CITY OF GROSSE POINTE WOODS
20025 Mack Plaza
Zoning Board of Appeal Meeting Agenda
Monday, January 6, 2019
7:05 p.m.

1. CALL TO ORDER
2. ROLL CALL
3. ACCEPTANCE OF AGENDA
4. PUBLIC HEARING
   A. SOLAR PANELS: PAMELA HARTMANN, 509 ROBERT JOHN.
      1. Building Permit Application-Zoning Compliance and Plan Review – 10/28/19
      2. Memo 12/04/19 – Building Official
      3. Memo 12/19/19 – Director of Public Safety
      4. Affidavit of Legal Publication
      5. Affidavit of Property Owners Notified
      6. Aerial Views (2)
5. IMMEDIATE CERTIFICATION OF MINUTES
6. ADJOURNMENT

Lisa Kay Hathaway, CMMC/MMC
Acting City Administrator/City Clerk

IN ACCORDANCE WITH PUBLIC ACT 267 (OPEN MEETINGS ACT)
POSTED AND COPIES GIVEN TO NEWSPAPERS

The City of Grosse Pointe Woods will provide necessary, reasonable auxiliary aids and services, such as signers for the hearing impaired, or audio tapes of printed materials being considered at the meeting to individuals with disabilities. All such requests must be made at least five days prior to a meeting. Individuals with disabilities requiring auxiliary aids or services should contact the City of Grosse Pointe Woods by writing or call the City Clerk's office, 20025 Mack Plaza, Grosse Pointe Woods, MI 48236 (313) 343-2440 or Telecommunications Device for the Deaf (TDD) 313 343-9249.

NOTE TO PETITIONERS: YOU, OR A REPRESENTATIVE, ARE REQUESTED TO BE IN ATTENDANCE AT THE MEETING SHOULD THE BOARD HAVE QUESTIONS REGARDING YOUR REQUEST

4A

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OCT 28 2019
CITY OF GROSSE PTE. WOODS
BUILDING DEPT

CITY OF GROSSE POINTE WOODS
Building Department
20025 Mack Plaza, Grosse Pointe Woods, MI 48236
Ph 313.343.2426/Fax 313.343.2439

BUILDING PERMIT APPLICATION
ZONING COMPLIANCE AND PLAN REVIEW
COMMERCIAL AND RESIDENTIAL

ZONING COMPLIANCE INCLUDES: *Drives, Fences, Accessory Structures/Sheds (less than 200 sq ft), Awning, Garage Floors, Patios (non-elevated), Play Structures (NOTE: This list is not all inclusive. If you have any questions, please call the Building Department @ 313-343-2426.*

Property Owner Name: Pamela Hartmann **Date:** 10/28/2019

GP Woods Address: 509 Robert John Rd **e-mail:** Pamela.J.Hartmann@gmail.com

Work#: 313-720-1675 **Home/Cell#:** 313-720-1675

Contractor/Applicant Name: Thomas Leckman Vansh Mutki

Telephone # 734 637 8518 **Fax #** _____ **Mobile/Cell #** 734 637-8518 / 248-935-499

Contractor Address: 27917 Sheridan Garden City

MI Builder's License #: 2101210890 **MI Driver's License #:** L325 792 201 567

e-mail address: _____

SPECIFY NATURE OF PROPOSED WORK:

Installation of Rooftop Solar Panels

Value of Construction $ 2750.00

Section 23a of State Construction Code Act of 1972, No. 230 of the Public Acts of 1972, being Section 125.1523a of the Michigan Compiled Laws, prohibits a person from conspiring to circumvent the licensing requirements of the State relating to persons who are to perform work on a residential building or a residential structure. Violations of Section 23a are subject to civil fines.

Applicant Signature: _____

I hereby certify that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and we agree to conform to all applicable laws of this jurisdiction.

