INSTALLATION OF (3) NEW ROOF MOUNTED PV SYSTEMS

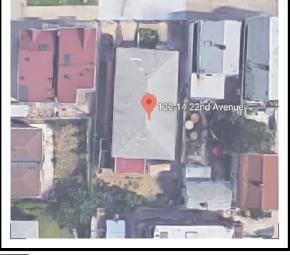
SYSTEM A - 8.580kW (1ST FLR) SYSTEM B - 8.840kW (2ND FLR) SYSTEM C - 8.840kW (BASEMENT)

> 122-14 22ND AVENUE FLUSHING, NY 11356 40.779940,-73.845474









GENERAL NOTES

1. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL FOLIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTIONS CONTAINED IN THE DRAWING PACKAGE AND INFORMATION RECEIVED FROM TRINITY

VICINITY MAP

SCALE: NTS

- 2 THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EQUIPMENT AND FOLLOWING ALL DIRECTIONS AND INSTRUCTION CONTAINED IN THE COMPLETE MANUAL.
- 3. THE INSTALLATION CONTRACTOR IS RESPONSIBLE FOR READING AND UNDERSTANDING ALL DRAWINGS, COMPONENT AND INVERTER MANUALS PRIOR TO INSTALLATION, THE INSTALLATION 10 CONTRACTOR IS ALSO REQUIRED TO HAVE ALL COMPONENT SWITCHES IN THE OFF POSITION AND FUSES REMOVED PRIOR TO THE INSTALLATION OF ALL FUSE BEARING SYSTEM COMPONENTS.
 4. ONCE THE PHOTOVOLTAIC MODULES ARE
- MOUNTED, THE INSTALLATION CONTRACTOR SHOULD HAVE A MINIMUM OF ONE ELECTRICIAN WHO HAS ATTENDED A SOLAR PHOTOVOLTAIC INSTALLATION COURSE ON SITE.
- 5. FOR SAFETY, IT IS RECOMMENDED THAT THE INSTALLATION CREW ALWAYS HAVE A MINIMUM OF TWO PERSONS WORKING TOGETHER AND THAT EACH OF THE INSTALLATION CREW MEMBERS BE TRAINED 13. IN FIRST AID AND CPR.
- 6 THIS SOLAR PHOTOVOLTAIC SYSTEM IS TO BE INSTALLED FOLLOWING THE CONVENTIONS OF THE NATIONAL ELECTRICAL CODE. ANY LOCAL CODE WHICH MAY SUPERSEDE THE NEC SHALL
- 7 ALL SYSTEM COMPONENTS TO BE INSTALLED WITH THIS SYSTEM ARE TO BE "UL" LISTED. ALL EQUIPMENT WILL BE NEMA 3R OUTDOOR RATED UNLESS INDOORS.

GENERAL NOTES CONTINUED

- THE DC VOLTAGE FROM THE PANELS IS ALWAYS PRESENT AT THE DC DISCONNECT ENCLOSURE AND THE DC TERMINALS OF THE INVERTER DURING DAYLIGHT HOURS. ALL PERSONS WORKING ON OR INVOLVED WITH THE PHOTOVOLTAIC SYSTEM ARE WARNED THAT THE SOLAR MODULES ARE **ENERGIZED WHENEVER THEY ARE** EXPOSED TO LIGHT.
- ALL PORTIONS OF THIS SOLAR PHOTOVOLTAIC SYSTEM SHALL BE MARKED CLEARLY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE 690 & 705.
- PRIOR TO THE INSTALLATION OF THIS PHOTOVOLTAIC SYSTEM, THE INSTALLATION CONTRACTOR SHALL ATTEND A PRE-INSTALLTION MEETING FOR THE REVIEW OF THE INSTALLATION PROCEDURES, SCHEDULES, SAFETY AND COORDINATION
- PRIOR TO THE SYSTEM START UP THE INSTALLATION CONTRACTOR SHALL ASSIST IN PERFORMING ALL INITIAL HARDWARE CHECKS AND DC WIRING CONDUCTIVITY CHECKS. FOR THE PROPER MAINTENANCE AND
- ISOLATION OF THE INVERTERS REFER TO THE ISOLATION PROCEDURES IN THE OPERATION MANUAL.
- THE LOCATION OF PROPOSED ELECTRIC AND TELEPHONE UTILITIES ARE SUBJECT TO FINAL APPROVAL OF THE APPROPRIATE UTILITY COMPANIES AND
- ALL MATERIALS. WORKMANSHIP AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREIN SHALL BE IN ACCORDANCE WITH: A) CURRENT PREVAILING MUNICIPAL

AND/OR COUNTY SPECIFICATIONS,

STANDARDS AND REQUIREMENTS

GENERAL NOTES CONTINUED

- B) CURRENT PREVAILING UTILITY COMPANY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS
- THIS SET OF PLANS HAVE BEEN PREPARED FOR THE PURPOSE OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DRAWINGS UNTIL REVISED TO INDICATE "ISSUED FOR CONSTRUCTION". ALL INFORMATION SHOWN MUST BE
- CERTIFIED PRIOR TO USE FOR CONSTRUCTION ACTIVITIES.

