioning and location, pattern, and size of any elements of fenestration. G. General form and proportions of buildings and structures. H. Appurtenant fixtures and other features such as lighting. I. Structural conditions and soundness. J. Architectural scale.	☑		☐	☐	☐
4. **Photographs** of existing conditions are required. Minimum image size 4" x 6" as printed or the digital equivalent. Maximum 2 images per page.	☑	☐	☐	☐	☐
5. Site Plan Set showing existing and proposed conditions. (Min. scale: 1 in. = 20 ft.) ☐ Site plans must show the relationships between, and dimensions of, existing and proposed buildings, additions, sidewalks, walls, fences, driveways, and/or other structures on the property, as well as property lines and applicable zoning setbacks. ☐ Include both written and drawn scales and show accurate measurements. You may also use a copy of a survey with surveyor's seal deleted. Revise the copy as needed to show existing conditions and your proposed work.	☑		☐	☐	☐

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Indicate the area of all structural footprints (existing and proposed) in square feet; also, indicate lot size in square feet.					
6. **Elevation Drawings** showing existing structural facades and proposed changes. Drawings should be submitted as 11" x 17" or 8-1/2" x 11" reductions of full-size drawings. All details should be reasonably legible. Photographs are okay for facades with no changes. ☐ Elevation drawings showing all proposed changes above current grade from front, back, and both sides. ☐ Include scale bar, written scale, and label major dimensions (including width of structures and heights from finished grade to fascia/eaves and heights to top of roofs). ☐ Label materials to be used (roofing, siding, windows, trim, light fixtures, etc.)	☑	●	☐	☐	☐
7. **Information about context** (required for all construction of new structures, proposed impervious surfaces greater than 1500 SF, additions greater than 150 SF, and/or proposed land disturbance greater than 5000 SF.) Detailed information about lots and structures can be found on the Orange County Real Estate Data website; information about lot placement can be found on the Chapel Hill and Orange County GIS portals. For each of the nearest adjacent and opposite properties, provide: ☐ The height of each building (if an estimate, indicate that). ☐ The setbacks and lots placement of each building (an image from the Town GIS database, including scale, is sufficient). ☐ The size of each lot (net land area in square feet). ☐ The size of all buildings on the nearest adjacent and opposite properties, including building footprint areas, Floor Areas (in square feet), and Floor Area Ratios. Provide current figures from Orange County Real Estate Data; indicate any corrections for accuracy you believe necessary and your basis for doing so.	☑	☐	☐	☐	☐
8. **Demolition/Relocation Information** (required only if demolition or relocation of a feature is proposed). ☐ Provide a written description of architectural features, additions, remodeling, and any alterations to the structure(s). Make note of any outbuildings on the site plan of the property. ☐ Provide a history of the structure, giving the construction date and architect or carpenter, briefly noting any significant events, persons and/or families associated with the property. Provide current exterior photographs of the property (4" x 6" as printed or the digital equivalent). If information is unknown, please provide a summary of sources consulted. ☐ If an argument about structural soundness is being made, attach a signed and sealed report from a professional engineer. ☐ As necessary, attach a statement explaining how a delay in demolition would	☐	☑	☐	☐	☐

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cause the property owner to suffer extreme hardship or be permanently deprived of all beneficial use or return from such property by virtue of the delay. Provide any records about the structure to be demolished.					
9. Mailing notification fee per Planning & Sustainability Fee Schedule. For a list of addresses, please refer to the Town's Development Notification Tool.	☑		☐	☐	☐
10. Certificate of Appropriateness fee per Planning & Sustainability Fee Schedule	☑		☐	☐	☐

G: Applicant signature

I hereby certify that I am authorized to submit this application; that all information is correct to the best of my knowledge, and all work will comply with the State Building Code and all other applicable State and local laws, ordinances, and regulations.

Josh Gurlitz

Josh Gurlitz (Jan 15, 2025 11:35 EST)

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I acknowledge and agree that the Historic District Commission members, Town employees, and Town agents may enter, solely in performance of their official duties and only at reasonable times, upon the applicant's property for examination or survey thereof pursuant to North Carolina General Statute 160A-400.8. However, no member, employee, or agent of the Historic District Commission may enter any private building or structure without the express consent of the owner or occupant thereof.

I understand and agree that an approved Certificate of Appropriateness is valid only for the particular application, plans, specifications and related project details presented to, and approved by, the Historic District Commission. If any of the data contained in this application, any plans or any specifications presented to the Commission are changed or altered for any reason, including, but not limited to, changes or alternations deemed practically necessary during construction, required due to subsequent Town reviews, or otherwise, a new hearing before the Historic District may be required. By signing below, the applicant agrees to notify the Development Services Center of any changes or alternations in the data contained in this application, the approved plans or the approved specifications related to the project that is the subject of this application.

Hearings on Certificate of Appropriateness applications before the Commission are quasi-judicial proceedings. Therefore, Historic District Commission members are not permitted to discuss a pending application with the applicant or other party. By signing below, the applicant agrees to refrain from speaking with or contacting any member of the Historic District Commission about an application outside of the formal evidentiary hearing on the application.

John Flanagan	John Flanagan	1/6/2025
Applicant (printed name)	**Signature** Josh Gurlitz Josh Gurlitz (Jan 15, 2025 11:35 EST)	**Date**
Property Owner **(if different from above)**	**Signature**	**Date**


216 SPRING LN
210 COTTAGE LN
209 COTTAGE LN
211 FRIENDLY LN
209 FRIENDLY LN
208 COTTAGE LN
COBB TERR
214 SPRING LN
209 NORTH ST
210 SPRING LN
206 COTTAGE LN
207 NORTH ST
206 SPRING LN
212 SPRING LN
207 FRIENDLY LN UNIT B
204 COTTAGE LN
204 FRIENDLY LN
208 SPRING LN
208 SPRING LN UNIT A
227 E ROSEMARY ST
205 FRIENDLY LN
202 FRIENDLY LN
HENDERSON ST
214 HENDERSON ST GARAGE
204 SPRING LN UNIT A
Friendly Ln.
223 E ROSEMARY ST
210 HENDERSON ST
Spring Ln.
202 SPRING LN
219 E ROSEMARY ST
215 E ROSEMARY ST
221-UT E ROSEMARY ST
111 PICKARD LN
211 E ROSEMARY ST
E. Rosemary Street
218 E ROSEMARY ST
207 E ROSEMARY ST
211-UT E ROSEMARY ST
202 HENDERSON ST UNIT 150
202 HENDERSON ST UNIT 100
105 PICKARD

Orange County North Carolina

56272
208 SPRING LN

JANUARY 1ST OWNER MAILING ADDRESS
GURLITZ HENRY JOSH TRUSTEE, GURLITZ
ROBIN HEATH TRUSTEE
208 SPRING LN
CHAPEL HILL NC 27514-

Total Assessed Value
$534,500

KEY INFORMATION

Tax Year	**2024**		
Parcel ID	**9788483481**	Township	**7 - CHAPEL HILL**
Land Size	**0.15**	Land Units	**AC**
Rate Code	**22**		
District Codes	**CH CHSchoolDst., G2 Chapel Hill, G0 County**		
Property LUC	**Residential- Improved**		
Neighborhood	**7172 - 7FRANKRSMRY**		
Legal Description	**3 GILES F HORNEY PROP CH TP P31/135**		
Exempt Type	**-**		

APPRAISAL DETAILS

Total Land	**$285,000**
Ag Credit	**-**
Land	**$285,000**
Building	**$249,500**
Yard Items	**$0**
Market Total	**$534,500**
Total Assessed	**$534,500**

RESIDENTIAL

BUILDING (1)

Type	**TTF Fam**	Total Value	**$249,500**	Finished Sq Ft	**2,690 sf**
Style	**-**	Quality	**Grade B+05**	Condition	**Average**
Year Built	**1983**	Exterior Walls	**Frame**	Full Bath	**2**
Roof Cover	**Metal**	Half Bath	**0**	HVAC	**Combo H&A**
Bedrooms	**4**			Garage Type	**-**
Fireplace Count	**1**				

