

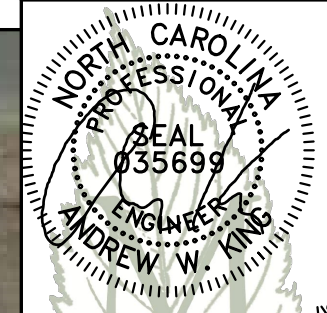
## VICINITY MAP



## PROPERTY MAP



ENGINEER:



**MODEL ENERGY**

300 FAYETTEVILLE ST.  
#1430  
RALEIGH, NC 27602  
919-274-9905  
MODELENERGY.COM

P-1194

JOB TITLE:

**NEW SOLAR PV SYSTEM**  
9.15 kW DC INPUT  
9.15 kW AC EXPORT

**Frank Barlow**  
320 Fairfax Drive  
SANFORD, NC 27332

CLIENT:



ISSUED FOR:	DATE:
PERMIT	8/09/18

PROJECT INFORMATION

# PV1.1

## CONSTRUCTION NOTES

- ALL WORK AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES
- FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS

## ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
DC	DIRECT CURRENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METAL TUBING
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
I	CURRENT
IMP	CURRENT AT MAXIMUM POWER
ISC	SHORT-CIRCUIT CURRENT
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MIN	MINIMUM
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
NOM	NOMINAL
NTS	NOT TO SCALE
PnOM	NOMINAL POWER
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
SN	SOLAR NOON
STC	STANDARD TEST CONDITIONS
TYP	TYPICAL
V	VOLT
VMP	VOLTAGE AT MAXIMUM POWER
Voc	OPEN-CIRCUIT VOLTAGE
W	WATT

## CODE REFERENCES

2012 NORTH CAROLINA BUILDING CODE  
2012 NORTH CAROLINA RESIDENTIAL CODE  
2012 NORTH CAROLINA FIRE CODE

## SHEET INDEX

PV1.1 - PROJECT INFORMATION  
PV2.1 - SITE INFORMATION  
PV3.1 - STRUCTURAL INFORMATION

## SITE CONDITIONS

ASCE 7-10 WIND SPEED - 115 MPH  
EXPOSURE CATEGORY - B  
RISK CATEGORY - II

## LEGEND

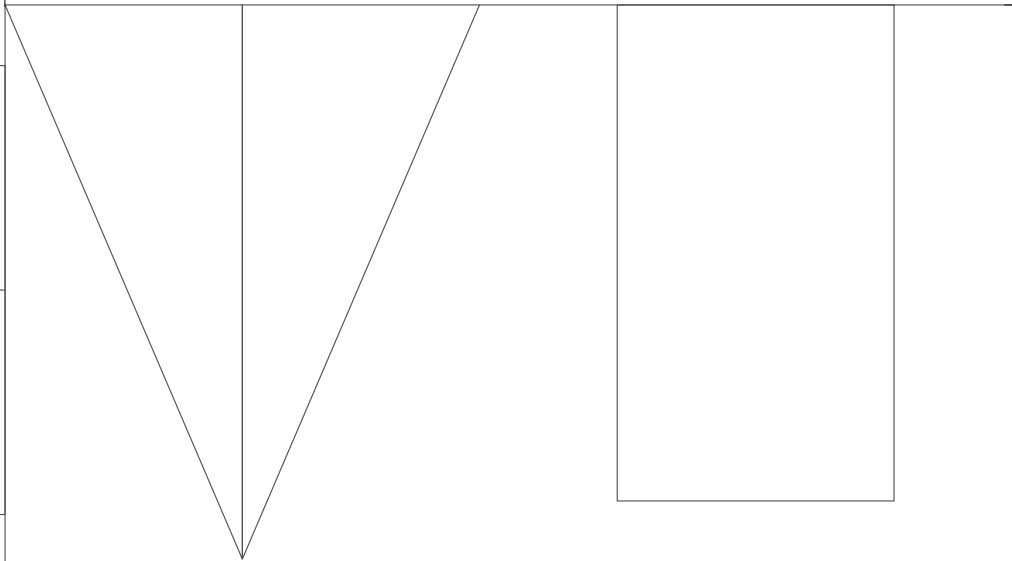
	DISCONNECT SWITCH
	FUSE
	CIRCUIT BREAKER
	EQUIP. GROUND

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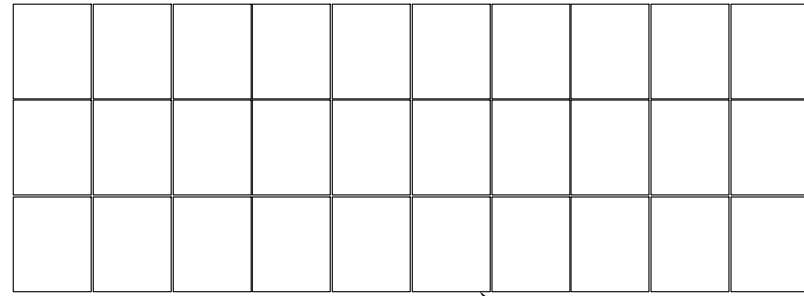
APPROX 60FT TO  
PROPERTY LINE