FOR OFFICE USE ONLY

Approved: _____ Denied: X Zoning Board of Approval Required # _____ ($250)

Inspector: CeT Date: 10/31/19

10/15

50-539(5)
cannot be installed w/in 4" of any peak, eave

PLEASE TYPE or PRINT NEATLY

CITY OF GROSSE POINTE WOODS
20025 MACK PLAZA
GROSSE POINTE WOODS MI 48236
(313) 343-2440 – CITY CLERK
FAX (313) 343-2785
(313) 343-2426 – BUILDING DEPARTMENT
FAX (313) 343-2439

APPLICATION TO THE ZONING BOARD OF APPEALS

1. **Address of the Property:** **509 Robert John Street Grosse Pointe Woods MI**
(Number and Street)

TO THE ZONING BOARD OF APPEALS

I (We) **Pamela Hartmann** **313-720-1675**
Name (Please Print) Phone No. (Daytime)

509 Robert John Road Grosse Pointe Woods MI 48236
Address City State Zip

hereby appeal to the Zoning Board of Appeals for a variance to:

four-foot requirement of Ch. 50, Article IV, Sec. 50-539 for Solar Energy Systems

2. **DESCRIPTION OF CASE** *(Fill out only items that apply)*

a. **Present zoning classification of the property** Residential

b. **Description of property**

(1) **Size and Area of Lot** 60'x133'; .183 Acres

(2) **Is the lot a corner or interior lot** Interior lot

Payment Validation

*NOTE: When answering questions pertaining to use and non-use variances, additional paper may be used.

PLEASE TYPE or PRINT NEATLY

c. Description of EXISTING structures

(1) Total square footage of accessory building now on premises _____; of main buildings 1,601 sq.ft

(2) Uses of building on premises Residential

(3) Percentage of lot coverage of all buildings on ground level _____%

d. Description of PROPOSED structures

(1) Height of proposed structure _____

(2) Height and area of existing structure _____

(3) Dimensions and area of structure or addition to be constructed _____

(4) Percentage of lot coverage of all buildings including proposed _____%

e. Yard setbacks after completion of addition/structure

(1) Front Yard (measured from lot line) No Change

(2) Side Yard (measured from lot line) No Change

(3) Rear Yard (measured from lot line) No Change

f. A sketch drawn to scale depicting the above information shall be included herewith.

3. TYPE OF VARIANCE REQUEST: NON-USE – Common regulations subject to non-use variance requests: setbacks, height or parking regulations, lot coverage, bulk or landscaping restrictions. Uniqueness: odd shape, small size, wetland, creek, natural features, big trees or slopes.

A finding of practical difficulty, based on competent, material, and substantial evidence on the record, shall require the petitioner to demonstrate that all of the following conditions are met *(please answer all reasons)*:

a) That the ordinance restrictions unreasonably prevent the petitioner from using the property for a permitted purpose.

The ordinance restrictions unreasonably prevent the petitioner from using the property for a solar energy system, a permitted purpose. Currently solar systems can offset 100% of home electricity bills but this ordinance significantly reduces this Going Solar savings opportunity to less than 20%.

*NOTE: When answering questions pertaining to use and non-use variances, additional paper may be used.

PLEASE TYPE or PRINT NEATLY

b) That a variance would do substantial justice to the petitioner as well as to other property owners in the zoning district, and a lesser relaxation than that requested would not give substantial relief to them or be more consistent with justice to other properties. (i.e., Are there other more reasonable alternatives?)

This requested variance would permit the property owners with similar structures to install a permited Solar PV system. A lesser variance would not allow an adequately sized system and also help in electricity bills cost savings.

c) That the plight of the petitioner is due to unique circumstances of the property.

For optimal energy generation, solar panels need to be south oriented and current ordinance limits the number of solar panels that can be installed on Hip and Valley roof type.

d) That the alleged hardship has not been self-created or created by any person presently having an interest in the property.

The current challenge is the ordinance limits the number of panels that can be installed with south orientation

e) That the spirit of the Grosse Pointe Woods Ordinance will be observed, public safety secured, and substantial justice done.

This variance would be in keeping with the spirit of the Grosse Pointe Woods Ordinance. Public safety would be secured by having adequate roof access after solar panel installation. Justice would be served by this type of structure being able to have a permitted solar PV system.