MISC IMPROVEMENTS

IMPROVEMENT TYPE	UNITS/SQ FT	EST YEAR BUILT	APPRAISED VALUE
No items to display			

SALES

SALE DATE	SALE PRICE	DEED BOOK	DEED PAGE	INSTRUMENT TYPE	GRANTOR
09/12/2022	-	6794	2262	-	-
05/15/1981	$0	363	185	-	SPARLING
05/15/1981	$0	-	-	-	-

YARD ITEMS

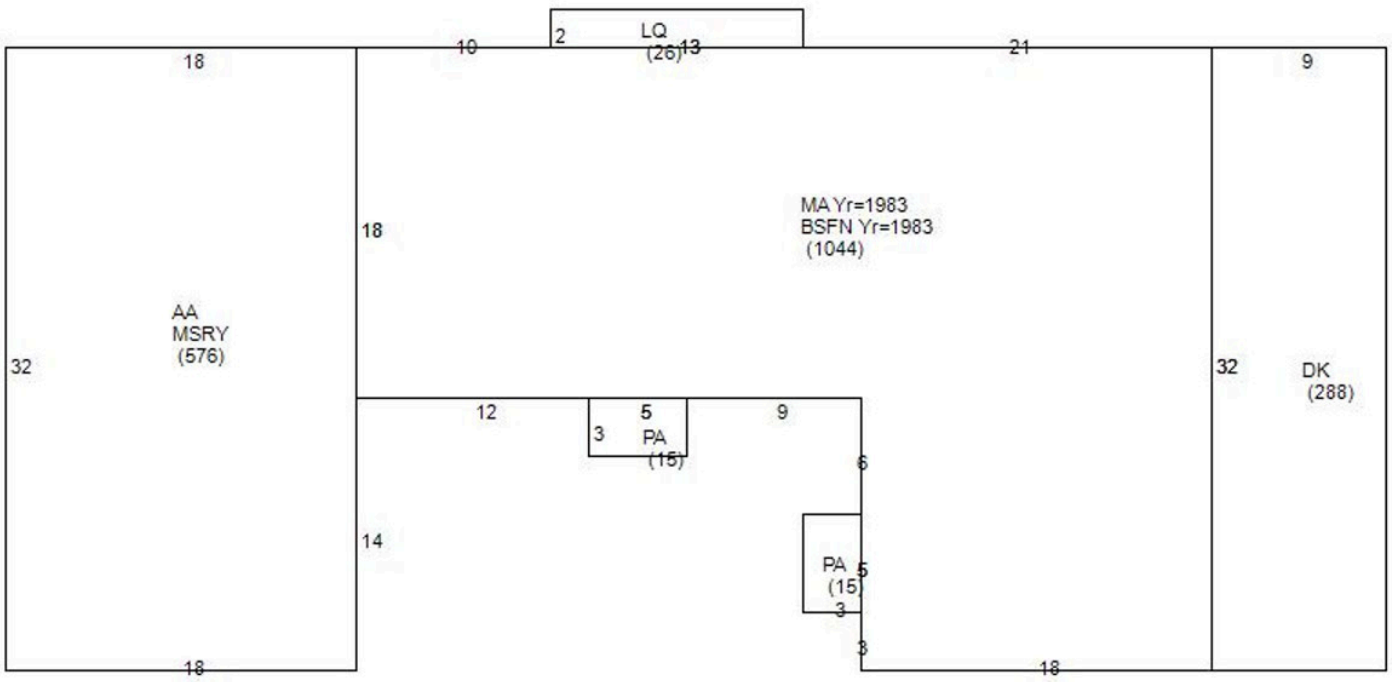
DESCRIPTION	TOTAL UNITS	YEAR BUILT	LENGTH	WIDTH	HEIGHT
No items to display					

LAND

UNIT / SOIL TYPE	DESCRIPTION	USE CODE	ACRES / LOTS	VALUE
LOT	Lot	SITE	1.00	$285,000

VALUE HISTORY

YEAR	TOTAL MARKET VALUE
2024	$534,500
2023	$534,500
2022	$534,500
2021	$534,500
2020	$419,500
2019	$419,500
2018	$419,500
2017	$419,500
2016	$463,206
2015	$463,206
2014	$463,206



Disclaimer

Orange County Assessor's Office makes every effort to produce the most accurate information possible. **No warranties, expressed or implied, are provided for the data herein, its use or interpretation**.

Prepared by: M. Iacono
NC Solar Now, Inc.
2509 Atlantic Avenue
Raleigh, NC 27604
919.833.9096 P
919.882.1207 F

Conceptual Render

Aerial Photograph with Solar Plan Overlay

CLIENT INFO

GURLITZ, JOSH

208 SPRING LANE
CHAPEL HILL, NC 27514

Module:	REC ALPHA PURE RX 460W
Quantity:	27
DC Capacity:	12.42 kW
Estimated Production:	11,155 kWh/year

Project Information

SOLAR'S MOST TRUSTED

REC

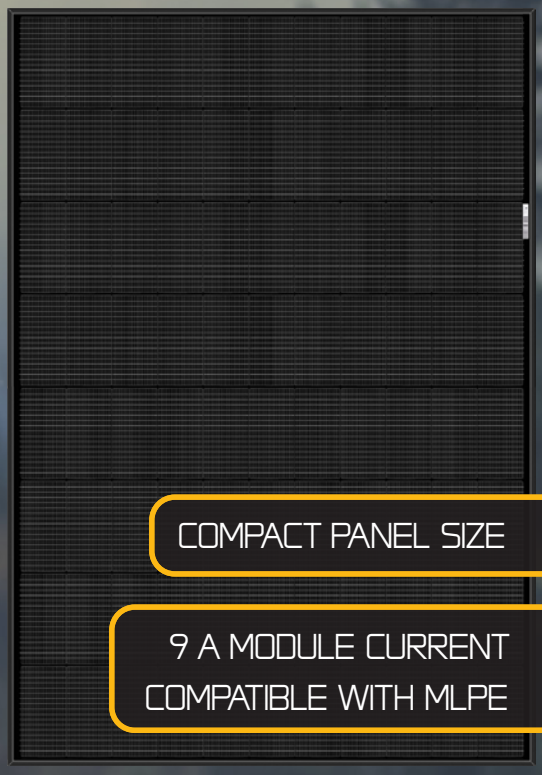
REC ALPHα®
PURE-RX SERIES

DATASHEET

470 Wp

22.6% EFFICIENCY

226 W/M²



COMPACT PANEL SIZE

9 A MODULE CURRENT
COMPATIBLE WITH MLPE

PRODUCT
REC 25 YEAR ProTrust WARRANTY
PERFORMANCE
LABOR

ELIGIBLE

LEAD-FREE
ROHS COMPLIANT

EXPERIENCE
α
PERFORMANCE

REC ALPHα® PURE-RX SERIES

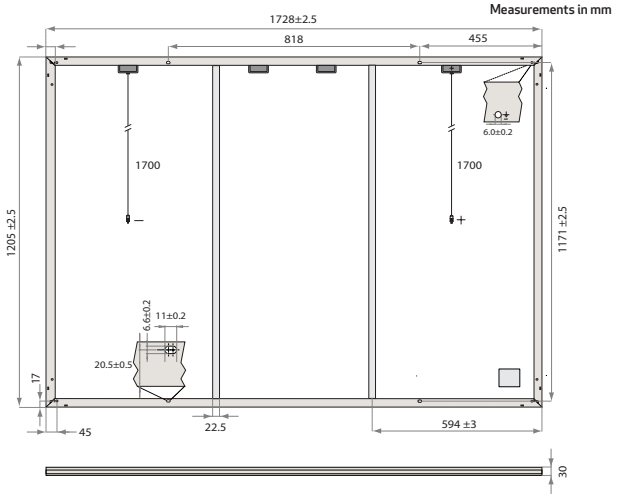
DATASHEET

REC
SOLAR'S MOST TRUSTED

GENERAL DATA

Cell Type	88 half-cut bifacial REC heterojunction cells, with lead-free, gapless technology
Glass	3.2 mm solar glass with anti-reflective surface treatment in accordance with EN12150
Backsheet	Highly resistant polymer (Black)
Frame	Anodized aluminum (Black)
Junction Box	4-part, 4 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors	Stäubli MC4 PV-KBT4/KST4 (4 mm²) in accordance with IEC 62852, IP68 only when connected
Cable	4 mm² solar cable, 1.7 m + 1.7 m in accordance with EN50618
Dimensions	1728 x 1205 x 30 mm (2.08 m²)
Weight	23.4 kg
Origin	Made in Singapore