- 1. PV INSTALLATION TO COMPLY WITH ARTICLE 690 OF THE NEC
- 2. PV INSTALLATION TO COMPLY WITH NYSERDA REQUIREMENTS.
- . PV INSTALLATION TO COMPLY WITH NEW YORK STAT STANDARDIZED

1. PV INSTALLATION TO COMPLY WITH NYC ELECTRIC CODE 2011.

PLAN NOTES

SCOPE OF WORK IS SOLEY FOR THE INSTALLATION OF THE SOLAR ELECTRONIC GENERATING SYSTEM, ALL OTHER WORK IS NOT TO BE RELIED UPON AS BEING APPROVED AND/OR PERMITTED BY THE DOB

SPECIAL INSPECTIONS: STABILITY

PROGRESS INSPECTIONS **ENERGY CODE** FINAL INSPECTION VISUAL AIR SEALING

TENANT SAFETY NOTES

- 1. CONSTRUCTION WORK WILL BE CONFINED TO THE ROOF / OUTSIDE & WILL NOT CREATE DUST, DIRT OR OTHER INCONVENIENCES TO NEIGHBORING PROPERTIES OR APARTMENT UNITS WITHIN THE BUILDING.
- 2. CONSTRUCTION WORK WILL NOT BLOCK HALLWAYS OR MEANS OF EGRESS FOR NEIGHBORING PROPERTIES OR TENANTS OF THE BUILDING.
- 3. CONSTRUCTION WORK WILL NOT INVOLVE INTERRUPTION OF HEATING, WATER OR ELECTRIC SERVICES TO NEIGHBORING PROPERTIES OR TENANTS OF THE BUILDING
- 4. CONSTRUCTION WORK WILL BE CONFINED TO NORMAL WORKING HOURS, 8AM - 5PM MONDAY THRU FRIDAY EXCEPT LEGAL HOLIDAYS.

JUNCTION BOX

•	ADDITE	- 17/11/0140
	AMP	AMPERE
	AC	ALTERNATING CURRENT
	AL	ALUMINUM
	AF	AMP. FRAME
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AWG	AMERICAN WIRE GAUGE
	С	CONDUIT (GENERIC TERM OF
		RACEWAY, PROVIDE AS
		SPECIFIED)
	CB	COMBINER BOX
	CKT	CIRCUIT
F	CT	CURRENT TRANSFORMER
	CU	COPPER
	DC	DIRECT CURRENT
	DIO 0	

DISC DISCONNECT SWITCH DWG DRAWING ELECTRICAL SYSTEM INSTALLER ELECTRICAL METALLIC TUBING FUSIBLE SWITCH

FUSE GROUND GFI

GROUND FAULT INTERRUPTER FREQUENCY (CYCLES PER

TENANT PROTECTION PLAN

SPECIAL PRECAUTION SHALL BE TAKEN BY THE CONTRACTOR SO THAT EQUIPMENT ON THIS APPLICATION AND ITS INSTALLATION WILL NOT AFFECT THE FALLOWING

LOT DIAGRAM

SCALE: 1"=350' ABBREVIATIONS

- A. TENANT EGRESS TO AND FROM THE BUILDING.
- B. FIRE SAFETY, OR CREATE A FIRE HAZARD.
- C. STRUCTURAL SAFETY OF THE BUILDING.
- D. ACCUMULATION OF DUST, THE CONTRACTOR SHALL LEAVE THE WORK SITE BROOM CLEAN EACH DAY. IN THE EVENT THAT ASBESTOS IS FOUND ON THE JOBSITE, ITS REMOVAL SHALL TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS OF O.S.H.A SECTION 1901.1, INCLUDING STAT AND FEDERAL DUMPING GROUNDS
- THERE SHALL BE NO CREATION OF NOISE OUTSIDE THE NORMAL HOURS OF 8AM TO 5PM MONDAY THRU FRIDAY EXCEPT LEGAL HOLIDAYS

ABBREVIATIONS CONTINUED ABBREVIATIONS CONTINUED

EXISTING 2 STOR DWFI LING

EXISTING OPEN FRONT DRIVEWAY

EXISTING OPEN FRONT DRIVEWAY

EXISTING 2 STORY

DWELLING

KILO-WATT HOUR

NOT IN CONTRACT

NOT TO SCALE

MOUNTED

MOUNTING

NEUTRAL

NUMBER

POLE

PHASE

POWER

QUANTITY

PULL BOX

MAIN CIRCUIT BREAKER

MAIN DISTRIBUTION PANEL MAIN LUG ONLY

NATIONAL ELECTRICAL CODE

OVER CURRENT PROTECTION

RIGID GALVANIZED STEEL

kVA

kWH

MDP

MLO

MTG

NIC NO#

OCP

P PB

PH Ø

PVC

OTY

JSWBD SWITCHBOARD THOUSAND CIRCULAR MILS KILO-VOLT AMPERE U.O.I. UNLESS OTHERWISE INDICATED WEATHERPROOF XFMR TRANSFORMER +72 MOUNT 72 INCHES TO BOTTOM OF ABOVE FINISHED FLOOR OR GRADE

T-001.00 - COVER SHEET S-001.00 - ROOF LAYOUT S- 002 00 - FLEVATION DRAWING S- 003.00 - ELEVATION DRAWING E-001.00 - ELECTRICAL 3-LINE DRAWING (SYSTEM A E-002.00 - ELECTRICAL 3-LINE DRAWING (SYSTEM B E- 003.00 - ELECTRICAL 3-LINE DRAWING (SYSTEM POLY-VINYL CHLORIDE CONDUIT

DEPARTMENT OF BUILDING NOTES

NYC FC504 EXEMPT - PITCH GREATER THAN 5/12 BC 109.3.3 RCNY 5000-01 (H) (IA6) IIA6) 28-116.2.4.2 AND DIRECTIVE 14 OF 1975

PLAN NOTES

1. SCOPE OF WORK IS SOLEY FOR THE INSTALLATION OF THE SOLAR ELECTRONIC GENERATING SYSTEM. ALL OTHER WORK IS NOT TO BE RELIED UPON AS BEING APPROVED AND/OR PERMITTED BY THE DOE

Issued / Revisions

ISSUED TO TOWNSHIP FOR PERMIT DATE DESCRIPTION

Project Title

THADATHIL, SIMON TRINITY ACCT #: 2018-01-223604/2018-02-231255

Project Address:

122-14 22ND AVENUE FLUSHING, NY 11356 40.779940,-73.845474

Drawing Title:

COVER SHEET

Drawing Information 2/16/2018 DRAWN BY: REVISED BY: DMR

System Information:

DC SYSTEM SIZE 9.145kW AC SYSTEM SIZE 7.13kW TOTAL MODULF COUNT MODULES USED: HANWHA 295 MODULE SPEC #: Q.PEAK-BLK G4.1 295 UTILITY COMPANY: CON EDISON UTILITY ACCT #: SEE LAYOUT UTILITY METER # SEE LAYOUT **DIVIDEND SOLAR**

DWG No:

T-001.00 **PAGE: 1 OF 7**



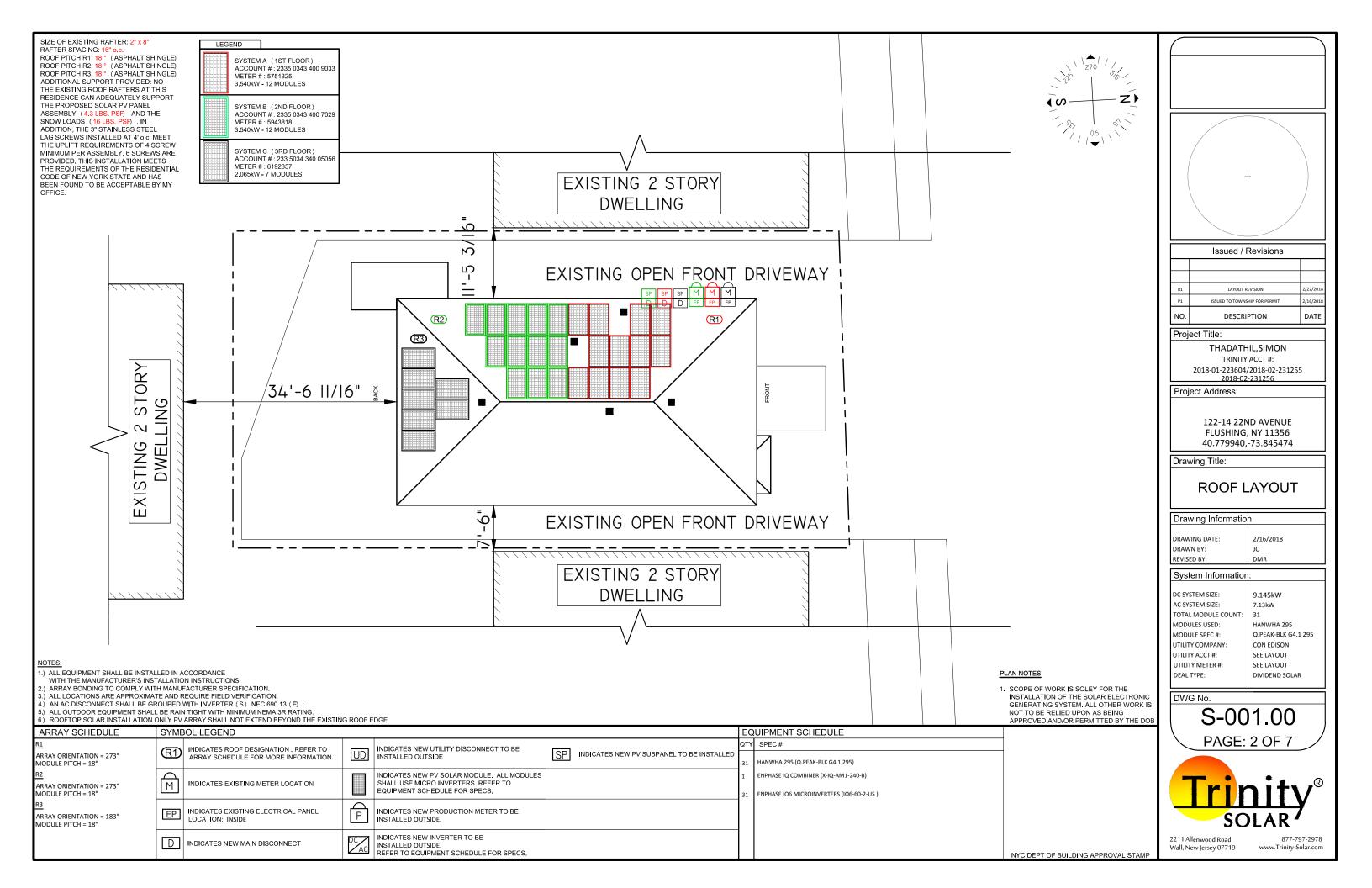
NYC DEPT OF BUILDING APPROVAL STAMP

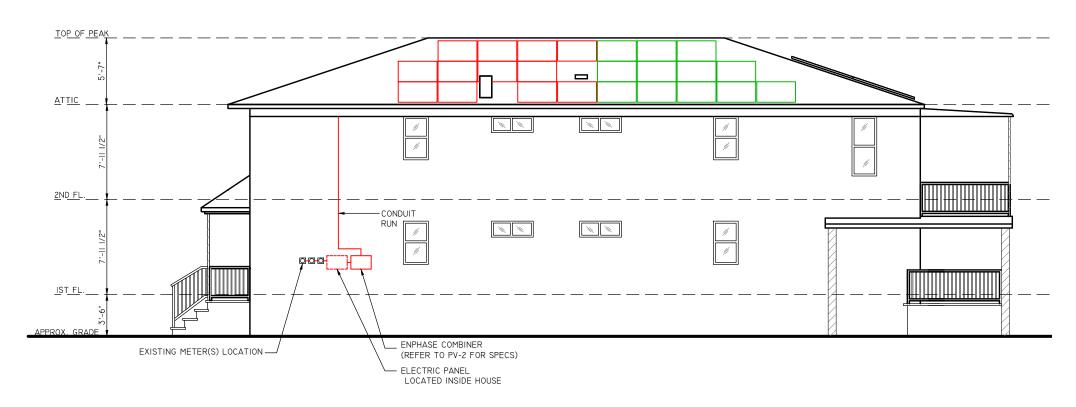
2211 Allenwood Road Wall, New Jersey 07719