*NOTE: When answering questions pertaining to use and non-use variances, additional paper may be used.

PLEASE TYPE or PRINT NEATLY

4. TYPE OF VARIANCE REQUEST: USE – A use variance permits a use of land that is otherwise not allowed in that zoning district. The applicant must present evidence to show that if the zoning ordinance is applied strictly, an unnecessary hardship to the applicant will result, and that all of the following requirements are met (*please answer all reasons*):

a) That the property cannot reasonably be used in a manner consistent with existing zoning.

_____

_____

_____

b) That the plight of the petitioner is due to unique circumstances peculiar to the property and not to general neighborhood conditions.

_____

_____

_____

c) That the use requested by the variance would not alter the essential character of the area and locality.

_____

_____

_____

d) That the alleged hardship is not self-created or created by any person presently having an interest in the property.

_____

_____

*NOTE: When answering questions pertaining to use and non-use variances, additional paper may be used.

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BUILDING DEPT

PLEASE TYPE or PRINT NEATLY

e) That the spirit of the Grosse Pointe Woods Ordinance will be observed, public safety and welfare secured, and substantial justice done.

5. Interpretation of the Zoning Ordinance is requested because:

6. Article and Section of the Zoning Ordinance that is being appealed:

Article IV, Section 50-539. - Solar Energy Systems

I hereby depose and say that all the above statements and the statements contained in the papers submitted herewith are true and correct.

Pamela J Hartmann
Signature of Petitioner

Pamela J Hartmann
Signature of Applicant

Subscribed and sworn to before me this 28TH day of OCTOBER 20 19

PAMELA J HARTMANN

WERNER SCHIENKE
NOTARY PUBLIC
COUNTY OF MACOMB
My Commission Expires
November 18, 2024
Acting in the County of
STATE OF MICHIGAN

Werner Schienke
Notary Public

WERNER SCHIENKE

My Commission expires NOV. 18, 2024

NOTE: The Zoning Board of Appeals (ZBA) may consider evidence from a variety of sources in making its determination. The Zoning Board of Appeals meets the first and third Mondays of each month at 7:30 PM. The application must be filed with the City Clerk with fee payable to Grosse Pointe Woods (*contact Building Department for amount due*) a minimum of 14 days prior to council hearing.

*NOTE: When answering questions pertaining to use and non-use variances, additional paper may be used.

1.1.1 **PROJECT NOTES:**
1.1.2 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
1.1.4 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC 690.4 & NEC 690.60: **PV MODULES:** UL1703, IEC61730, AND IEC61215, AND NFPA 70 CLASS C FIRE **INVERTERS:** UL 1741 CERTIFIED, IEEE 1547, 929, 519 **COMBINER BOX(ES):** UL 1703 OR UL 1741 ACCESSORY
1.1.5 NEC 690.35 REFERS SPECIFICALLY TO "UNGROUNDED" PV SYSTEMS. ALSO DESIGNATED AS "TRANSFORMERLESS" BY INVERTER MANUFACTURERS AND "NON-ISOLATED" BY UNDERWRITERS LABORATORY.
1.1.6 INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE LISTED FOR THIS USE [NEC 690.35 (G)].
1.1.7 AS SPECIFIED BY THE AHJ, EQUIPMENT USED IN UNGROUNDED SYSTEMS LABELED ACCORDING TO NEC 690.35 (F).
1.1.8 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO NEC 690.7.
1.1.9 ALL INVERTERS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4 (D). SHALL BE INSTALLED ACCORDING TO ANY INSTRUCTIONS FROM LISTING OR LABELING [NEC 110.3].
1.1.10 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

1.2.1 **SCOPE OF WORK:**
1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR ROOF-MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEMS DETAILED IN THIS DOCUMENT.