Measurements in mm



ELECTRICAL DATA

PRODUCT CODE*: RECxxxAA Pure-RX

STC					
Power Output - P_{MAX} (W_p)	450	455	460	465	470
Watt Class Sorting - (W)	0/+5W	0/+5W	0/+5W	0/+5W	0/+5W
Nominal Power Voltage - V_{MPP} (V)	54.3	54.6	54.9	55.2	55.4
Nominal Power Current - I_{MPP} (A)	8.29	8.34	8.38	8.43	8.49
Open Circuit Voltage - V_{OC} (V)	65.1	65.2	65.3	65.5	65.6
Short Circuit Current - I_{SC} (A)	8.81	8.84	8.88	8.91	8.95
Power Density (W/m²)	216	219	221	224	226
Panel Efficiency (%)	21.6	21.9	22.1	22.3	22.6
NMOT					
Power Output - Pmax (W_p)	343	346	350	354	358
Nominal Power Voltage - V_{MPP} (V)	51.2	51.4	51.7	52.0	52.2
Nominal Power Current - I_{MPP} (A)	6.70	6.73	6.77	6.81	6.86
Open Circuit Voltage - V_{OC} (V)	61.3	61.5	61.6	61.7	61.8
Short Circuit Current - I_{SC} (A)	7.11	7.14	7.17	7.2	7.23

Values at standard test conditions (STC: air mass AM 1.5, irradiance 1000 W/m², temperature 25°C), based on a production spread with a tolerance of P_{MAX}, V_{OC} & I_{SC} ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m², temperature 20°C, windspeed 1 m/s). * Where xxx indicates the nominal power class (P_{MAX}) at STC above.

MAXIMUM RATINGS

Operational Temperature	-40 °C - 85 °C
System Voltage	1000 V
Maximum Test Load (front)	+7000 Pa (713 kg/m²)
Maximum Test Load (rear)	-4000 Pa (407 kg/m²)
Max Series Fuse Rating	25 A
Max Reverse Current	25 A

* See installation manual for mounting instructions.
Design load = Test load / 1.5 (safety factor)

TEMPERATURE RATINGS*

Nominal Module Operating Temperature	44 °C ± 2°C
Temperature coefficient of P_{MAX}	-0.24% / °C
Temperature coefficient of V_{OC}	-0.24% / °C
Temperature coefficient of I_{SC}	0.04% / °C

*The temperature coefficients stated are linear values

DELIVERY INFORMATION

Panels per Pallet	33
Panels per 40 ft GP/high cube container	594 (18 Pallets)
Panels per 13.6 m truck	660 (20 Pallets)

CERTIFICATIONS

IEC 61215:2021; IEC61730:2016; UL61730	
ISO 11925-2	Ignitability (EN 13501-1 Class E)
IEC 62716	Ammonia Resistance
IEC 61701	Salt Mist (SM6)
IEC 61215:2016	Hailstone (35 mm)
UL 61730	Fire Type 2
IEC 62321	Lead-free acc. to RoHS EU 863/2015
ISO 14001; ISO9001; IEC45001; IEC62941	

Intertek
Lead-Free
take-e-way for an easy way
Take-e-way WEEE-compliant scheme
Living building challenge compliant

Declare.

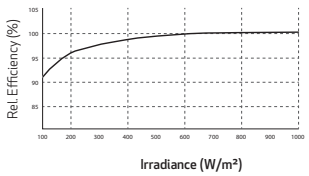
WARRANTY

	Standard	REC ProTrust	
Installed by an REC Certified Professional	No	Yes	Yes
System Size	All	<25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%

The REC ProTrust Warranty is only available on panels purchased through an REC Certified Solar Professional installer. Warranty conditions apply. See www.recgroup.com for more details

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



Available from:

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

REC Solar PTE. LTD.
20 Tuas South Ave. 14
Singapore 637312
post@recgroup.com
www.recgroup.com

REC

Specifications subject to change without notice.

Ref: PM-DS-12-06-Rev-4.2 3.2024

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Certificate of Appropriateness Supplemental Requirements

***In addition to Residential Zoning OR Administrative Zoning Compliance Permit Requirements**

Certificate of Appropriateness applications are subject to review and approval by the Historic District Commission as well as by Town staff. For assistance with this application, please contact the Chapel Hill Planning Department.

Please submit *all* materials listed on this sheet. The Historic District Commission meets on the second Tuesday of each month at 6:30 pm. For confirmation of a meeting date and the placement of your request on the agenda, please call the Planning Department. **Applications are due one month in advance of meeting.**

Application Process:

1. Historic District Commission Review of Certificate of Appropriateness (COA) Supplemental materials
2. Staff review of Residential / Administrative Zoning Compliance Permit (ZCP) materials

**COA (step 1) and ZCP (step 2) materials may be submitted simultaneously or separately.

Required Application Materials

(In addition to Residential Zoning Compliance Permit or Administrative Zoning Compliance Permit Requirements)

An Electronic copy of each document is required in addition to paper copies.

Provide a single set of the following materials:

	1. **Application Form. Either Residential Zoning Compliance or Administrative Zoning Compliance.**
	2. **Recorded plat or deed verifying property's current ownership**
	3. **Recorded plat of easements, right-of-way, and dedications**, if applicable
	4. **Mailing List of Property Owners**, applicable within 100 feet of property boundaries The Town will prepare a formal notice to be mailed to surrounding property owners about the application. You may find it helpful to discuss the proposed changes with your neighbors in person so you can address their concerns both in your planning and presentation.
	5. **Mailing notification fee. The fee per address can be found on the Planning Department's Fee Schedule.**
	6. **Certificate of Appropriateness fee per Planning Department's Fee Schedule**
	7. **Reduced Site Plan Set (reduced to 8.5" x 11")**
	8. **Building Elevations** (label building height from top of roof to finished grade line)
	9. **Floor Plan**, only if accessory apartment, duplex, or commercial application.

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QUESTIONS?
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(Continued)

10. **Written Description**

Describe all proposed changes to the property, list all materials to be used, and address the criteria (listed below) that the Commission uses to determine appropriateness. Presenting your proposal with these criteria in mind will provide a clear basis for the Commission's deliberations.

a) The height of the building in relation to the average height of the nearest adjacent and opposite buildings;
b) The setback and placement of the building on the lot in relation to the average setback and placement of the nearest adjacent and opposite buildings;
c) The exterior construction materials, including textures and patterns;
d) The architectural detailing such as lintels, cornices, brick bond, and foundation materials;
e) The roof shape, form, and materials;
f) The proportion, shape, location, pattern, and size of any elements of fenestration (windows, doors);
g) The general form and proportion of the buildings;
h) The accessory fixture and other features (including lighting fixtures, hardware, awnings, etc.);
i) The architectural scale in relation to existing structures and surrounding buildings; and
j) Structural conditions and soundness.

Provide photographs of existing property and elevation drawings of the proposed changes. Depict changes in as much detail as possible, paying special attention to those features which the Commission uses to determine appropriateness. This section of the application allows the Commission to see the current state of the property, to visualize the proposed changes, and to assess the impact. The visual description must include dimensions. For new buildings and major additions, the visual description must include the interior floor plan.