THE WORK PROPOSED IN THIS APPLICATION IS COMPLIANT WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK CITY TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK CITY 2010

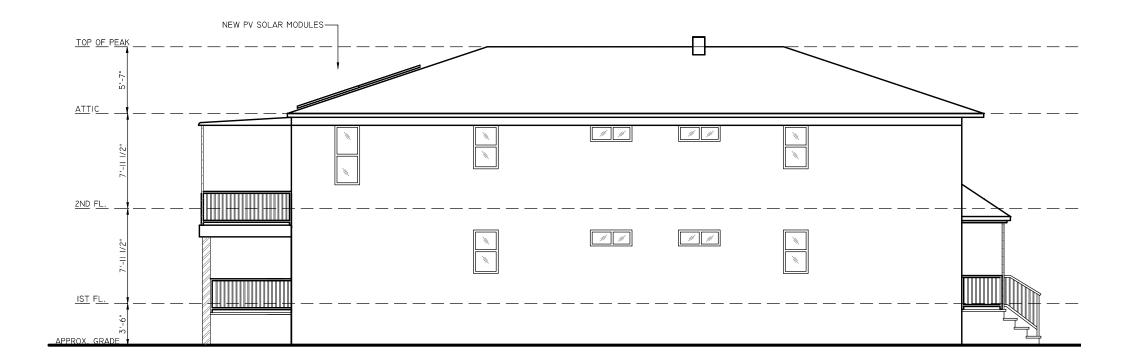
CERTIFY THAT ANY BUILDING CONSTRUCTION ASSOCIATED WITH THE INSTALLATION OF THE SOLAR ELECTRIC GENERATING SYSTEM, OTHER THAN THAT SHOWN IN THIS ENERGY ANALYSIS. HAS BEEN INCLUDED IN AN ASSOCIATED PLAN APPROVAL AND WORK PERMIT APPLICATION ROPOSED VALUE: RESCRIPTIVE VALUE DESCRIPTION: AND CITATION: DOCUMENTATION 001 00 SOLAR PANEL PENETRATIONS AS WEATHERSTRIPPING OR OTHER NCHORAGE DETAILS AND PECTION OF OPENINGS AND PENETRATIONS IN THE ESCRIBED IN SECTION ECC JII DING STRUCTURE BY MATERIALS IN ACCORDANCE BUILDING ENVELOPE TO VERIEY THAT THEY ARE PROPERL LTING TO STRUCTURAL R402.4.2 SEALED, IN ACCORDANCE WITH ECC TABLE R402.4.2, SECTION MFMBERS, AND SHOWN ON AND ECC TABLE R402.4.2 CC R402.4 AND APPROVED DRAWINGS

PPLICATION TYPE: ALT-2 SCOPE OF WORK: INSTALL NEW ROOF MOUNTED SOLAR ELECTRICITY (PV-PHOTOVOLTAIC) GENERATING SYSTEM





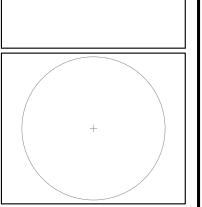




PLAN NOTES

 SCOPE OF WORK IS SOLEY FOR THE
 INSTALLATION OF THE SOLAR ELECTRONIC GENERATING SYSTEM. ALL OTHER WORK IS NOT TO BE RELIED UPON AS BEING APPROVED AND/OR PERMITTED BY THE DOB





Issued / Revisions		
R1	LAYOUT REVISION	2/22/2018
P1	ISSUED TO TOWNSHIP FOR PERMIT	2/16/2018
NO.	DESCRIPTION	DATE

Project Title:

THADATHIL, SIMON TRINITY ACCT #: 2018-01-223604/2018-02-231255 2018-02-231256

Project Address:

122-14 22ND AVENUE FLUSHING, NY 11356 40.779940,-73.845474

Drawing Title:

ELEVATION DRAWING

Drawing Information		
DRAWING DATE:	2/15/2019	
DRAWING DATE:	2/16/2018	
DRAWN BY:	1C	
REVISED BY:	DMR	

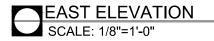
DC SYSTEM SIZE: AC SYSTEM SIZE: 7.13kW TOTAL MODULE COUNT: MODULES USED: HANWHA 295 Q.PEAK-BLK G4.1 295 MODULE SPEC #: UTILITY COMPANY: CON EDISON UTILITY ACCT #: SEE LAYOUT UTILITY METER #: SEE LAYOUT DEAL TYPE: DIVIDEND SOLAR

DWG No.

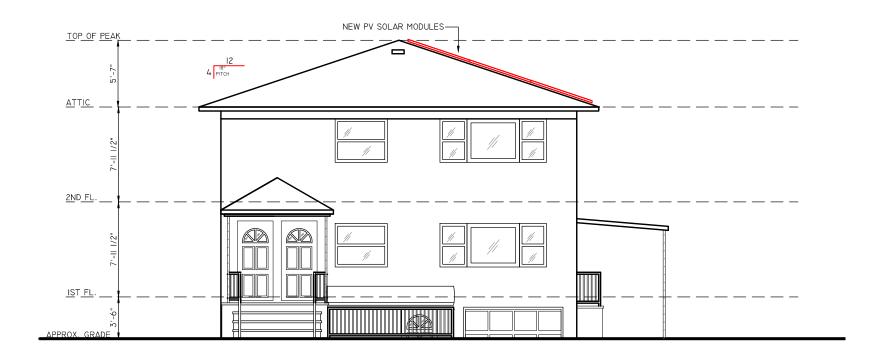
S-002.00 PAGE: 3 OF 7



2211 Allenwood Road Wall, New Jersey 07719

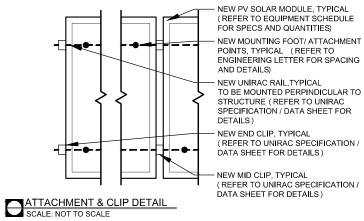


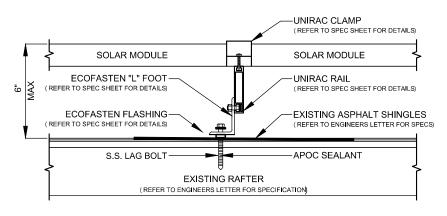
ZR 23-62 (m) - PANEL PLACEMENT COMPLIES WITH ALL SECTIONS OF ZR 23-62 (m)





