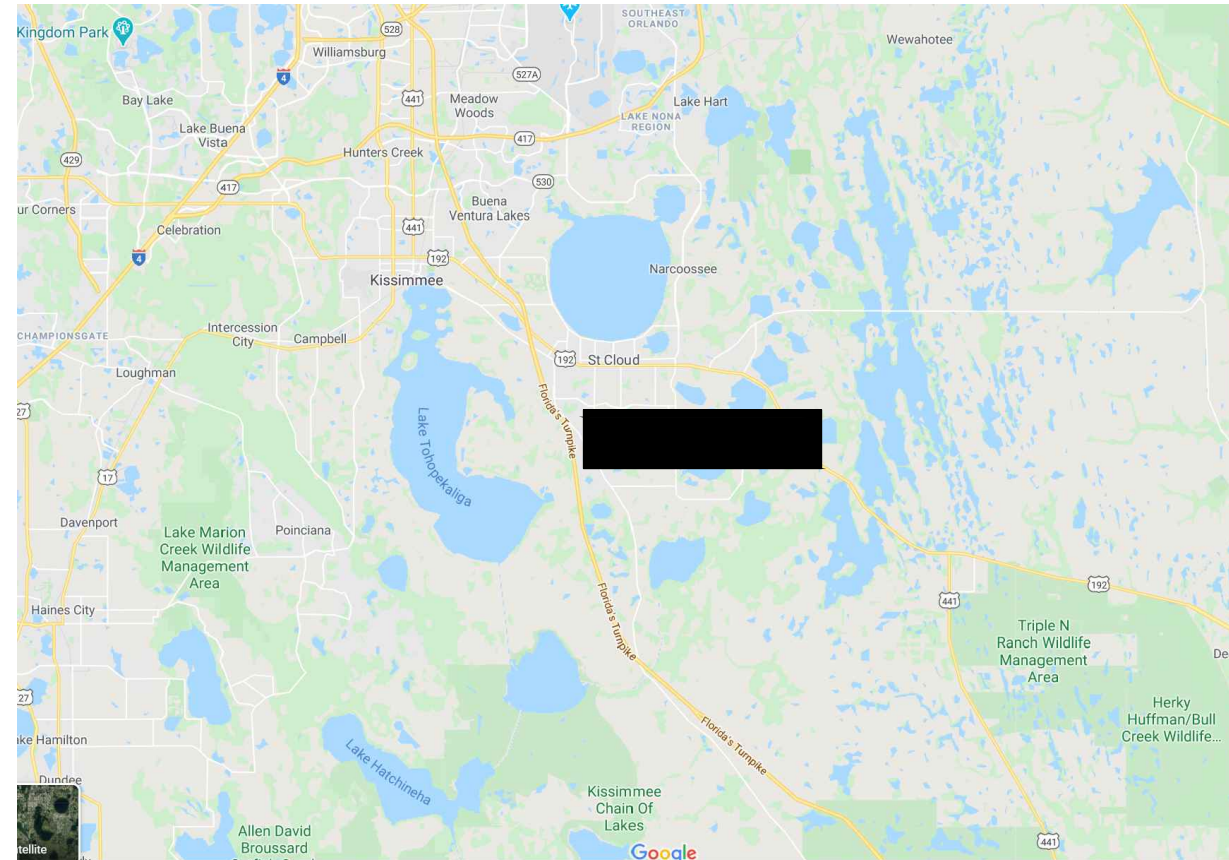
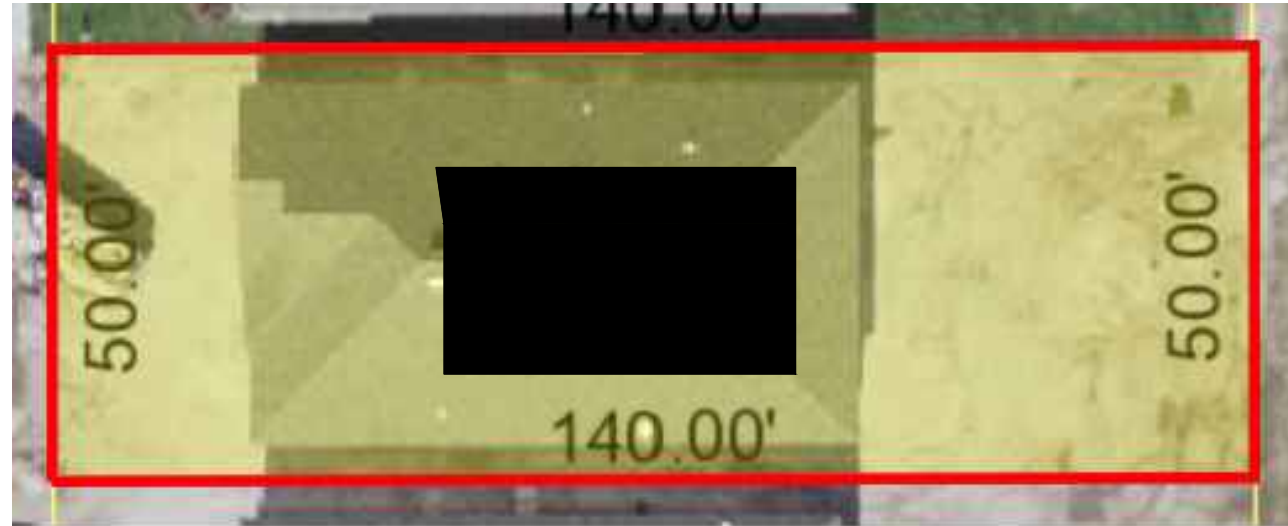


# PV PROJECT - 11.665kWdc



## Contractor Info

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## Project Type - Photovoltaic

### Project Location:

RESIDENCE

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Parcel Number: --  
Assessor Phone # (407) 957-7224

### PV SYSTEM SPECIFICATIONS

1. PV MODULE: 37 x JKM315M-60L; 11.655kWdc
2. INVERTER: IQ7-60-2-US
3. RACKING: Chiko rail\_RT Mini
4. ROOF TYPE:SHINGLE
5. AZIMUTH:--°
6. ROOF SLOPE:---

### File Name:

01\_J.DOE\_COVER.DWG

### Sheet Number and Title:

PV01 - COVER

### Sheet Size:

ANSI full bleed B (17.00 x 11.00 Inches)

### Drawing history

no.	drawn by	revision	date
01	DCG	---	9/24/20

### Design

1 PROPERTY ASSESSOR MAP - PROJECT LOCATION

NTS

2 AERIAL MAP - PROJECT LOCATION

NTS

### SCOPE OF WORK

THESE PLANS ARE FOR THE INSTALLATION OF A ROOF MOUNTED PHOTOVOLTAIC (PV) SYSTEM. THE PV SYSTEM WILL BE INTERCONNECTED WITH THE --- UTILITY GRID THROUGH EXISTING ELECTRICAL EQUIPMENT AND WILL OPERATE IN PARALLEL VIA LOAD SIDE CONNECTION WITH NET ENERGY METER.