11. **Information Regarding Surrounding Properties**

For new construction or large projects, the applicant is required to provide information on:

- The height of the nearest adjacent and opposite buildings;
- The setback and placement of the nearest adjacent and opposite buildings;
- The scale of the nearest adjacent and opposite buildings, including percentage of lot coverage.

12. **Demolition Information (if applicable)**

Provide a description of architectural features, additions, remodeling, and any alterations to the structure(s). Make note of any outbuildings on the site plan of the property. Provide a history of the structure, giving the construction date and architect or carpenter, briefly noting any significant events, persons, and/or families associate with the property.

Orange County Solid Waste Management
Recyclable Material Permit Application

(Applies to the Town of Carrboro, Town of Chapel Hill, Town of Hillsborough and rural Orange County)

For additional information go to our webpage at http://orangecountync.gov/recycling

Please read and understand the following terms:

- **A Recyclable Material (RM) Permit is required for all projects and is tied to the issuance of your building or demo permit.**
- ***Incomplete and/or unsigned and dated RM permit applications will not be considered & will be returned resulting in a delay of the issuance of your building or demolition permit*.**
- The permit applies only to the project listed below and is valid for as long as the related building or demo permit is active.
- *Not following permit conditions is a violation of the **Regulated Recyclable Materials Ordinance** (RRMO) and may result in criminal or civil penalties and may result in the loss of Recyclable Material Collector's License, if applicable*.
- A collector's license is required for hauling regulated construction & demolition debris in vehicles larger than 9,000 lbs. GVW. For additional information on hauler licensing see our web-page at: http://orangecountync.gov/recycling.
- ***All structures 500 SF or larger that will be demolished require a deconstruction assessment BEFORE the demo permit can be issued. Contact Orange County Solid Waste Enforcement staff at 919-968-2788 to arrange for the assessment*.**
- Regulated material management requirements include:
  1. **Clean wood waste** (not painted, stained, treated), **scrap metal**, and **corrugated cardboard** must be recycled and cannot be landfilled. Facilities exist at the Orange County C&D Landfill to recycle these materials at reduced or no tip fee *so long as they are kept separate and can be off-loaded separately by the hauler*. **If the materials are comingled together, a penalty of double the tip fee will apply since we do not have the ability to separate them out**.
  2. Certified C&D material reclamation facilities (MRF's) may be used as an alternate to source separation or bringing them to the Orange County C&D landfill. **For a current list of certified facilities, please contact the Enforcement Officer of Orange County Solid Waste Management at 919-968-2788**.
  3. ***C&D materials may not be disposed of through burning***.
  4. Land clearing inert debris (LCID; vegetative debris) cannot be burned and may be brought to the Orange County C&D landfill for recycling at reduced tip fees (currently $18/ton).
  5. Appliances and tires are banned from all landfills in NC and facilities exist at the Orange County C&D landfill for recycling these items at reduced tip fees.
- *Solid Waste enforcement staff may enter the job site to observe if any regulated recyclable materials are being placed in waste containers with other C&D waste materials and if so, a Verification Tag will be placed on the container which must be given to the scalehouse operator at the certified facility where the container must be taken*.
- The RM permit shall be kept on the job and in the permit box for the duration of the project.
- **For questions contact the Enforcement Officer at Orange County Solid Waste at 919-968-2788**.

I have read, understand, and agree to comply with the terms of the Recyclable Material Permit:

Josh Gurlitz

Josh Gurlitz (Jan 15, 2025 11:35 EST)

Applicant Information:

Project address: 208 Spring Lane, Chapel Hill, NC 27514 _____ PIN #:_____

Applicant: Josh Gurlitz Owner: Josh Gurlitz

Project Address: 208 Spring Lane, Chapel Hill, NC 27514 27514 Owner Address (If different):_____

Contact #: 919-537-5875 Contact # 919-537-5875

Job Summary: Installation of 27 black solar panels flush mounted to the preexisting roof of the house. Please see attached documentation for panel dimensions, location, & example photos

Check method of waste collection & hauling you will use:

Check method of waste collection & hauling you will use:

☐ **Check here if HOMEOWNER is HAULING (self-hauling)**

☐ ***Check here if JOBSITE SEPARATION OCCURS AND MATERIALS DELIVERED TO MARKET***

☐ **Check here if BUILDER/CONTRACTOR is HAULING. Builder/contractor may need to be licensed. (Contact the Enforcement Officer at Orange County Solid Waste at 919-968-2788 for guidance) *Builder or contractor hauling is NOT self-hauling.***

☐ ***Check here if HAULING to a Certified Facility***

☐ **Check here if using a LICENSED HAULER AND PROVIDE COMPANY NAME: _____**

FOR OFFICE USE ONLY

Approved by: _____ Date: _____

PV MATERIAL SUMMARY: DISTRIBUTOR

REC460AA PURE-RX	27
MCI-2	14
Tesla PW3 1707000-xx-y	1
Tesla GW3 1841000-01-y	1
XR-10-168B	4
XR-10-204B	10
XR10-BOSS-01-M1	8
UFO-CL-01-B1	44
UFO-END-01-B1	20
XR-LUG-03-A1	7
SOLARFOOT	158
TYPE 17-AB, SCREW (2.5")	632
LFT-03-M1	158
QM-JBX-RL02-B1	2
SOLAR MESH-P-8	2
SNRAC 242-04105	75

NC SOLAR NOW

CLIENT INFO

JOSH GURLITZ
208 SPRING LN
CHAPEL HILL NC 27514

PROJECT INFO

DC INPUT:	12.420 kW
AC OUTPUT:	11.500 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy
300 Fayetteville St.
#1430
Raleigh, NC 27602
919-274-9905
ModelEnergy.com
P-1194

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING 12/16/2024

CODE REFERENCES

NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2018
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	120 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

SHEET INDEX

VERSIONS

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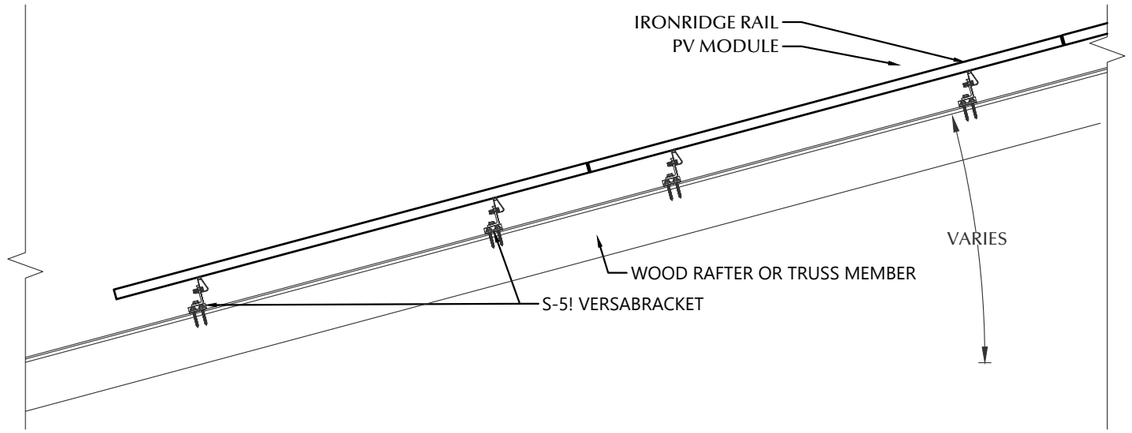
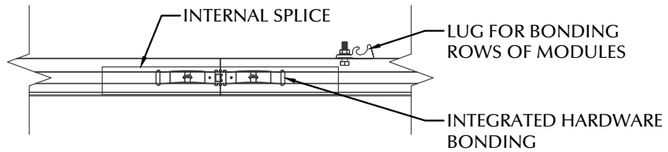
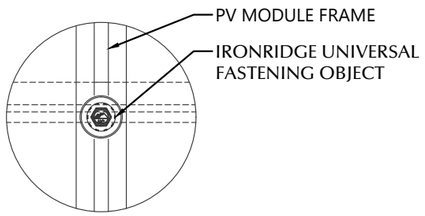
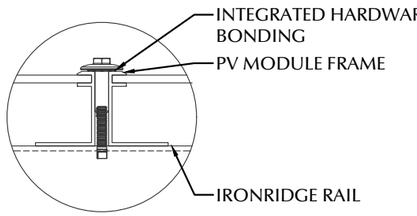
PV SYSTEM COVER PAGE