1.3.1 **WORK INCLUDES:**
1.3.2 PV ROOF ATTACHMENTS - IRONRIDGE FLASHFOOT
1.3.3 PV RACKING SYSTEM INSTALLATION - IRONRIDGE XR100
1.3.4 PV MODULE AND INVERTER INSTALLATION - CANADIAN SOLAR CS6U-330M / SOLAR EDGE SE6000H-US (240V)
1.3.5 PV EQUIPMENT GROUNDING
1.3.6 PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX
1.3.7 PV LOAD CENTERS (IF INCLUDED)
1.3.8 PV METERING/MONITORING (IF INCLUDED)
1.3.9 PV DISCONNECTS
1.3.10 PV FINAL COMMISSIONING
1.3.11 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV
1.3.12 SIGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

SCOPE OF WORK

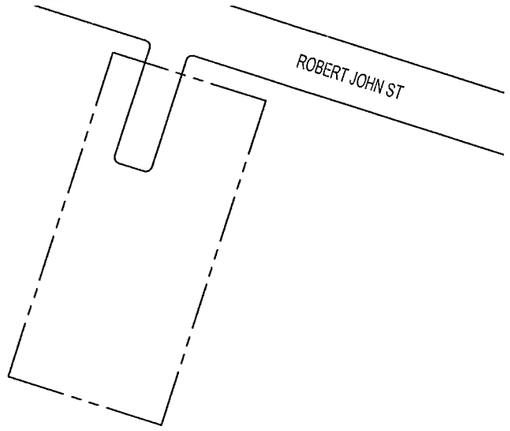
SYSTEM SIZE:	STC: 17 X 330W = 5.610KW PTC: 17 X 303.8W = 5.165KW (17) CANADIAN SOLAR CS6U-330M (1) SOLAR EDGE SE6000H-US (240V)
ATTACHMENT TYPE:	IRONRIDGE FLASHFOOT
MSP UPGRADE:	NO

NEW PV SYSTEM: 5.610 kWp

HARTMANN RESIDENCE

509 ROBERT JOHN ST
GROSSE POINTE WOODS, MI 48236
ASSESSOR'S #: 40002010044002

01 AERIAL PHOTO
NOT TO SCALE



02 PLAT MAP
NOT TO SCALE

N
W E
S

SHEET LIST TABLE

PROJECT INFORMATION

OWNER
NAME: PAMELA HARTMANN

PROJECT MANAGER
NAME:
PHONE:

CONTRACTOR
NAME: SRINERGY
PHONE: 2482574054

AUTHORITIES HAVING JURISDICTION
BUILDING: GROSSE POINTE WOODS
ZONING: GROSSE POINTE WOODS
UTILITY: DTE ENERGY

DESIGN SPECIFICATIONS
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: 20 PSF
WIND EXPOSURE: B
WIND SPEED: 115 MPH

APPLICABLE CODES & STANDARDS
BUILDING: MBC 2015 MRC 2015
ELECTRICAL: NEC 2014
FIRE: IFC 2015

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CONTRACTOR

SRINERGY

PHONE: 2482574054
ADDRESS: 24371 CATHERINE INDUSTRIAL DR, SUITE 231 NOVI, MI 48375

LIC. NO.:
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 5.610 kWp

HARTMANN RESIDENCE
509 ROBERT JOHN ST
GROSSE POINTE WOODS, MI 48236
APN: 40002010044002

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

COVER PAGE

DATE: 08.12.2019
DESIGN BY: K.A.
CHECKED BY: M.M.

REVISIONS

T-001.00
(SHEET 1)

2.1.1 **SITE NOTES:**

2.1.2 A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.

2.1.3 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.

2.1.4 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.

2.1.5 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.

2.1.6 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

2.2.1 **EQUIPMENT LOCATIONS**

2.2.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.

2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLES 310.15 (B)(2)(A) AND 310.15 (B)(3)(C).

2.2.3 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.

2.2.4 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.

2.2.5 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.

2.2.6 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

2.3.1 **STRUCTURAL NOTES:**

2.3.2 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.

2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.

2.3.4 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.

2.3.5 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.

2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

2.4.1 **GROUNDING NOTES:**

2.4.2 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVISES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.

2.4.3 AS IN CONVENTIONAL PV SYSTEMS, UNGROUNDED PV SYSTEMS REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN ACCORDANCE WITH 250.134 OR 250.136(A). ONLY THE DC CONDUCTORS ARE UNGROUNDED.