### GOVERNING BUILDING CODES

1. 2017 FLORIDA BUILDING CODE, 6TH EDITION
2. 2014 NATIONAL ELECTRICAL CODE, NEC
3. FLORIDA FIRE PREVENTION CODE 5TH ED.
4. UL STANDARDS
  - 4.1. RACKING - UL 2703
  - 4.2. PV MODULE - UL 1703
  - 4.3. INVERTER - UL 1741

### DESIGN SPECIFICATIONS

1. AHJ - St Cloud Building Department
2. UTILITY - ---
3. BUILDING RISK CATEGORY II
4. DESIGN WIND SPEED (ULT) - 140MPH
5. DESIGN SNOW LOAD - 0
6. EXPOSURE CATEGORY - B
7. MEAN ROOF HEIGHT - 30
8. ROOF SLOPE - ---

### PV SYSTEM SPECIFICATIONS

1. PV MODULE: 37 x JKM315M-60L; 11.655kWdc
2. INVERTER: IQ7-60-2-US
3. RACKING: Chiko rail\_RT Mini
4. ROOF TYPE:SHINGLE
5. AZIMUTH:--°

### PV INSTALLATION OVERVIEW

#### ELECTRICAL

- a. POINT OF CONNECTION: LOAD
- b. MAX INV OUTPUT CURRENT: 1A.Ea
- c. PV AC DEDICATED OCP DEVICE RATING:  $37 * 1A * 125\% = 46.25A, 50A$  OCP
- d. UTILITY AC DISCONNECT REQ'D: ---

#### STRUCTURAL

- a. MAX ALLOWABLE SPACING BETWEEN ATTACH POINTS: 4FT
- b. MIN. NUMBER OF ATTACHMENT POINTS: 73
- c. WEIGHT PER ATTACHMENT POINT: 26.7LBS/ATTACH
- d. PV DEAD LOAD: 2.93PSF
- e. LENGTH OF RAIL REQUIRED: 249FT

### Sheet List Table

Sheet Number	Sheet Title
PV01	COVER
PV02	NOTES
PV03	E_PV SITE PLAN
PV04	LINE DIAGRAM
PV05	S_PV SITE LAYOUT
PV06	PV ATTACH PLAN

PV01

A

B

C

D

E

F

G

**INSTALLATION NOTES**

1. THE EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURES INSTALLATION INSTRUCTIONS.
2. THE ACTUAL LOCATION OF THE ARRAY AND PLACEMENT OF THE MECHANICAL ANCHORS ARE SUBJECT TO VARIANCES DEPENDING ON SITE CONDITIONS AND/OR ROOF OBSTRUCTIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SPECIFICATIONS BEFORE COMMENCING.
3. ALL OUTDOOR EQUIPMENT SHALL BE RAIN TIGHT WITH MINIMUM NEMA3-R RATING.
4. ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION.
5. ALL WORK SHALL COMPLY WITH THE BUILDING CODES SET FORTH BY THE GOVERNING JURISDICTION.
6. ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY THE NATIONAL FIRE CODE, NFC AND THE NATIONAL ELECTRICAL CODE, NEC.









**GENERAL PV SITE NOTES**

1. PV ARRAY NOT TO DIRUPT ATTIC VENTS OR PLUMBING VENTS. ARRAY TO SPAN OR EXTEND TERMINATION PLUMBING VENTS WITHOUT ANY IMPACT ON THEIR FUNCTIONALITY.
2. PANELS WILL NOT EXCEED THE OVERALL HEIGHT OR ROOF PITCH OF THE EXISTING STRUCTURE.

**ABBREVIATIONS**

- (E) - EXISTING
- (N) - NEW
- TYP - TYPICAL
- NTS - NOT TO SCALE
- MIN - MINIMUM
- MAX - MAXIMUM
- AC - ALTERNATING CURRENT
- DC - DIRECT CURRENT
- PV - PHOTOVOLTAIC
- MOD - PV MODULE
- INV - DC/AC PV INVERTER
- POC - POINT OF CONNECTION(PV)
- RSB - RAPID SHUTDOWN BOX
- CB - CIRCUIT BREAKER (EX. 20A/2P CB - 20AMP 2-POLE CIRCUIT BREAKER)
- C - CONDUIT
- OCP - OVERCURRENT PROTECTION
- OCPD- OVERCURRENT PROTECTION DEVICE
- MSD - MAIN SERVICE DISCONNECT
- DISC - DISCONNECT
- MSP - MAIN SERVICE PANEL
- SP - SUB PANEL
- PLP - PROTECTED LOADS PANEL
- MLO - MAIN LUG ONLY
- MB - MAIN BREAKER
- EGC - EQUIPMENT GROUNDING CONDUCTOR
- GEC - GROUNDING ELECTRODE CODUCTOR
- GES - GROUNDING ELECTRODE SYSTEM

**SYMBOLS**

-  UTILITY METER
-  PV MODULE
-  DC/AC UTILITY INTERACTIVE INVERTER
-  DISCONNECT
-  CB DOUBLE POLE
-  CB SINGLE POLE
-  FUSE
-  FUSED DISCONNECT