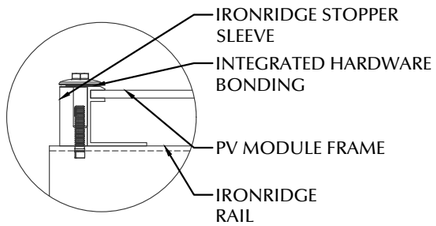
PV-1.1

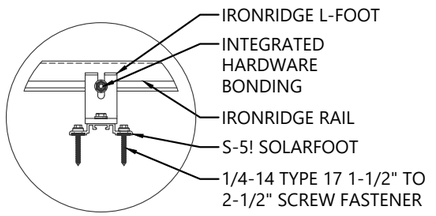




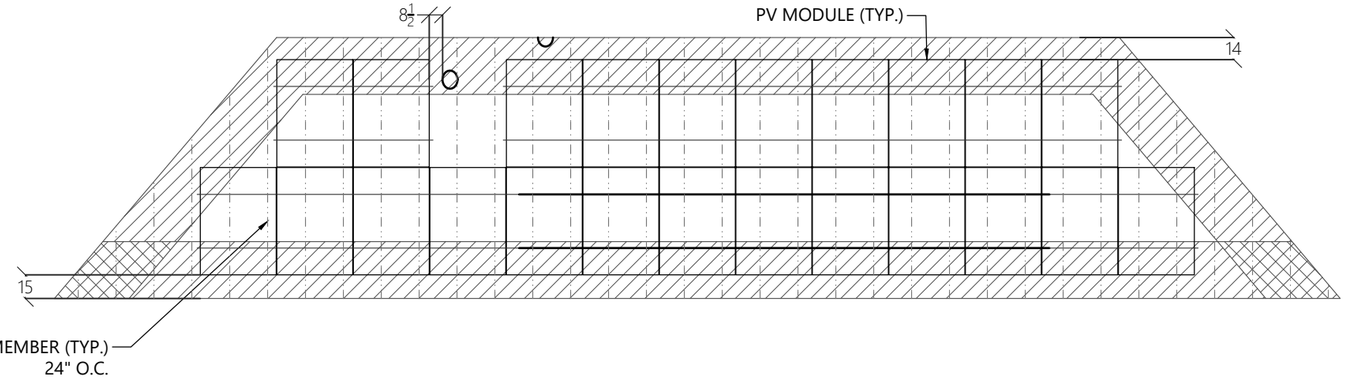








1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF A ARRAY LAYOUT
1/8" = 1'-0"

STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

NAME: ANDREW W. KING, PE

SIGNED:

PV MODULES

MAKE	REC
MODEL	REC460AA PURE-RX
WIDTH	48.10 IN
LENGTH	68.00 IN
THICKNESS	30 MM
WEIGHT	51.59 LBS.
ARRAY AREA	522 SQFT.
ARRAY WEIGHT	1306 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 4
SPACING	24 IN O.C.
ALLOWABLE SPAN	88 IN
PITCH	8/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	PLYWOOD
MATERIAL	COMPOSITE
THICKNESS	8/16 IN
WEIGHT	1.42 LBS/SQFT
ROOFING:	
TYPE	EXPOSED FASTENER METAL
MATERIAL	METAL
WEIGHT	1.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	30 IN	12 IN
WIND ZONE 2	23 IN	9 IN
WIND ZONE 3	20 IN	8 IN

ROOF LOADING

GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD	20 LBS./SQFT.
DEAD LOAD	
ROOFING	3.9 LBS/SQFT.
PV ARRAY	2.5 LBS./SQFT.
TOTAL	6.4 LBS./SQFT.
WIND LOAD:	
UPLIFT ZONE 1	-24.6 LBS./SQFT.
UPLIFT ZONE 2	-29.0 LBS./SQFT.
UPLIFT ZONE 3	-29.0 LBS./SQFT.
DOWNWARD	23.0 LBS./SQFT.
FASTENER LOAD:	
UPLIFT ZONE 1	-173 LBS.
UPLIFT ZONE 2	-156 LBS.
UPLIFT ZONE 3	-136 LBS.
DOWNWARD	162 LBS.

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	S-5!
MODEL	SOLARFOOT
MATERIAL	ALUMINUM / BUTYL
FASTENER:	
MAKE	S-5!
MODEL	TYPE 17-AB, SCREW (2.5")
MATERIAL	ZINC / ALUMINUM CAP
SIZE	1/4 - 14 X 2-1/2" (3/8" HEX)
GENERAL:	
WEIGHT	0.17 LBS.
FASTENERS PER MOUNT	4
MAX. PULL-OUT FORCE	356.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	178.0 LBS.

MOUNTING RAILS

MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINUM
WEIGHT	0.425 LBS/IN
SPACING	34 IN

NC SOLAR NOW

CLIENT INFO

JOSH GURLITZ
208 SPRING LN
CHAPEL HILL NC 27514

PROJECT INFO

DC INPUT:	12.420 kW
AC OUTPUT:	11.500 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy
300 Fayetteville St.
#1430
Raleigh, NC 27602
919-274-9905
ModelEnergy.com
P-1194

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING 12/16/2024

CODE REFERENCES

NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2018
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	120 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

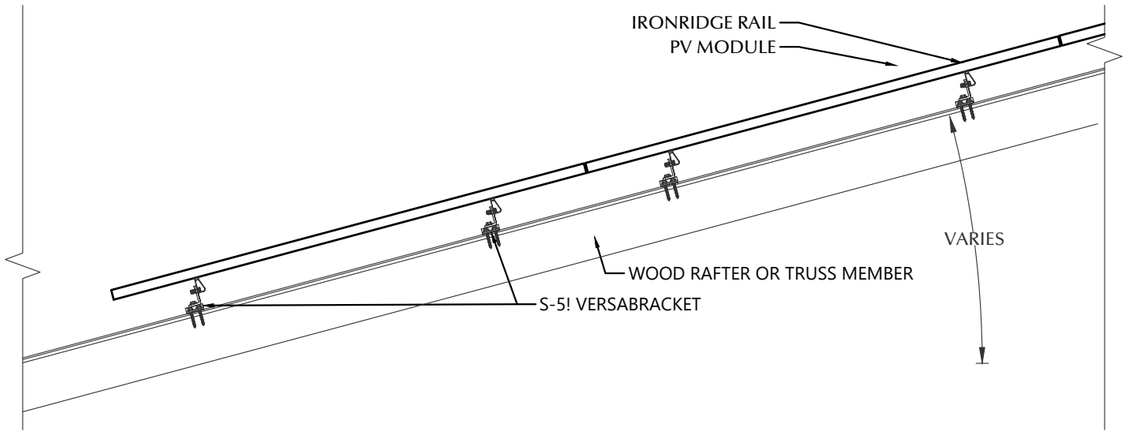
SHEET INDEX

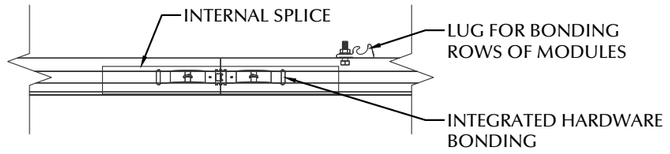
VERSIONS

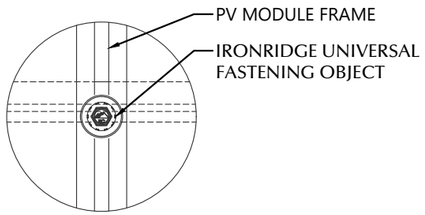
FOR:	DESIGNER	DATE
CONSTRUCTION	MCP	1/8/2025