APPROX 60FT TO  
PROPERTY LINE

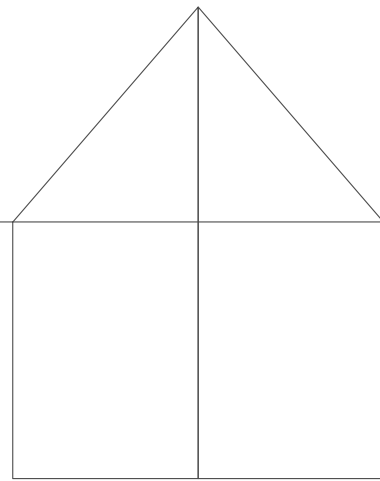
APPROX 50FT TO  
PROPERTY LINE



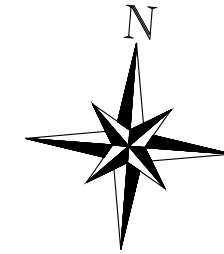
RESIDENCE



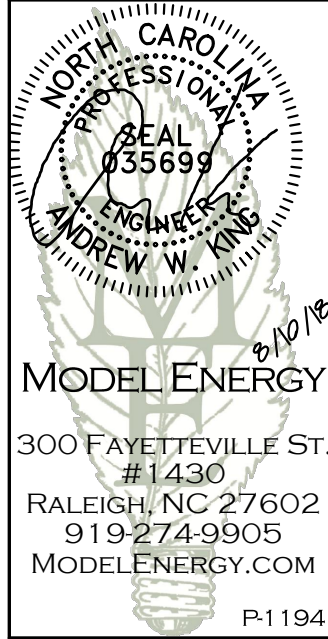
PV MODULE (TYP.)



APPROX 90FT TO  
PROPERTY LINE



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SITE  
INFORMATION

# PV2.1


ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	MAGERACK
MODEL	L-FOOT
MATERIAL	ALUMINUM
FASTENER	
MAKE	GENERIC
MODEL	LAG BOLT
MATERIAL	304 SS
SIZE	5/16" X 4"
GENERAL	
WEIGHT	1 LBS
FASTENERS PER MOUNT	1 PER MOUNT
MAX. PULL-OUT FORCE	768 LBS
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	384 LBS

ROOF ARRAY SUMMARY	
# MODULES	30
# ROOF MOUNTS	45
RAIL LENGTH	205 FT.
ARRAY AREA	540 SQFT.
ARRAY WEIGHT	1521 LBS.
AZIMUTH @ SN	175°
TILT ANGLE	34°

ROOF SUMMARY	
STRUCTURE:	
TYPE	ROOF TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 4"
SPACING	24" o.c.
EFF. SPAN	10'-4"
PITCH	8 / 12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	WOOD COMPOSITE
THICKNESS	7/16"
WEIGHT	1.6 LBS./SQFT.
ROOFING:	
TYPE	ARCH SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.3 LBS./SQFT.

**STATEMENT OF STRUCTURAL COMPLIANCE**

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PURPOSED 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.

SIGNED: 

NAME: ANDREW W. KING, PE

TITLE: PROFESSIONAL ENGINEER

ROOF LOADING	
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	2.8 LBS./SQFT.
TOTAL	6.7 LBS./SQFT.
WIND LOAD:	
UPLIFT ZONE 1	-24.6 LBS./SQFT.
UPLIFT ZONE 2	-29 LBS./SQFT.
UPLIFT ZONE 3	-29 LBS./SQFT.
DOWNWARD	23 LBS./SQFT.
FASTENER LOAD:	
UPLIFT ZONE 1	-295 LBS.
UPLIFT ZONE 2	-348 LBS.
UPLIFT ZONE 3	-348 LBS.
DOWNWARD	276 LBS.

PV MODULES	
MAKE	Q CELL
MODEL	Q.PEAK BLK-G4.1 305
WIDTH	39.4"
LENGTH	65.7"
THICKNESS	1.26"
WEIGHT	41.45 LBS

MOUNTING RAILS	
MAKE	EVEREST CROSSRAIL
MODEL	SM STANDARD
MATERIAL	ALUMINUM
WEIGHT	1.25 LBS./FT.
SPACING	34 IN.