**ELECTRICAL NOTES**

1. INSTALLATION TO BE COMPLIANT WITH NFPA 1 & NFPA70 (NATIONAL ELECTRICAL CODE)
2. THE INVERTER HAS INTEGRATED GROUND AND NO DC GEC IS REQUIRED. THE DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENTS OF 690.35 (UNGROUNDING PHOTOVOLTAIC POWER SYSTEMS)
3. THE EXACT LOCATION OF NEW ELECTRICAL EQUIPMENT AND CONDUIT RUN RELATING TO THIS PROJECT IS SUBJECT TO CHANGE AND WILL BE DETERMINED ON SITE BY THE CONTRACTOR.
4. ALL CLEARANCES AND WORK SPACE AS REQUIRED PER NEC 110.26 SHALL BE FOLLOWED
5. ENPHASE MICROINVERTERS MEET ALL CURRENT CODE REQUIREMENTS FOR RAPID SHUTDOWN AS DEFINED IN NEC 690.12.ALL EQUIPMENT TO BE LISTED OR LABELED FOR ITS APPLICATION(UL OR OTHER APPROVED LISTINGS)
6. ALL EQUIPMENT TO BE LISTED OR LABELED FOR ITS APPLICATION(UL OR OTHER APPROVED LISTINGS)
  - 6.1. PV MODULE - UL1703
  - 6.2. INVERTER - UL1741
  - 6.3. RACKING SYSTEM - UL2703
7. GROUNDING
  - 7.1. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED PER THE REQUIREMENTS OF NEC ARTICLES 250 & 690
  - 7.2. MODULE BONDING METHOD SHALL BE INTEGRATED GROUNDING MID CLAPS. REFER TO MANUFACTURES SPECIFIC INSTRUCTIONS FOR PROPER BONDING TECHNIQUES.
  - 7.3. GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES SHALL BE RATED FOR DIRECT BURIAL
  - 7.4. EGC SHALL BE SIZED IN ACCORDACE WITH 250.122 AND ARRAY EGC'S SMALLER THAN 6AWG SHALL COMPLY WITH 250.120(C)
8. ALL CONDUCTORS ARE COPPER, UNLESS SPECIFIED OTHERWISE
9. ALL CONDUIT, RACEWAYS, AND JUNCTION BOXES SHALL BE SIZED ACCORDING TO THE APPLICABLE CODE IF THE SIZE IS NOT SPECIFIED.
10. SIGNAGE SHALL BE APPLIED ACCORDING TO GOVERNING BUILDING CODES AND LOCAL JURISDICTIONS SPECIFIC REQUIREMENTS.
11. EQUIPMENT INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC.
12. CALCULATION OF MAXIMUM CIRCUIT CURRENT FOR THE SPECIFIC CIRCUIT SHALL BE CALCULATED IN ACCORDANCE WITH 690.8(A)(1) THROUGH (A)(5). CONDUCTOR AMPACITY SHALL BE SIZED TO NOT CARRY LESS THAN THE LARGER OF 690.(B)(1) OR (2)
13. DC PV SOURCE AND DC OUTPUT CURRENT CIRCUITS ON OR INSIDE A BUILDING SHALL BE CONTAINED IN METAL RACEWAYS, TYPE MC METAL-CLAD CABLE THAT COMPLIES WITH 250.118(10), OR METAL ENCLOSURES FROM THE POINT OF PENETRATION OF THE SURFACE OF THE BUILDING OR STRUCTURE TO THE FIRST READILY ACCESSIBLE DISCONNECTING MEANS.(690.31(G))
14. ACCESS TO BOXES; JUNCTION, PULL, AND OUTLET BOXES LOCATED BEHIND MODULES OR PANELS SHALL BE SO INSTALLED THAT THE WIRING CONTAINED IN THEM CAN BE RENDERED ACCESSIBLE DIRECTLY OR BY DISPLACEMENT OF A MODULE(S) SECURED BY REMOVABLE FASTENERS AND CONNECTED BY FLEXIBLE WIRING SYSTEM.(690.34)
15. PV POINT OF CONNECTION. THE OUTPUT OF AN INTERCONNECTED ELECTRIC POWER SOURCE SHALL BE CONNECTED AS SPECIFIED IN 705.12(A),(B),(C), OR (D).

**STRUCTURAL NOTES**

1. PV SYSTEM CONSIST OF THE PV MODULES, RAILING, AND CONNECTION HARDWARE
2. RACKING SYSTEM & PV ARRAY SHALL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL
3. MAXIMUM SPACING BETWEEN CONNECTION POINTS 6FT.
8. THE ATTACHMENTS SHOULD BE STAGGERED, WHERE POSSIBLE, TO ALLOW DISTRIBUTION OF THE DESIGN LOADS EVENLY TO THE STRUCTURE.
9. ALL ROOF PENETRATIONS SHALL BE FLASHED AND SEALED BY APPROVED METHOD PER ROOF TYPE MANUFACTURE
10. TYP. ROOF SUPPORT STRUCTURE; 2" X 4", 24"O.C.
11. REFER TO TABLE 1.1 FOR MAX OVERHANG FROM LAST ATTACHMENT.
12. PV ARRAY SHALL BE A MINIMUM 3" ABOVE THE ROOFING MATERIAL.

**LOAD INFORMATION**

1. THE COMBINED LOADS WITH THE PV ROOF EQUIPMENT INSTALLED ARE NOT LARGER THAN THE COMBINED LOADS AS REQUIRED BY THE BUILDING CODE FOR THE ROOF WITHOUT PANELS.
2. NUMBER OF ATTACHMENT POINTS: 73
3. WEIGHT PER ATTACHMENT POINT: 26.7LBS/ATTACH
4. PV DEAD LOAD: 2.93PSF
5. DESIGN SNOW LOAD
  - 5.1. GROUND SNOW LOAD - 0
6. ALLOWABLE DESIGN LOADS FOR PV MODULE:
  - 6.1. WIND = 62PSF
  - 6.2. SNOW = 125PSF

**Contractor Info**

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**Project Type - Photovoltaic**

**Project Location:**

RESIDENCE

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Parcel Number: --  
Assessor Phone # (407) 957-7224

**PV SYSTEM SPECIFICATIONS**

1. PV MODULE: 37 x JKM315M-60L; 11.65kWdc
2. INVERTER: IQ7-60-2-US
3. RACKING: Chiko rail\_RT Mini
4. ROOF TYPE:SHINGLE
5. AZIMUTH:--°
6. ROOF SLOPE:---

**File Name:**

02\_J.DOE\_NOTES.DWG

**Sheet Number and Title:**

PV02 - NOTES

**Sheet Size:**

ANSI full bleed B (17.00 x 11.00 Inches)