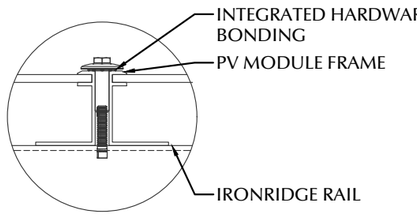
PV SYSTEM STRUCTURAL

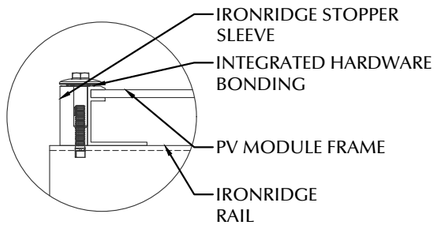
PV-2.1

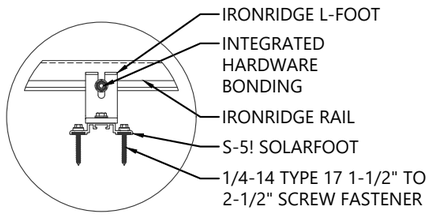




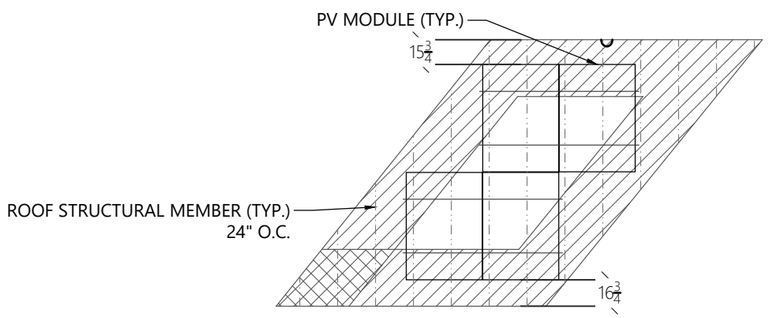








1 ROOF FASTENER DETAIL
NOT TO SCALE



2 ROOF B ARRAY LAYOUT
1/8" = 1'-0"

STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

NAME: ANDREW W. KING, PE

SIGNED:

PV MODULES

MAKE	REC
MODEL	REC460AA PURE-RX
WIDTH	48.10 IN
LENGTH	68.00 IN
THICKNESS	30 MM
WEIGHT	51.59 LBS.
ARRAY AREA	91 SQFT.
ARRAY WEIGHT	227 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 4
SPACING	24 IN O.C.
ALLOWABLE SPAN	88 IN
PITCH	8/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	PLYWOOD
MATERIAL	COMPOSITE
THICKNESS	8/16 IN
WEIGHT	1.42 LBS/SQFT
ROOFING:	
TYPE	EXPOSED FASTENER METAL
MATERIAL	METAL
WEIGHT	1.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	30 IN	12 IN
WIND ZONE 2	23 IN	9 IN
WIND ZONE 3	20 IN	8 IN

ROOF LOADING

GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD	20 LBS./SQFT.
DEAD LOAD	
ROOFING	3.9 LBS/SQFT.
PV ARRAY	2.5 LBS./SQFT.
TOTAL	6.4 LBS./SQFT.
WIND LOAD:	
UPLIFT ZONE 1	-24.6 LBS./SQFT.
UPLIFT ZONE 2	-29.0 LBS./SQFT.
UPLIFT ZONE 3	-29.0 LBS./SQFT.
DOWNWARD	23.0 LBS./SQFT.
FASTENER LOAD:	
UPLIFT ZONE 1	-173 LBS.
UPLIFT ZONE 2	-157 LBS.
UPLIFT ZONE 3	-136 LBS.
DOWNWARD	162 LBS.

ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	S-5!
MODEL	SOLARFOOT
MATERIAL	ALUMINUM / BUTYL
FASTENER:	
MAKE	S-5!
MODEL	TYPE 17-AB, SCREW (2.5")
MATERIAL	ZINC / ALUMINUM CAP
SIZE	1/4 - 14 X 2-1/2" (3/8" HEX)
GENERAL:	
WEIGHT	0.17 LBS.
FASTENERS PER MOUNT	4
MAX. PULL-OUT FORCE	356.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	178.0 LBS.

MOUNTING RAILS

MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINUM
WEIGHT	0.425 LBS/IN
SPACING	34 IN

NC SOLAR NOW

CLIENT INFO

JOSH GURLITZ
208 SPRING LN
CHAPEL HILL NC 27514

PROJECT INFO

DC INPUT:	12.420 kW
AC OUTPUT:	11.500 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy
300 Fayetteville St.
#1430
Raleigh, NC 27602
919-274-9905
ModelEnergy.com
P-1194

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING 12/16/2024

CODE REFERENCES

NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2018
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	120 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

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FOR:	DESIGNER	DATE
CONSTRUCTION	MCP	1/8/2025

PV SYSTEM STRUCTURAL

PV-2.2

CONDUCTOR SCHEDULE

TAG	CURRENT CARRYING CONDUCTORS			GROUNDING CONDUCTORS			CONDUIT/RACEWAY			NOTES
	QTY.	SIZE	INSULATION	QTY.	SIZE	INSULATION	QTY.	SIZE	LOCATION	
C1	10	10 AWG	PV WIRE	1	6 AWG	BARE	-	-	FREE AIR	1
C2	10	10 AWG	THWN-2	1	10 AWG	THWN-2	1	3/4"	EXT/INT	2,4
C3	3	6 AWG	THWN-2	1	10 AWG	THWN-2	1	1"	EXTERIOR	2,4
C4	3	4/0 AWG ALUMINUM	XHHW	1	6 AWG	THWN-2	1	2"	EXT/INT	2,4
C5	3	4/0 AWG ALUMINUM	XHHW	-	-	-	1	2"	EXTERIOR	2,4
XC	-	-	-	-	-	-	-	-	-	3

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED.
3. EXISTING CONDUCTORS, FIELD VERIFY
4. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR

ENERGY MANAGEMENT

MAKE	TESLA
MODEL	BACKUP GATEWAY 3
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
DISCONNECT CURR.	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- TROUGH MAY BE USED IF NECESSARY
- INSTALL 200A MAIN BREAKER THAT WILL SERVE AS THE NEW SERVICE DISCONNECT SWITCH
- INSTALL BONDING JUMPER FROM NEUTRAL TO GROUND
- FEED BACKED-UP LOADS PANEL VIA BACKUP LUGS
- LAND POWERWALL 3 ON 60A BREAKER IN EXISTING GATEWAY INTERNAL PANELBOARD

PV MODULE

MAKE	REC
MODEL	REC460AA PURE-RX
NOM. POWER (PNOM)	460 WATTS
NOM. VOLT. (VMPP)	54.9 VOLTS
O.C. VOLT (VOC)	65.3 VOLTS
MAX. SYS. VOLT.	1000 VOLTS
NOM. CURR. (IMPP)	8.4 AMPS
S.C. CURR. (ISC)	8.9 AMPS
TEMP. COEF. (PMPP)	-0.24 %/C
TEMP. COEF. (Voc)	-0.24 %/C
MAX SERIES FUSE	25 AMPS
UL COMPLIANT (Y/N)	YES

MAX. DC VOLTAGE CALCULATION

$V_{OC}MAX = V_{OC} * (1 + (TMIN - TSTC) * (VTC / 100))$

$V_{OC}MAX$	70.80
MAX STRING VOLTAGE	424.8

MAX. DC CURRENT CALCULATION

$I_{SC}MAX = I_{SC} * TCX$

$I_{SC}MAX$ (AMPS)	11.10

MID-CIRCUIT INTERRUPTER

MAKE	TESLA
MODEL	MCI-2
ENCL. RATING	NEMA 4X / IP65
DC INPUT:	
CONNECTOR TYPE	MC4
MAX IN-LINE PV MODULES	3
MAX MCI PER STRING	5
MAX. SYSTEM VOLTAGE	1000 VOLTS
NOM. CURRENT (Imp)	13.00 AMPS
MAX. CURRENT (Isc)	17.00 AMPS
RSD COMPLIANT (Y/N)	YES
UL COMPLIANT (Y/N)	YES