NOTES: *REFER TO MODULE SPECS FOR MODULE DIMENSIONS *DEPICTED MODULES MAY BE PORTRAIT OR LANDSCAPE





PV MODULE ATTACHMENT ON ASPHALT SHINGLE ROOF SCALE: NOT TO SCALE

PLAN NOTES

 SCOPE OF WORK IS SOLEY FOR THE
 INSTALLATION OF THE SOLAR ELECTRONIC GENERATING SYSTEM. ALL OTHER WORK IS NOT TO BE RELIED UPON AS BEING APPROVED AND/OR PERMITTED BY THE DOB

Issued / Revisions		
R1	LAYOUT REVISION	2/22/2018
P1	ISSUED TO TOWNSHIP FOR PERMIT	2/16/2018
NO.	DESCRIPTION	DATE

Project Title:

THADATHIL, SIMON TRINITY ACCT #: 2018-01-223604/2018-02-231255 2018-02-231256

Project Address:

122-14 22ND AVENUE FLUSHING, NY 11356 40.779940,-73.845474

Drawing Title:

ELEVATION DRAWING

Drawing Informa	
DRAWING DATE:	2/16/2018
DRAWN BY:	JC
REVISED BY:	DMR

System Information:

DC SYSTEM SIZE: 9.145kW AC SYSTEM SIZE: 7.13kW TOTAL MODULE COUNT: MODULES USED: HANWHA 295 MODULE SPEC #: Q.PEAK-BLK G4.1 295 UTILITY COMPANY: CON EDISON UTILITY ACCT #: SEE LAYOUT UTILITY METER #: SEE LAYOUT DEAL TYPE: DIVIDEND SOLAR

DWG No.

S-003.00 PAGE: 4 OF 7



2211 Allenwood Road Wall, New Jersey 07719 www.Trinity-Solar.com

NYC DEPT OF BUILDING APPROVAL STAMP

ARRAY CIRCUIT WIRING NOTES
1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY FOR DETERMINING ONSITE CONDITIONS AND **EXECUTING INSTALLATION IN ACCORDANCE WITH NEC**

2.) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT

3.) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMP =

4) 2005 ASHRAF FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN A ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS (ALL OF UNITED STATES)

5.) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC 690.12(1) THROUGH (5)

5.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TÓ OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER NEC 690.35

7.) UNGROUNDED DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED WITH THE FOLLOWING OUTER FINISH: POSITIVE CONDUCTORS = RED NEGATIVE CONDUCTORS = BLACK NEC 210.5(C)(2)

8.) ARRAY AND SUB ARRAY CONDUCTORS SHALL BE #10 PV WIRE TYPE RHW-2 OR EQUIVELANT AND SHALL BE PROTECTED BY CONDUIT WHERE EXPOSED TO DIRECT SUNLIGHT. SUB ARRAY CONDUIT LONGER THAN 24" SHALL CONTAIN ≤ 20 CURRENT CARYING CONDUCTORS AND WHERE EXPOSED TO DIRECT SUNLIGHT SHALL CONTAIN < 9 CURRENT CARRYING CONDUCTORS.

9.) ALL WIRE LENGTHS SHALL BE LESS THAN 100' UNLESS OTHERWISE NOTED

10.) FLEXIBLE CONDUIT SHALL NOT BE INSTALLED ON ROOFTOP AND SHALL BE LIMITED TO 12" IF USED OUTDOORS

11.)OVERCURRENT PROTECTION FOR CONDUCTORS CONNECTED TO THE SUPPLY SIDE OF A SERVICE SHALL BE LOCATED WITHIN 10' OF THE POINT OF CONNECTION NEC

12.) WHERE TWO SOURCES FEED A BUSSBAR. ONE A UTILITY AND THE OTHER AN INVERTER, PV BACKFEED BREAKER(S) SHALL BE LOCATED OPPOSITE FROM UTILITY NEC 705.12(D)(2)(3)(b)

13.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR

14.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING

CALCULATIONS FOR CURRENT CARRYING CONDUCTORS REQUIRED CONDUCTOR AMPACITY PER STRING [NEC 690.8(B)(1)]: (0.96*1.25)12 = 14.37A

Vmp

32.19

39.48

#6 THWN-2 GEC TO EXISTING GROUND ROD

NOTE: CONDUIT TYPE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL AHJD REQUIREMENTS

3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND

3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND

#10 PV WIRE (FREE AIR) W/ #6 BARE COPPER BOND TO ARRAY

3/4" CONDUIT W/ 2-#6 THWN-2, 1-#6 THWN-2, 1-#8 THWN-2 GROUND

3/4" CONDUIT W/ 2-#10 THWN-2. 1-#10 THWN-2. 1-#10 THWN-2 GROUND

9.7

AWG #10, DERATED AMPACITY AMBIENT TEMP: 33°C, TEMP DERATING FACTOR: .96 RACEWAY DERATING = 1 CCC: 1.00 (40*.96)1.00 = 38.40A

38.40A [>] 14.37A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY 11.50A*1.25 = 14.37A