**Drawing history**

no.	drawn by	revision	date
01	DCG	---	9/24/20

**Design**

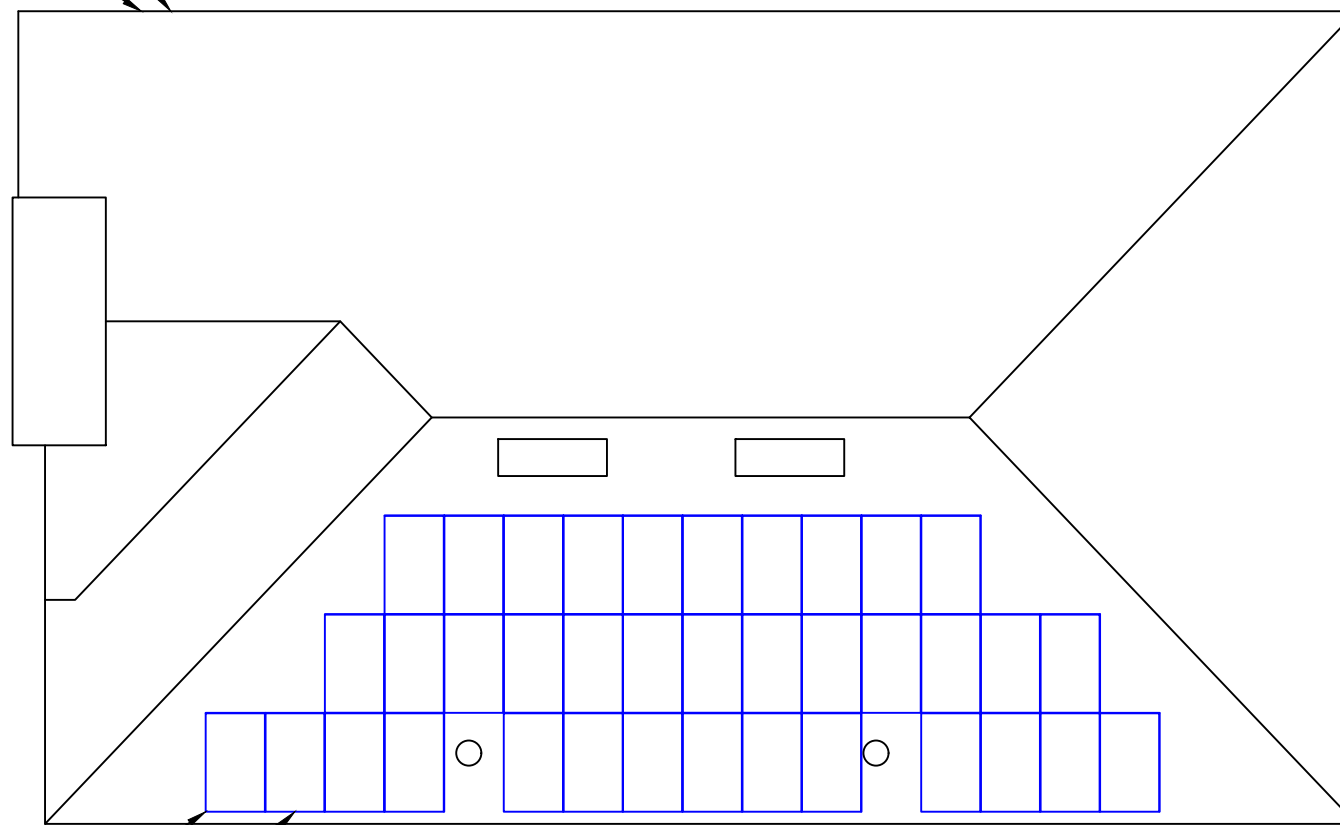


**NEC LABEL NOTES:**

1. THE WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH NEC 110.21(B)
2. LABELS SHALL BE SUITABLE FOR THE ENVIRONMENT WHERE THEY ARE INSTALLED.
3. LABELS TO BE A MIN LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
4. LABELS SHALL ALSO COMPLY WITH THE SPECIFIC REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

**ENPHASE IQ COMBINER (N)**  
LOCATION TBD ONSITE BY CONTRACTOR

**METER/MAINS COMBO (E)**  
200A, 150A MB



**PV MODULE(N)**  
W/ ENPHASE MICROINVERTER

**ARRAY 1 - 11.655kWdc**  
37 x 315W MODULES  
MODULE TILT : FLUSH  
ROOF PITCH:--°  
AZIMUTH:--°

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

**LABEL 1 - NEC 690.13(B)**  
APPLY TO DISCONNECTS

PHOTOVOLTAIC SYSTEM AC DISCONNECT  
RATED AC OUTPUT CURRENT: 37A  
NOMINAL OPERATING VOLTAGE: 240VAC

**LABEL 4 - NEC 690.54**  
APPLY TO MAIN PV AC DISCONNECT

WARNING:  
DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

**LABEL 3 - NEC 705.12(D)(3)**  
APPLY TO MSP

WARNING:  
POWER SOURCE OUTPUT CONNECTION: DO NOT RELOCATE THIS OVERCURRENT DEVICE

**LABEL 4 - NEC 705.12(D)(3)(B)**  
APPLY TO BACK-FED BREAKER, IF APPLICABLE

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

**LABEL 5 - NEC 690.56(C)**  
DIRECTORY OR PLAQUE PROVIDING LOCATION OF MSD AND PV DISCONNECT

WARNING:  
DEDICATED SOLAR PANEL DO NOT CONNECT ANY OTHER LOADS

**LABEL 6 - NEC 705.12(D)(2)(3)(c)- IF REQ'D**  
PROVIDE AT PV COMBINER OR MSP

**NFPA 11.12.2.2.1.1 - HIP ROOF LAYOUT**  
PV MODULES SHALL BE LOCATED IN A MANNER THAT PROVIDES A 3FT WIDE CLEAR ACCESS PATHWAY FROM THE EAVE TO THE RIDGE ON EACH ROOF SLOPE WHERE MODULES ARE LOCATED. THE ACCESS PATHWAY SHALL BE LOCATED AT A STRUCTURALLY STRONG LOCATION OF THE BUILDING, SUCH AS A BEARING WALL.

**3FT RIDGE SETBACK - ALL ROOF LAYOUT TYPES**  
11.12.2.2.2

**NFPA 11.12.2.2.1.1 - HIP ROOF LAYOUT**  
EXCEPTION: THE REQUIREMENT OF 11.2.2.1.1 SHALL NOT APPLY WHERE ADJOINING ROOF PLAINS PROVIDE A 3FT WIDE CLEAR ACCESS PATHWAY.

**NFPA 11.12.2.2.1.3 - HIP AND VALLEY LAYOUTS**  
PV MODULES SHALL BE LOCATED NO CLOSER THAN 1 1/2FT TO A HIP OR VALLEY IF MODULES ARE TO BE PLACED ON BOTH SIDES OF THE HIP OR VALLEY. WHERE MODULES ARE LOCATED ON ONLY ONE SIDE OF A HIP OR VALLEY OF EQUAL LENGTH, THE PV MODULES SHALL BE ALLOWED TO BE PLACED DIRECTLY ADJACENT TO THE HIP OR VALLEY.