2.4.4 PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.

2.4.5 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURE CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).

2.4.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.

2.4.7 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

2.4.8 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]

2.4.9 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.

2.4.10 ACCORDING TO NEC 690.47 (C)(3), UNGROUNDED SYSTEMS INVERTER MAY SIZE DC GEC ACCORDING TO EGC REQUIREMENTS OF NEC 250.122. HOWEVER, DC GEC TO BE UNSPLICED OR IRREVERSIBLY SPLICED.

2.4.11 IN UNGROUNDED INVERTERS, GROUND FAULT PROTECTION IS PROVIDED BY "ISOLATION MONITOR INTERRUPTOR," AND GROUND FAULT DETECTION PERFORMED BY "RESIDUAL-CURRENT DETECTOR."

2.5.1 **INTERCONNECTION NOTES:**

2.5.2 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 690.64 (B)]

2.5.3 THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120% OF BUSBAR RATING [NEC 705.12(D)(2)(3)].

2.5.4 PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(D)(2)(3)].

2.5.5 AT MULTIPLE INVERTERS OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (D)(2)(3)(C).

2.5.6 FEEDER TAP INTERCONECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (D)(2)(1)

2.5.7 SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.12 (A) WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42

2.5.8 BACKFEEDING BREAKER FOR UTILITY-INTERACTIVE INVERTER OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (D)(5)].

2.6.1 **DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:**

2.6.2 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).

2.6.3 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.

2.6.4 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED. THEREFORE BOTH MUST OPEN WHERE A DISCONNECT IS REQUIRED, ACCORDING TO NEC 690.13.

2.6.5 DC DISCONNECT INTEGRATED INTO ROOFTOP DC COMBINER OR INSTALLED WITHIN 6 FT, ACCORDING TO NEC 690.15 (C).

2.6.6 RAPID SHUTDOWN OF ENERGIZED CONDUCTORS BEYOND 10 FT OF PV ARRAY OR 5 FT INSIDE A BUILDING WITHIN 10 SECONDS. CONTROLLED CONDUCTORS ≤30V AND ≤240VA [NEC 690.12]. LOCATION OF LABEL ACCORDING TO AHJ.

2.6.7 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.

2.6.8 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED, THEREFORE BOTH REQUIRE OVER-CURRENT PROTECTION, ACCORDING TO NEC 240.21. (SEE EXCEPTION IN NEC 690.9)

2.6.9 IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

2.7.1 **WIRING & CONDUIT NOTES:**

2.7.2 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.

2.7.3 ALL CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.

2.7.4 EXPOSED UNGROUNDED PV SOURCE AND OUTPUT CIRCUITS SHALL USE WIRE LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE [690.35 (D)]. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE WITH UNGROUNDED SYSTEMS, ACCORDING TO NEC 690.35 (D)(3).

2.7.5 PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE [NEC 200.6 (A)(6)].

2.7.6 MODULE WIRING SHALL BE LOCATED AND SECURED UNDER THE ARRAY.

2.7.7 ACCORDING TO NEC 200.7, UNGROUNDED SYSTEMS DC CONDUCTORS COLORED OR MARKED AS FOLLOWS:

DC POSITIVE- RED, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN

DC NEGATIVE- BLACK, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN

2.7.8 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:

PHASE A OR L1- BLACK

PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE

PHASE C OR L3- BLUE, YELLOW, ORANGE*, OR OTHER CONVENTION

NEUTRAL- WHITE OR GREY

* IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

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CONTRACTOR

SRINERGY

PHONE: 2482574054

ADDRESS: 24371 CATHERINE INDUSTRIAL DR, SUITE 231 NOVI, MI 48375

LIC. NO.:
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 5.610 kWp

HARTMANN RESIDENCE

509 ROBERT JOHN ST
GROSSE POINTE WOODS, MI 48236
APN: 40002010044002

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

NOTES

DATE: 08.12.2019

DESIGN BY: K.A.

CHECKED BY: M.M.