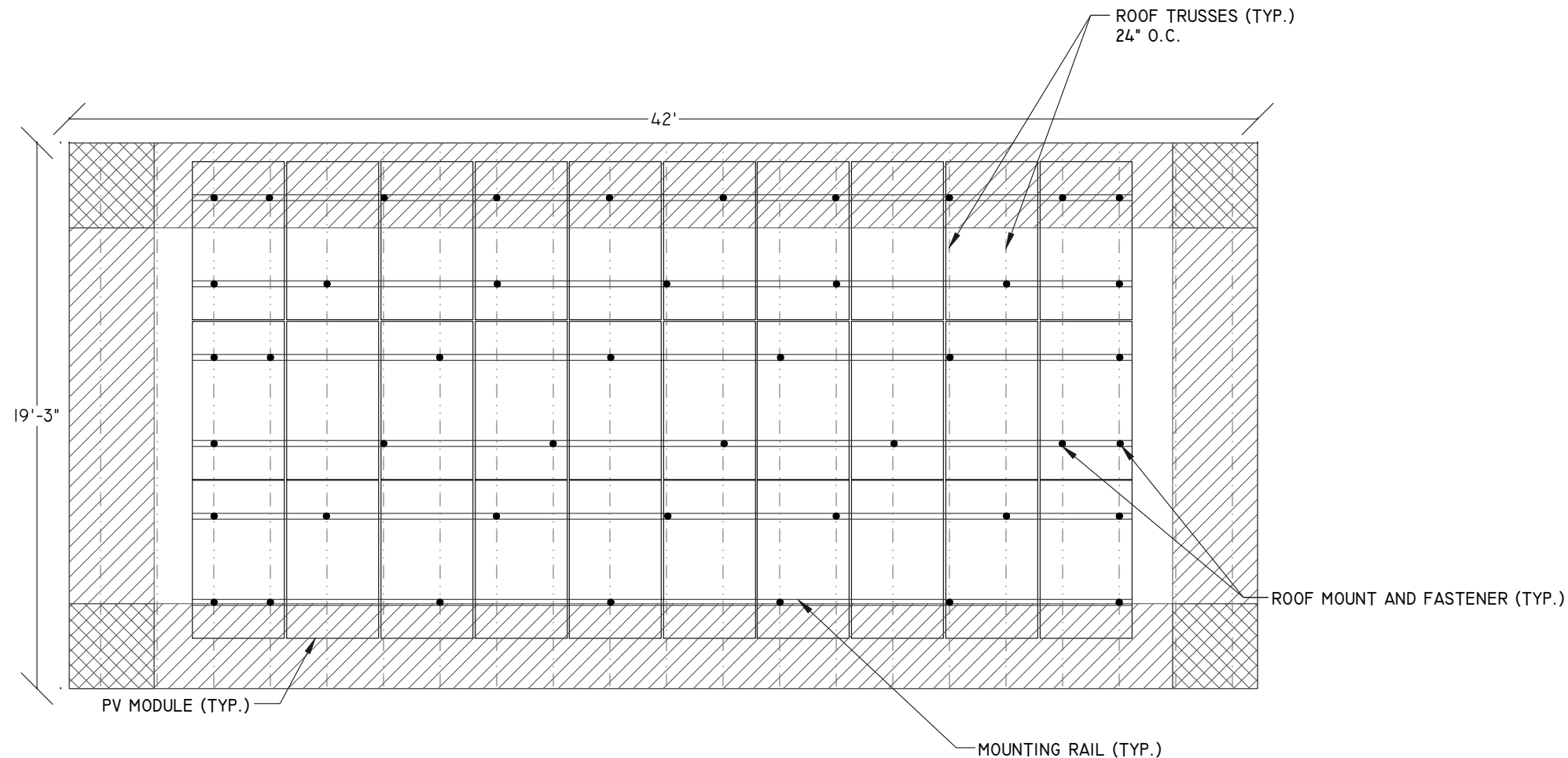
ROOF ZONES:

ALL ZONES MAX. RAIL OVERHANG = 16"

ZONE 1 MAX. FASTENER SPAN ZONE 1 = 72"

ZONE 2 MAX. FASTENER SPAN ZONE 2 = 48"

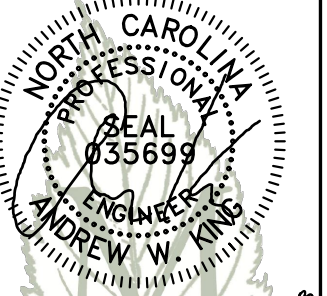
ZONE 3 MAX. FASTENER SPAN ZONE 3 = 24"



1 MODULE, RACKING, AND FASTENER LAYOUT – ROOF PLANAR VIEW

SCALE : 3/16" = 1'-0"

ENGINEER:



8/10/18

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STRUCTURAL INFORMATION

**PV3.1**

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