**Contractor Info**

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**Project Type - Photovoltaic**

**Project Location:**  
RESIDENCE

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Parcel Number: --  
Assessor Phone # (407) 957-7224

**PV SYSTEM SPECIFICATIONS**

1. PV MODULE: 37 x JKM315M-60L; 11.655kWdc
2. INVERTER: IQ7-60-2-US
3. RACKING: Chiko rail\_RT Mini
4. ROOF TYPE:SHINGLE
5. AZIMUTH:--°
6. ROOF SLOPE:---

File Name:  
03\_2017NEC\_E\_PV SITE LAYOUT.DWG

Sheet Number and Title:  
PV03 - E\_PV SITE PLAN

Sheet Size:  
ANSI full bleed B (17.00 x 11.00 Inches)

**Drawing history**

no.	drawn by	revision	date
01	DCG	---	10/8/20

**Design**

Project Details			Microinverter			PV Module		
<b>Project Name</b> J.DOE PV			Model Number IQ7-60-2-US			Model Number JKM315M-60L		
<b>Project Location</b>			Max input PV Power 350 Wdc			Nominal Output @ STC, Pmp 315 Wdc		
Module - 37	Jinko	JKM315M-60L	DC Max Voltage 48			Open Circuit Voltage, Voc 37.6		Vdc
Inverter - 37	Enphase	IQ7-60-2-US	Nominal Output Current 1		A	Max Power Point, Vmp 31.2		Vdc
Utility - 240	Vac		Nominal Voltage 240		Vac	Short Circuit Current, Isc 8.33		A
DC Rating 11.655	kW		AC Max Output Power 250		Wac	Max Power Point Current, Imp 7.56		A
AC Rating 9.25	kW		Max Continuous output Power 240		Wac	VOC Temp Coeff -0.28		%/°C
Min. Ambient Temp, °C 0		32 °F	CEC Weighted Efficiency 97		%	Dimensions, LxWxH (in) 65.55 x 39.45 x 1.38		
Max. Ambient Temp, °C 35		95 °F	Max Units per 20A Branch Circuit 16			Weight 41.9		lbs

Branch Circuit Sizing					
Inputs	Branch Circuit Combiner A				
# of Branch Circuits	3				
Individual Branch Circuits	A	B	C		
Microinverters per Branch Circuit	13	12	12		
Output current per string (A)	13.00	12.00	12.00		
125% of Output for min. OCP (A)	16.25	15.00	15.00		
Min. Breaker Size (A)	20	20	20		

Contractor Info	
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Project Type - Photovoltaic

**Project Location:**  
RESIDENCE  
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Parcel Number: --  
Assessor Phone # (407) 957-7224

- PV SYSTEM SPECIFICATIONS**
- PV MODULE: 37 x JKM315M-60L; 11.655kWdc
  - INVERTER: IQ7-60-2-US
  - RACKING: Chiko rail\_RT Mini
  - ROOF TYPE: SHINGLE
  - AZIMUTH: ---°
  - ROOF SLOPE: ---

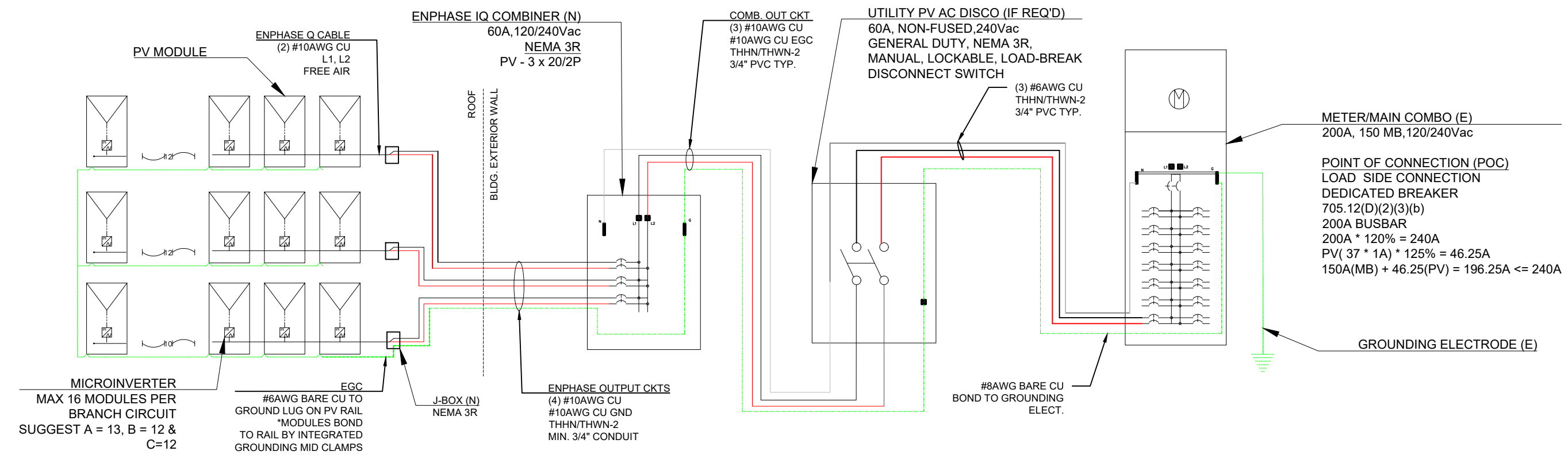
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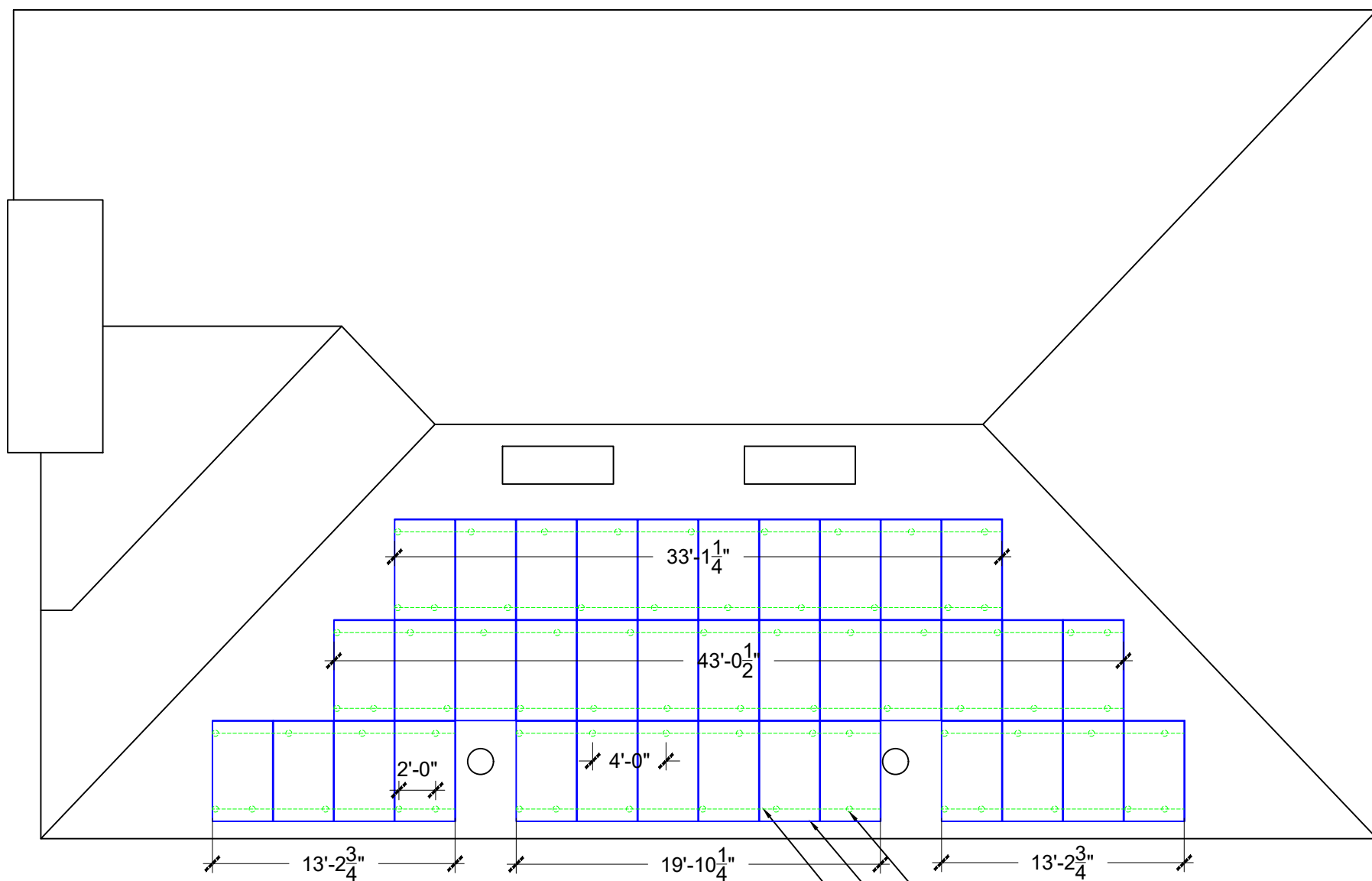
Sheet Size: ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history