JUNCTION BOX

MAKE	SOLADECK
MODEL	0799-5B
PROTECT. RATING	NEMA TYPE 3R
UL LIST. (Y/N)	YES

EX. BACKED-UP LOADS PANEL

MAKE	I-T-E
MODEL	G4040MB1200CU
ENCL. RATING	NEMA TYPE 1
VOLT. RATING	240
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- RE-FEED BACKED-UP LOADS PANEL VIA GATEWAY OUTPUTS
- REMOVE N/G BOND IN BACKED-UP LOADS PANEL ONLY

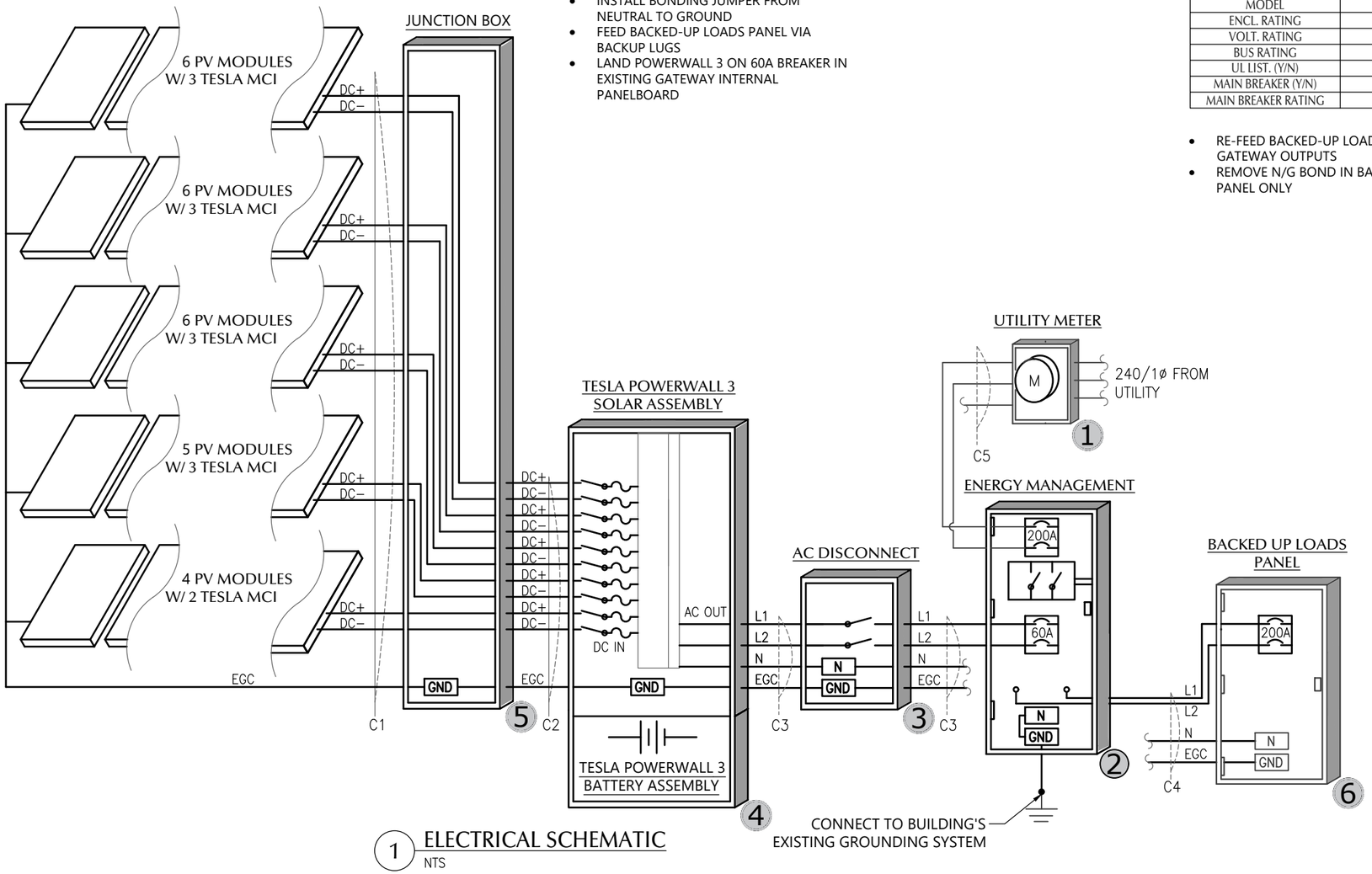
DC/AC INVERTER & BATTERY

MAKE	TESLA POWERWALL 3
MODEL	1707000-XX-Y
INVERTER INFO:	
DC INPUT:	
MAX POWER	20000 WATTS
INPUT VOLT. RANGE	60-550 VOLTS
MPPT VOLT. RANGE	60-480 VOLTS
MAX. MPPT CUR.	13 AMPS
STRING INPUTS	6 MPPTs
AC OUTPUT:	
MAX. CONT. POWER	11500 WATTS
NOM. VOLT.	240 VOLTS
MAX. CONT. CURRENT	48.00 AMPS
RAPID SHUTDOWN (Y/N)	YES
PROTECT. RATING	NEMA TYPE 3R
BATTERY INFO:	
USABLE ENERGY	13.5 kWh
NOM. VOLT.	240 VOLTS
MAX. CONT. CHARGE	5000 WATTS
UL LIST. (Y/N)	YES

AC DISCONNECT

MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	60 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES
- DISCONNECT MARKED AND RATED PER NEC SECTION 690.13 AND 705.10



1 ELECTRICAL SCHEMATIC
NTS

NC SOLAR NOW

CLIENT INFO

JOSH GURLITZ
208 SPRING LN
CHAPEL HILL NC 27514

PROJECT INFO

DC INPUT:	12.420 kW
AC OUTPUT:	11.500 kW
DOI INSPT. METHOD:	OPTION 2

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NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	120 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

SHEET INDEX

VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	MCP	1/8/2025

PV SYSTEM ELECTRICAL

PV-3.1

WARNING: PHOTOVOLTAIC POWER SOURCE

5 NEC 690.31 (G)(3)&(4)
PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

⚠WARNING

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

2 NEC 705.12 (B)(2)(3)(c)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

3 NEC 690.56 (C)(3)
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

PV SYSTEM DISCONNECT

3 NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

⚠WARNING

ELECTRIC SHOCK HAZARD

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

2 NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

GENERATION PANEL:

IN THE EVENT OF AN EMERGENCY, TURN OFF ALL BREAKERS TO DISCONNECT BACKUP POWER SOURCE(S).

2

⚠WARNING

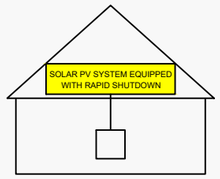
THREE POWER SOURCES

SOURCES: UTILITY GRID, BATTERY AND PV SOLAR ELECTRIC SYSTEM

1 2 6 NEC 705.12(B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY THREE POWER SOURCES

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



2 NEC 690.56 (C)(1)(a)
PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

PHOTOVOLTAIC SYSTEM ⚠ AC DISCONNECT ⚠

OPERATING VOLTAGE	240	VOLTS
OPERATING CURRENT	48.0	AMPS

3 NEC 690.54
PLACE ON INTERCONNECTION DISCONNECTING MEANS

DIRECT CURRENT PHOTOVOLTAIC POWER SOURCE

MAXIMUM VOLTAGE	600	VDC
MAX CIRCUIT CURRENT	55.5	AMPS

4 NEC 690.53
PLACE ON ALL DC DISCONNECTING MEANS

WARNING:

IN THE EVENT OF A UTILITY OUTAGE, THIS PANEL IS FED FROM ENERGY STORAGE SYSTEM.