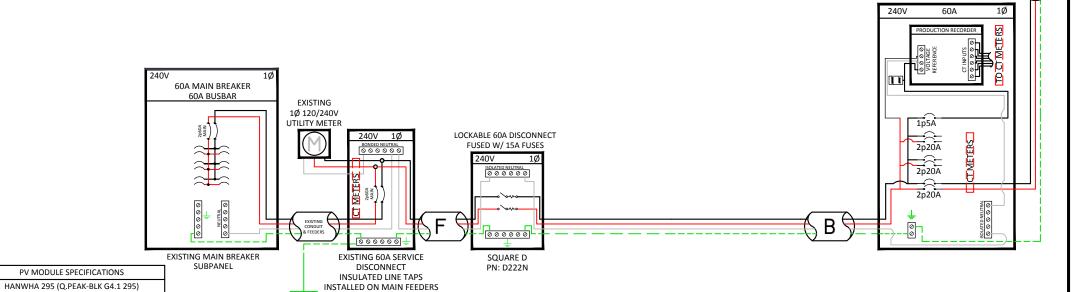
AWG #10, DERATED AMPACITY AMBIENT TEMP: 30°C, TEMP DERATING: 1.0 RACEWAY DERATING 5 3 CCC: N/A 40A*1.0 = 40A

40A - 14.37A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION TOTAL INVERTER CURRENT: 11.50A

11.50A*1.25 = 14.37A

--> 15A OVERCURRENT PROTECTION IS VALID



NEC 705.12(A)

SOLAR MODULES MOUNTED TO

ROOF ON 1 ARRAY 12 - 295W MODULES

12 - ENPHASE IO6 MICROINVERTERS

(IO6-60-2-US)

12 MODULES ON 12 ENPHASE IQ6 MICROINVERTERS

JUNCTION BOX

FC 504.4.7 - ALL CONDUITS AND PIPING INSTALLATIONS SHALL BE COLOR-CODED WITH CONTINUOUS, DURABLE, AND WEATHERPROOF REFLECTIVE OR LUMINESCENT MARKINGS AS FOLLOWS, AND FOR CONDUIT AND PIPING INSTALLED AFTER JULY 1, 2014, SHALL BE CONTINUOUSLY LABELED IN AN APPROVED MANNER TO INDICATES ITS CONTENTS:

- HIGH VOLTAGE WIRING RED
 LOW VOLTAGE WIRING ORANGE
- 3. NATURAL GAS PIPING YELLOW

FC 512.4.2 - INDOOR AND OUTDOOR DIRECT CURRENT CONDUIT, ENCLOSURE, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES, AND MAIN SERVICE AND OTHER DISCONNECTS SHALL HAVE DURABLE, RETOREFLECTIVE, AND, IF OUTDOORS, WEATHERPROOF. MARKINGS, IN WHITE CAPITAL LETTERS WITH A HEIGHT OF NOT LESS THAN \$\frac{3}{8} INCH (9.5 MM) ON A RED BACKGROUND, READING "WARNING: PHOTOVOLTAIC POWER SOURCE."

SCOPE OF WORK IS SOLEY FOR THE
 INSTALLATION OF THE SOLAR ELECTRONIC

PLAN NOTES

ENPHASE IQ COMBINER

(X-IQ-AM1-240-B)

GENERATING SYSTEM. ALL OTHER WORK IS NOT TO BE RELIED UPON AS BEING APPROVED AND/OR PERMITTED BY THE DOM

NYC DEPT OF BUILDING APPROVAL STAMP

Issued / Revisions		
R1	LAYOUT REVISION	2/22/2018
P1	ISSUED TO TOWNSHIP FOR PERMIT	2/16/2018
NO.	DESCRIPTION	DATE

Project Title:

THADATHIL, SIMON 1ST FLOOR

TRINITY ACCT #: 2018-01-223604

Project Address:

D

122-14 22ND AVENUE FLUSHING, NY 11356 40.779940,-73.845474

Drawing Title:

ELECTRICAL 3-LINE DRAWING

2/16/2018
JC
DMR

System Information:	
DC SYSTEM SIZE:	3.54kW
AC SYSTEM SIZE:	2.76kW
TOTAL MODULE COUNT:	12
MODULES USED:	HANWHA 295
MODULE SPEC #:	Q.PEAK-BLK G4.1 295
UTILITY COMPANY:	CON EDISON
UTILITY ACCT #:	23-3503-4340-0903-3
UTILITY METER #:	5751325
DEAL TYPE:	DIVIDEND SOLAR

DWG No. E-001.00

PAGE: 5 OF 7



2211 Allenwood Road Wall, New Jersey 07719

ARRAY CIRCUIT WIRING NOTES
1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY FOR DETERMINING ONSITE CONDITIONS AND **EXECUTING INSTALLATION IN ACCORDANCE WITH NEC**

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5.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TÓ OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER NEC 690.35

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12.) WHERE TWO SOURCES FEED A BUSSBAR. ONE A UTILITY AND THE OTHER AN INVERTER, PV BACKFEED BREAKER(S) SHALL BE LOCATED OPPOSITE FROM UTILITY NEC 705.12(D)(2)(3)(b)

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CALCULATIONS FOR CURRENT CARRYING CONDUCTORS
REQUIRED CONDUCTOR AMPACITY PER STRING [NEC 690.8(B)(1)]: (0.96*1.25)12 = 14.37A

Vmp

32.19

39.48

#6 THWN-2 GEC TO EXISTING GROUND ROD

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3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND

#10 PV WIRE (FREE AIR) W/ #6 BARE COPPER BOND TO ARRAY

3/4" CONDUIT W/ 2-#6 THWN-2, 1-#6 THWN-2, 1-#8 THWN-2 GROUND

3/4" CONDUIT W/ 2-#10 THWN-2. 1-#10 THWN-2. 1-#10 THWN-2 GROUND

9.7

AWG #10, DERATED AMPACITY AMBIENT TEMP: 33°C, TEMP DERATING FACTOR: .96 RACEWAY DERATING = 1 CCC: 1.00 (40*.96)1.00 = 38.40A

38.40A [>] 14.37A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY 11.50A*1.25 = 14.37A

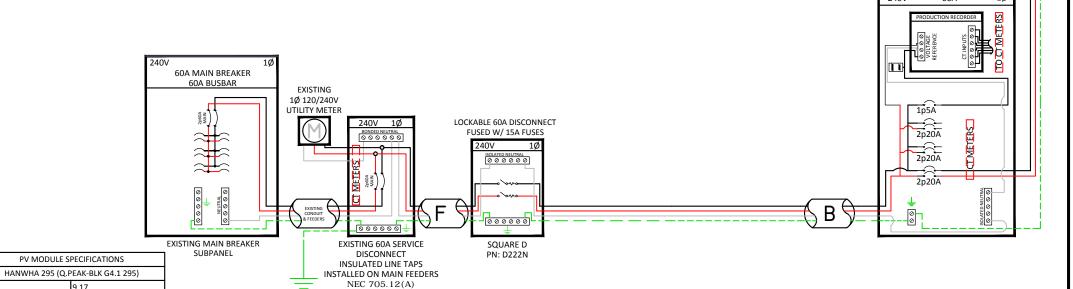
AWG #10, DERATED AMPACITY AMBIENT TEMP: 30°C, TEMP DERATING: 1.0 RACEWAY DERATING 5 3 CCC: N/A 40A*1.0 = 40A

40A - 14.37A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION

TOTAL INVERTER CURRENT: 11.50A 11.50A*1.25 = 14.37A

--> 15A OVERCURRENT PROTECTION IS VALID



SOLAR MODULES MOUNTED TO

ROOF ON 1 ARRAY 12 - 295W MODULES

12 - ENPHASE IO6 MICROINVERTERS

(IO6-60-2-US)

12 MODULES ON 12 ENPHASE IQ6 MICROINVERTERS

FC 504.4.7 - ALL CONDUITS AND PIPING INSTALLATIONS SHALL BE COLOR-CODED WITH CONTINUOUS, DURABLE, AND WEATHERPROOF REFLECTIVE OR LUMINESCENT MARKINGS AS FOLLOWS, AND FOR CONDUIT AND PIPING INSTALLED AFTER JULY 1, 2014, SHALL BE CONTINUOUSLY LABELED IN AN APPROVED MANNER TO INDICATES ITS CONTENTS:

- HIGH VOLTAGE WIRING RED
 LOW VOLTAGE WIRING ORANGE
- 3. NATURAL GAS PIPING YELLOW

FC 512.4.2 - INDOOR AND OUTDOOR DIRECT CURRENT CONDUIT, ENCLOSURE, RACEWAYS, CABLE ASSEMBLIES, JUNCTION BOXES, COMBINER BOXES, AND MAIN SERVICE AND OTHER DISCONNECTS SHALL HAVE DURABLE, RETOREFLECTIVE, AND, IF OUTDOORS, WEATHERPROOF MARKINGS, IN WHITE CAPITAL LETTERS WITH A HEIGHT OF NOT LESS THAN \$\frac{3}{8} INCH (9.5 MM) ON A RED BACKGROUND, READING "WARNING: PHOTOVOLTAIC POWER SOURCE."

ENPHASE IQ COMBINER

(X-IQ-AM1-240-B)

NOT TO BE RELIED UPON AS BEING

PLAN NOTES

JUNCTION BOX

> SCOPE OF WORK IS SOLEY FOR THE
> INSTALLATION OF THE SOLAR ELECTRONIC GENERATING SYSTEM. ALL OTHER WORK IS APPROVED AND/OR PERMITTED BY THE DOM

NYC DEPT OF BUILDING APPROVAL STAMP

E-002.00

PAGE: 6 OF 7

Issued / Revisions

DESCRIPTION

THADATHIL, SIMON 2ND FLOOR

TRINITY ACCT #: 2018-02-231255

122-14 22ND AVENUE

FLUSHING, NY 11356 40.779940,-73.845474

ELECTRICAL 3-LINE

DRAWING

2/16/2018

JC / DMR

2.76kW

HANWHA 295

CON FDISON

5943818

Q.PEAK-BLK G4.1 295

23-3503-4340-0702-9

DIVIDEND SOLAR

DMR

Project Title:

Project Address:

Drawing Title:

DRAWING DATE:

DC SYSTEM SIZE

AC SYSTEM SIZE:

MODULES USED:

MODULE SPEC #:

UTILITY COMPANY:

UTILITY METER #:

DEAL TYPE:

DWG No.

REVISED BY:

Drawing Information

System Information

TOTAL MODULE COUNT:

D

DATE

2211 Allenwood Road Wall, New Jersey 07719

ARRAY CIRCUIT WIRING NOTES
1.) LICENSED ELECTRICIAN ASSUMES ALL RESPONSIBILITY FOR DETERMINING ONSITE CONDITIONS AND **EXECUTING INSTALLATION IN ACCORDANCE WITH NEC**

2.) LOWEST EXPECTED AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT

3.) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMP =

4) 2005 ASHRAF FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN A ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS (ALL OF UNITED STATES)

5.) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC 690.12(1) THROUGH (5)

5.) PHOTOVOLTAIC POWER SYSTEMS SHALL BE PERMITTED TÓ OPERATE WITH UNGROUNDED PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT AS PER NEC 690.35

7.) UNGROUNDED DC CIRCUIT CONDUCTORS SHALL BE IDENTIFIED WITH THE FOLLOWING OUTER FINISH: POSITIVE CONDUCTORS = RED NEGATIVE CONDUCTORS = BLACK NEC 210.5(C)(2)

8.) ARRAY AND SUB ARRAY CONDUCTORS SHALL BE #10 PV WIRE TYPE RHW-2 OR EQUIVELANT AND SHALL BE PROTECTED BY CONDUIT WHERE EXPOSED TO DIRECT SUNLIGHT. SUB ARRAY CONDUIT LONGER THAN 24" SHALL CONTAIN ≤ 20 CURRENT CARYING CONDUCTORS AND WHERE EXPOSED TO DIRECT SUNLIGHT SHALL CONTAIN < 9 CURRENT CARRYING CONDUCTORS.