no.	drawn by	revision	date
01	DCG	---	---



Inverter output CKT			Combiner output ckts		
Distance above roof	1/2 in.-3 1/2 in.	310.15(B)c	PV Combiner A		
Amb. Temp. Adder for Rooftops (°F)	40		Design temperature (°F)	94	
Design temperature (°F)	135		Max Ambient Temp. Range (°F)	87-95	310.15(B)(2)(a)
Adjusted Temp. Range for Roof	132-140	310.15(B)(2)(a)	Temp. Rating of Conductor	75°C	
Temp. Rating of Conductor	75°C		No. of Current Carrying Cond.	<4	310.15(B)(3)(a)
No. of Current Carrying Cond.	<4	310.15(B)(3)(a)	Max Continuous Load (A)	41	
Overcurrent Protection (A)	20	690.8(B)(1)(a)	Overcurrent Protection (A)	50	
125% of Output for Min. OCP(A)	13.8	690.8(A)	Amb. Temp Correction Factor	0.94	310.15(B)(2)(a)
Amb. Temp Correction Factor	0.58	310.15(B)(2)(a)	Raceway Fill Adjustment Factor	100%	310.15(B)(3)(a)
Raceway Fill Adjustment Factor	100%	310.15(B)(3)(a)	Wire Size (AWG or MCM)	6	310.15(B)(16)
Wire Size (AWG or MCM)	10	310.15(B)(16)	Allowable Ampacity (Amps)	65	
Allowable Ampacity (Amps)	35	35*0.58*1=20.3	Adjusted Ampacity (Amps)	61	65*0.94*1=61.1
Adjusted Ampacity (Amps)	20				



PV ROOF MOUNT KIT

PV MODULE

PV RAIL

- MATERIALS**
- a. MAX ALLOWABLE SPACING BETWEEN ATTACH POINTS: 4FT
  - b. MIN. NUMBER OF ATTACHMENT POINTS: 73
  - c. LENGTH OF RAIL REQUIRED: 249FT
  - d. SPLICE BAR: 12
  - e. MID CLAMPS: 64
  - f. ENDS: 20
  - g. GROUND LUGS: 5

Contractor Info

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Project Type - Photovoltaic

Project Location:

RESIDENCE  
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Parcel Number: --  
Assessor Phone # (407) 957-7224

PV SYSTEM SPECIFICATIONS

1. PV MODULE: 37 x JKM315M-60L; 11.65kWdc
2. INVERTER: IQ7-60-2-US
3. RACKING: Chiko rail\_RT Mini
4. ROOF TYPE: SHINGLE
5. AZIMUTH: --°
6. ROOF SLOPE: --

File Name:

05\_J.DOE\_S\_PV SITE LAYOUT.DWG

Sheet Number and Title:

PV05 - S\_PV SITE LAYOUT

Sheet Size:

ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history

no.	drawn by	revision	date
01	DCG	---	9/24/20

Design

PV Dead Load				Module and Racking Specs			
# of Modules		37		Module Model Number	JKM315M-60L		
Module	$W_{mod}$	42	lbs	Dimensions, LxWxH (in)	65.55 x 39.45 x 1.38		
Array	$W_{mods}$	1550	lbs	Width	39.45	in	
Micro/optimizer	$W_{mic}$	148	lbs	Height	65.55	in	
PV Rail	$W_{PV rail}$	249	lbs	Module Area	17.96	ft <sup>2</sup>	
Total Weight	$W_{total}$	1947	lbs	PV Racking	Chiko_RT Mini		
Total Area	$A_T$	664.44	ft <sup>2</sup>	Rail, Clamps, Mounts	1	plf	
Dead Load	$D_{PV}$	2.93	psf	Total Rail Length, L	249	ft	
				Micro/opt, W	4	lbs per	

PV Attachment Summary		
Max Allowable Spacing	4	ft
# of attachment points	73	
Weight/attachment	26.7	lbs

**BUILDING DESIGN PROPERTIES**

BASIC WIND SPEED  
 ROOF PITCH  
 MEAN ROOF HEIGHT  
 ROOF SETBACK  
 ADJUSTMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE  
 TOPOGRAPHICAL FACTOR  
 EXPOSURE  
 EFFECTIVE WIND AREA