2 6 PLACE ON BACKED UP LOAD PANEL(S).

SERVICE DISCONNECT LOCATED: SOUTH WALL OF RESIDENCE

BATTERY DISCONNECT LOCATED: SOUTH WALL OF RESIDENCE

PV DISCONNECT LOCATED: SOUTH WALL OF RESIDENCE

2 3 NEC 705.10
PLACE AT SERVICE EQUIPMENT AND PV SYSTEM DISCONNECTING MEANS.

LABEL NOTES

1. LABELS SHOWN ARE HALF THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. DC CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.
4. LABELS WILL BE APPLIED IN ACCORDANCE WITH THE NEC. SOME LABELS MAY NOT BE NECESSARY.

DC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER, RATED AT NOT LESS THAN 600 VOLTS FOR RESIDENTIAL CONSTRUCTION AND NOT LESS THAN 1000 VOLTS FOR COMMERCIAL CONSTRUCTION.
2. MINIMUM SIZE SHALL BE #10 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE, USE-2, OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV, SUNLIGHT, AND MOISTURE RESISTANT.
6. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT) OR RIGID POLYVINYL CHLORIDE CONDUIT(PVC). ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
7. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), OR METAL CLAD CABLE(MC).
6. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
7. MINIMUM CONDUIT SIZE TO BE 1/2".
8. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

AC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS.
2. MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), RIGID POLYVINYL CHLORIDE CONDUIT(PVC), LIQUID-TIGHT FLEXIBLE METAL CONDUIT(LFMC), OR LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT(LFNC) . ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
4. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), METAL CLAD CABLE(MC), OR ROMEX.
5. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
6. MINIMUM CONDUIT SIZE TO BE 1/2".
7. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

CONSTRUCTION NOTES

1. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
3. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED.
4. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
5. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN, UNLESS NOTED OTHERWISE.
6. ALL TERMINALS/LUGS SHALL BE 75° RATED. ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
7. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
8. ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
9. ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
10. SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
11. METAL CONDUIT COUPLINGS CAN BE COMPRESSION TYPE, THREADED, OR BE SET-SCREW TYPE. PLASTIC CONDUIT COUPLINGS TO BE SOCKET GLUED TYPE.
12. A COMPLETE GROUNDING SYSTEM SHALL BE PRESENT OR PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
13. EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES, OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED. WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCES IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED.
14. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE.
15. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
16. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
17. WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT.
18. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT MEANS.
19. A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
20. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)
21. A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
    I. THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT(PSF)
    II. THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
    III. THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
    IV. THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE

NC SOLAR NOW

CLIENT INFO

JOSH GURLITZ
208 SPRING LN
CHAPEL HILL NC 27514

PROJECT INFO

DC INPUT:	12.420 kW
AC OUTPUT:	11.500 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy
300 Fayetteville St.
#1430
Raleigh, NC 27602
919-274-9905
ModelEnergy.com
P-1194

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING 12/6/2024

CODE REFERENCES

NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2018
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	120 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

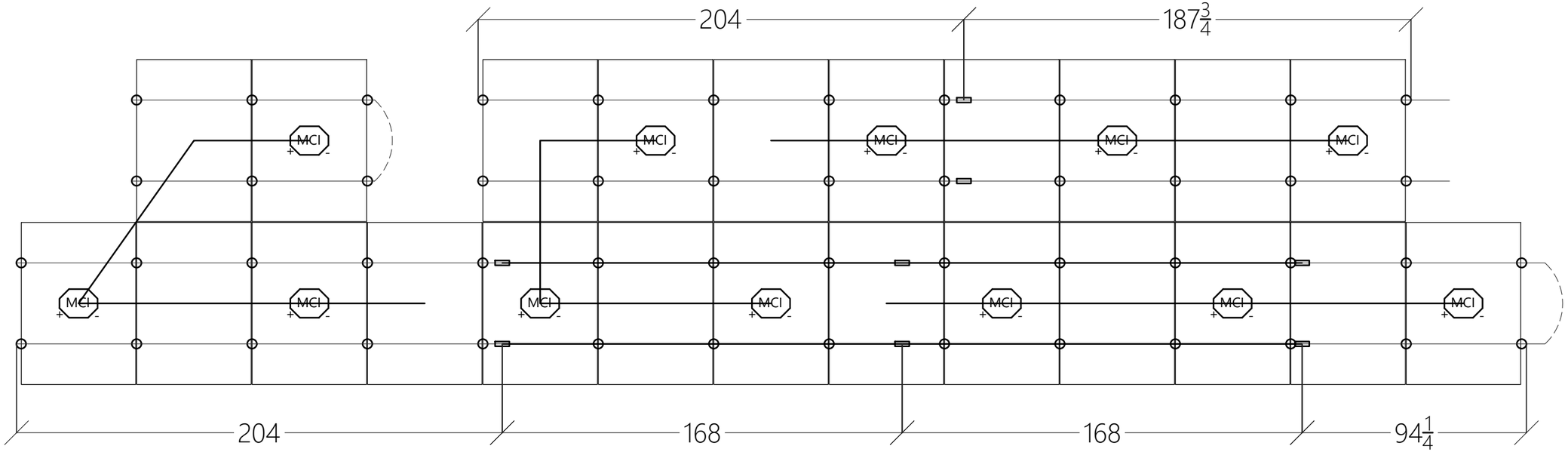
SHEET INDEX

VERSIONS

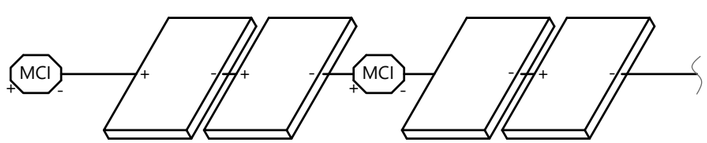
FOR:	DESIGNER	DATE
CONSTRUCTION	MCP	1/8/2025

PV SYSTEM EQUIPMENT LABELS

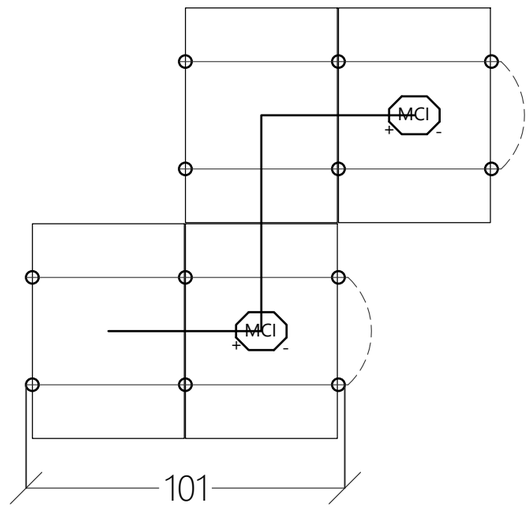
PV-4.1



1 ARRAY LAYOUT DETAIL
NOT TO SCALE



2 STRING WIRING + MCI DETAIL
NOT TO SCALE



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NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING 12/16/2024

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SHEET INDEX

VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	MCP	1/8/2025

PV SYSTEM INSTALL GUIDE

PV-5.1

Expiration Date

2025

License No.

69583

North Carolina

Licensing Board for General Contractors

This is to Certify That:

NC Solar Now Inc.

Raleigh, NC

is duly registered and entitled to practice

General Contracting

Limitation: Limited

Classification: Building

until

December 31, 2025

when this Certificate expires.

Witness our hands and seal of the Board.

Dated, Raleigh, N.C.

01/01/2025

This certificate may not be altered.

Chairman

Secretary-Treasurer

Gurlitz COA for HDC

Final Audit Report 2025-01-15

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