9.) ALL WIRE LENGTHS SHALL BE LESS THAN 100' UNLESS OTHERWISE NOTED

10.) FLEXIBLE CONDUIT SHALL NOT BE INSTALLED ON ROOFTOP AND SHALL BE LIMITED TO 12" IF USED OUTDOORS

11.)OVERCURRENT PROTECTION FOR CONDUCTORS CONNECTED TO THE SUPPLY SIDE OF A SERVICE SHALL BE LOCATED WITHIN 10' OF THE POINT OF CONNECTION NEC

12.) WHERE TWO SOURCES FEED A BUSSBAR. ONE A UTILITY AND THE OTHER AN INVERTER, PV BACKFEED BREAKER(S) SHALL BE LOCATED OPPOSITE FROM UTILITY NEC 705.12(D)(2)(3)(b)

13.) ALL SOLAR SYSTEM LOAD CENTERS TO CONTAIN ONLY GENERATION CIRCUITS AND NO UNUSED POSITIONS OR

14.) ALL EQUIPMENT INSTALLED OUTDOORS SHALL HAVE A **NEMA 3R** RATING

CALCULATIONS FOR CURRENT CARRYING CONDUCTORS
REQUIRED CONDUCTOR AMPACITY PER STRING [NEC 690.8(B)(1)]: (0.96*1.25)7 = 8.39A

Vmp

32.19

39.48

#6 THWN-2 GEC TO EXISTING GROUND ROD

NOTE: CONDUIT TYPE SHALL BE CHOSEN BY THE INSTALLATION CONTRACTOR TO MEET OR EXCEED NEC AND LOCAL AHJD REQUIREMENTS

3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND

3/4" CONDUIT W/ 2-#10 THWN-2, 1-#10 THWN-2 GROUND

#10 PV WIRE (FREE AIR) W/ #6 BARE COPPER BOND TO ARRAY

3/4" CONDUIT W/ 2-#6 THWN-2, 1-#6 THWN-2, 1-#8 THWN-2 GROUND

3/4" CONDUIT W/ 2-#10 THWN-2. 1-#10 THWN-2. 1-#10 THWN-2 GROUND

9.7

AWG #10, DERATED AMPACITY AMBIENT TEMP: 33°C, TEMP DERATING FACTOR: .96 RACEWAY DERATING = 1 CCC: 1.00 (40*.96)1.00 = 38.40A

38.40A [>] 8.39A, THEREFORE WIRE SIZE IS VALID

TOTAL AC REQUIRED CONDUCTOR AMPACITY 6.71A*1.25 = 8.39A

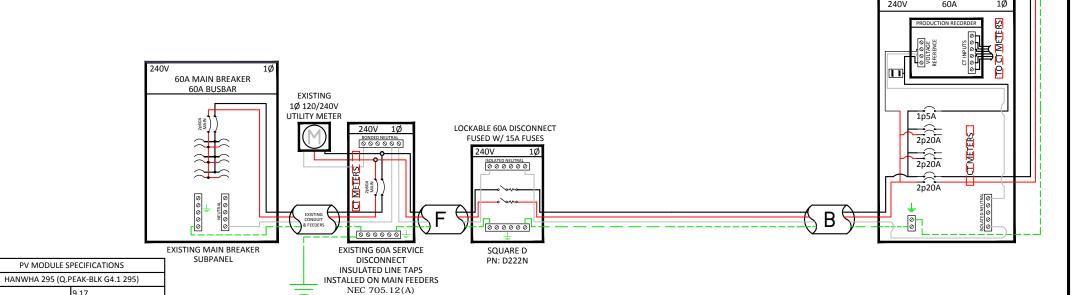
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40A - 8.39A, THEREFORE AC WIRE SIZE IS VALID

CALCULATION FOR PV OVERCURRENT PROTECTION TOTAL INVERTER CURRENT: 6.71A

6.71A*1.25 = 8.39A

--> 15A OVERCURRENT PROTECTION IS VALID



SOLAR MODULES MOUNTED TO

ROOF ON 1 ARRAY 7 - 295W MODULES

- ENPHASE IQ6 MICROINVERTERS

JUNCTION BOX

(IQ6-60-2-US)

7 MODULES ON 7 ENPHASE IQ6 MICROINVERTERS

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NYC DEPT OF BUILDING APPROVAL STAMP

Issued / Revisions

Project Title:

THADATHIL, SIMON BASEMENT

DESCRIPTION

DATE

TRINITY ACCT #: 2018-02-231256

Project Address:

D

122-14 22ND AVENUE FLUSHING, NY 11356 40.779940,-73.845474

Drawing Title:

ELECTRICAL 3-LINE DRAWING

Drawing Information DRAWING DATE: 2/16/2018 REVISED BY:

System Information DC SYSTEM SIZE TOTAL MODULE COUNT: MODULES USED: HANWHA 295 MODULE SPEC #: Q.PEAK-BLK G4.1 295 UTILITY COMPANY: CON FDISON 23-3503-4340-0505-6 UTILITY METER #: 6192857 DEAL TYPE: DIVIDEND SOLAR

DWG No. E-003.00 PAGE: 7 OF 7



2211 Allenwood Road Wall, New Jersey 07719