SYMBOL	VALUE	UNIT
V	140	mph
$\theta$	0 to 7	degrees
h	15	ft
a	4	ft
$\lambda$	1.00	
$K_z$	1	
B	10	sf

**VARIABLE DESCRIPTION**

NET DESIGN WIND PRESSURE (UPLIFT)  
 NET DESIGN WIND PRESSURE (DOWN)  
 NET DESIGN WIND PRESSURE (UP)  
 NET DESIGN WIND PRESSURE (DOWN)  
 DEAD LOAD  
 SNOW LOAD  
 DESIGN WIND LOAD  
 ASD DESIGN LOAD (UPLIFT)  
 DOWNFORCE CASE 1  
 DOWNFORCE CASE 2  
 DOWNFORCE CASE 3

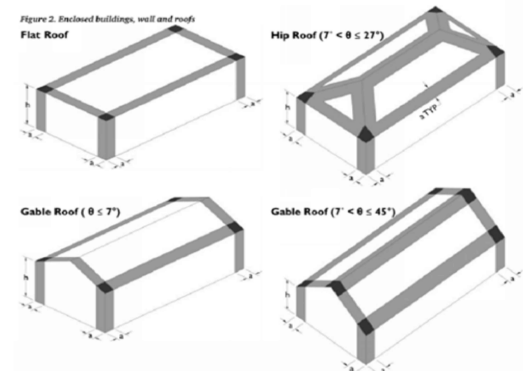
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$P_{net up}$	-35.30	-59.20	-89.00	psf
$P_{net down}$	20.30	20.30	20.30	psf
D	2.93	2.93	2.93	psf
S	0	0	0	psf
W	-35.30	-59.20	-89.00	psf
$P_{design}$	-25.07	-43.59	-66.67	psf
$P_{design}$	3	3	3	psf
$P_{design}$	23.23	23.23	23.23	psf
$P_{design}$	18.16	18.16	18.16	psf

**DESIGN FACTORS & CALCULATIONS FOR THE USE OF L-FOOT TO ROOF TRUSS**

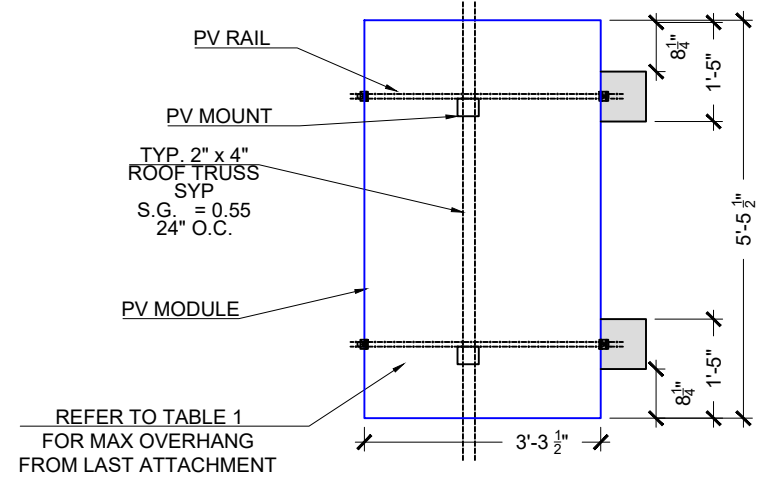
MODULE LENGTH  
 MODULE WIDTH  
 DESIGN LOAD PER MODULE  
 DISTRIBUTED LOAD (UPLIFT)  
 DISTRIBUTED LOAD (DOWNFORCE)  
 RAIL SPAN BETWEEN ANCHORS POINTS  
 POINT LOAD (UPLIFT)  
 POINT LOAD (DOWNFORCE)  
 L-FOOT CONNECTED BY WOOD SCREW  
 Specific Gravity, Rafter  
 Min. Dia. of Lag Screw, 1/4  
 Pullout Value of  
 # of Lag screws  
 Thread Length  
 Design Pullout Value per Mount  
 SAFETY FACTOR

SYMBOL	VALUE	VALUE	VALUE	UNIT
C	5.42			ft
B	3.25			ft
T	-441.4	-767.3	-1173.66	lbs
w	-67.91	-118.05	-180.56	plf
w	37.75	37.75	37.75	plf
L	4	4	2	ft
R	-271.63	-472.19	-361.13	lbs
R	151.00	151.00	75.50	lbs
G	0.5	0.5	0.5	
D	0.25	0.25	0.25	in
W	225	225	225	lbs/in
	2	2	2	
$T_d$	1.5	1.5	1.5	in
$W_t$	675	675	675	
SF	2.48	1.43	1.87	

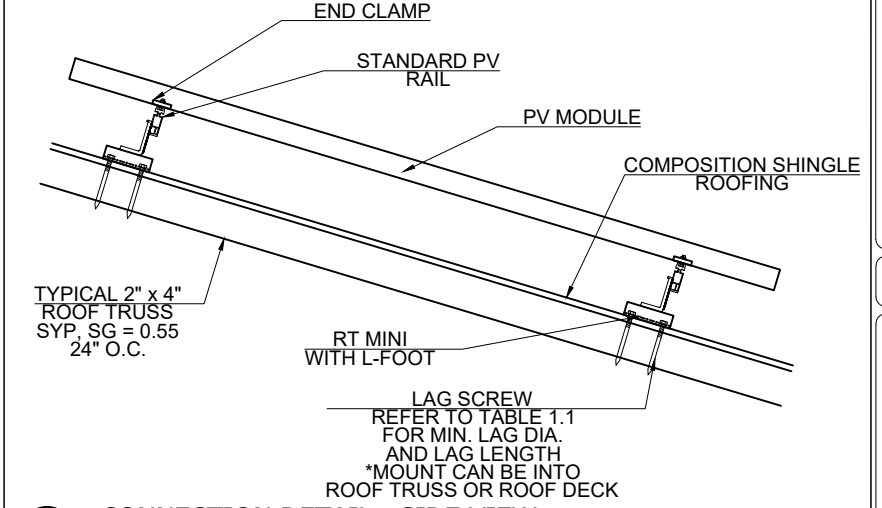
**Step 3: Determine Roof Zone (continued)**  
 Using Roof Zone Setback Length, determine the roof zone locations according to your roof type, gable, hip or mansard. Determine in which roof zone your pv system is located, Zone 1, 2, or 3 according to Figure 2.



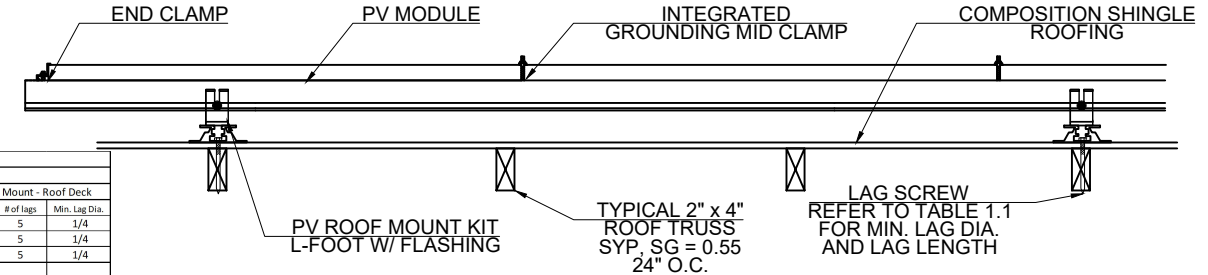
Interior Zones  
 End Zones  
 Corner Zones



**A ALLOW. CLAMPING AREA - TOP DOWN**  
 Scale: 3/8" = 1'-0"



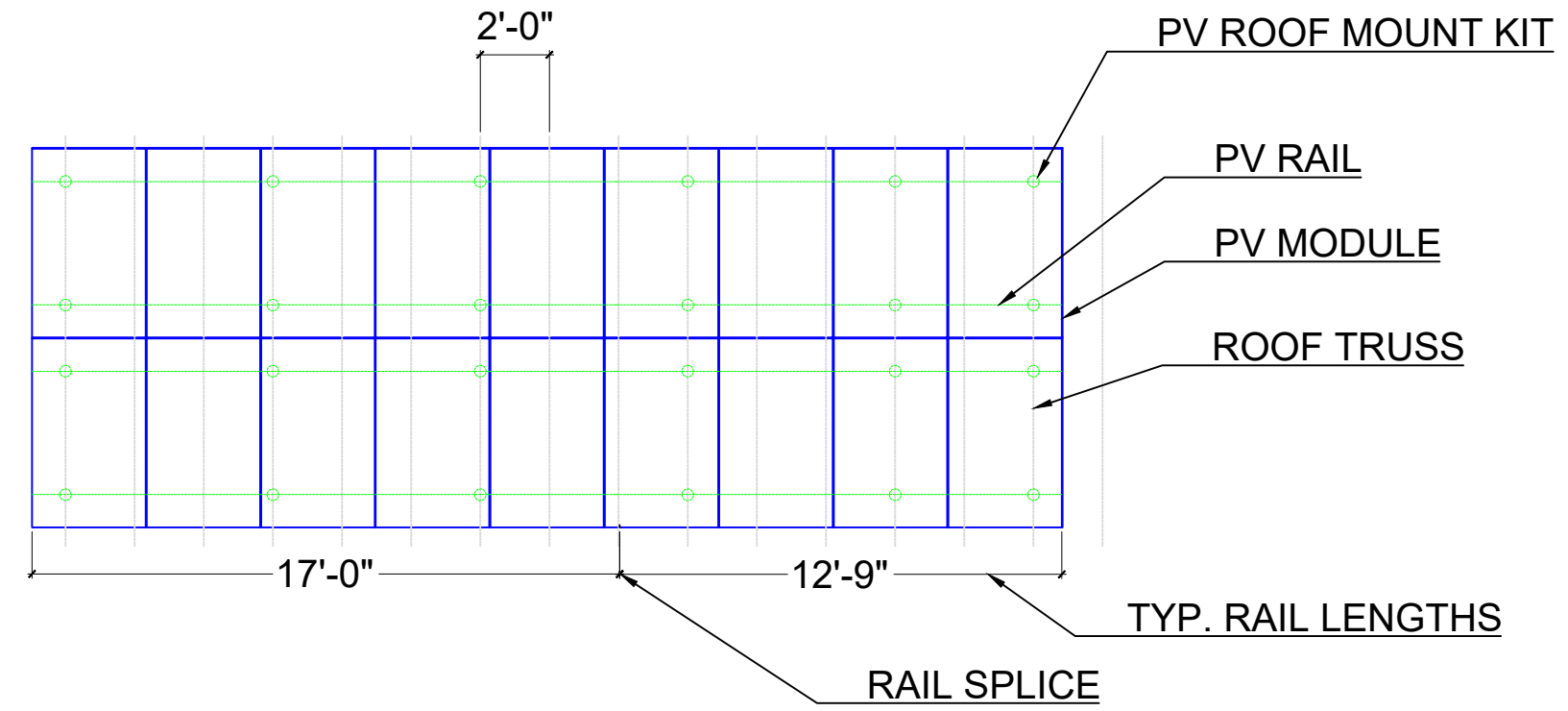
**B CONNECTION DETAIL - SIDE VIEW**  
 Scale: 1:16



**C CONNECTION DETAIL - FRONT VIEW**  
 Scale: 3/4" = 1'

Table 1.1 Maximum Rail Span Allowance per Roof Zone							
Zone	Span(ft)	RT MINI Mount - Truss/Rafter			RT MINI Mount - Roof Deck		
		# of lags	Min. Lag Dia.(in)	Min. Lag length(in)	Span(ft)	# of lags	Min. Lag Dia.
1	4	2	1/4	2.5	2	5	1/4
2	4	2	1/4	2.5	0	5	1/4
3	2	2	1/4	2.5	0	5	1/4

Maximum Rail Overhang from last attachment		
Zone	Max overhang - Truss (in)	Max overhang - Roof Deck (in)
1	16	8
2	16	0
3	8	0



**D MODULE ATTACHMENT PLAN W/ RAIL LENGTHS**  
 Scale: 3/16" = 1'-0"

**Contractor Info**  
 --  
 --  
 --

**Project Type - Photovoltaic**

**Project Location:**  
 RESIDENCE  
 --  
 --  
 --

Parcel Number: --  
 Assessor Phone # (407) 957-7224

**PV SYSTEM SPECIFICATIONS**

- PV MODULE: 37 x JKM315M-60L; 11.655kWdc
- INVERTER: IQ7-60-2-US
- RACKING: Chiko rail\_RT Mini
- ROOF TYPE: SHINGLE
- AZIMUTH: ---°
- ROOF SLOPE: ---

File Name:  
 06\_J.DOE\_SHINGLE\_H-Q.PEAK G5  
 300-330.DWG

Sheet Number and Title:  
 PV06 - PV ATTACH PLAN

Sheet Size:  
 ANSI full bleed B (17.00 x 11.00 Inches)

Drawing history			
no.	drawn by	revision	date
01	DCG	---	9/24/20

**Design**

PV06