REVISIONS

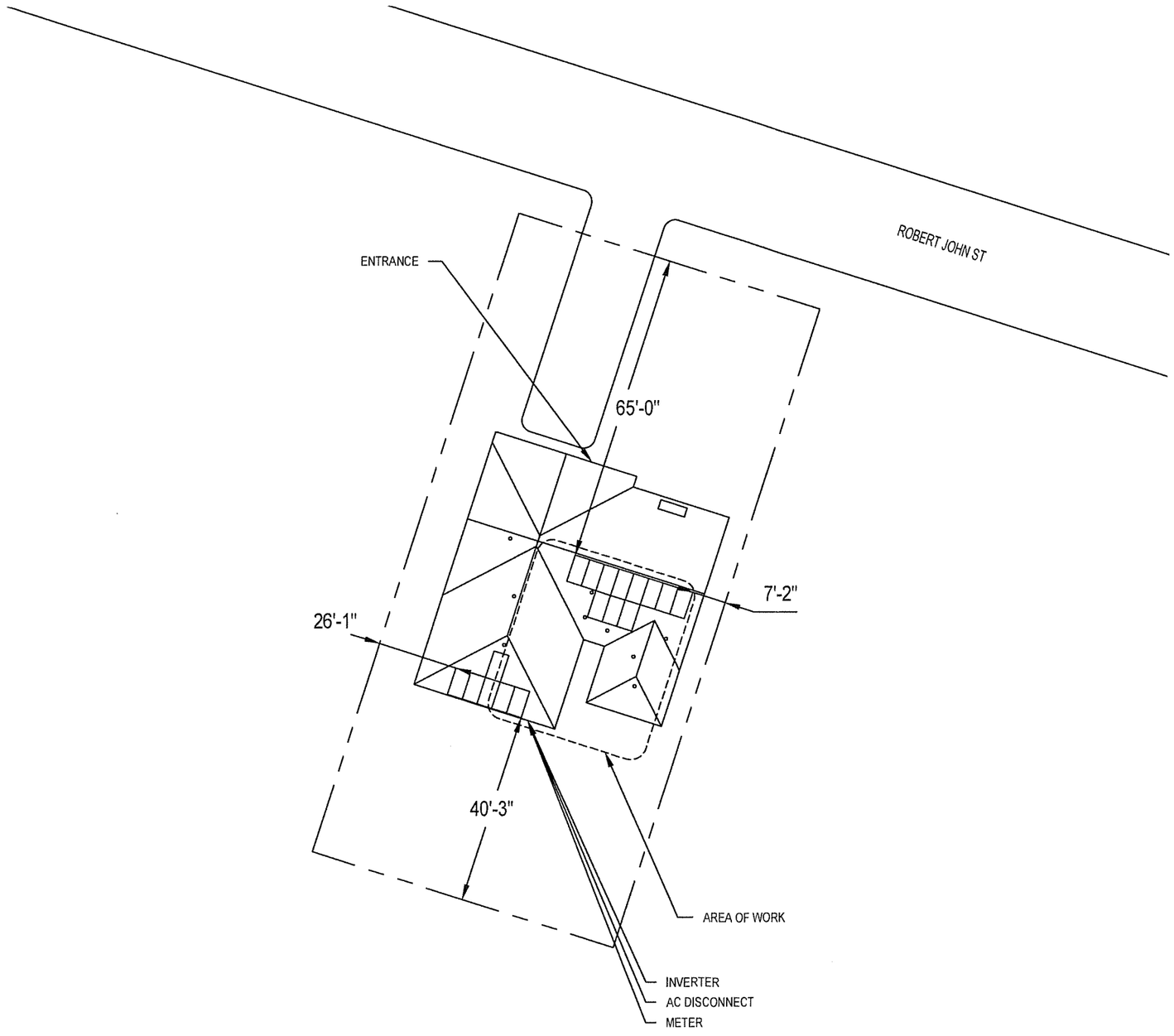
G-001.00

(SHEET 2)

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

PROPERTY LINE



01 SITE PLAN

5/128" = 1'-0"

0 8'-0" 16'-0"

N W E S

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CONTRACTOR

SRINERGY

PHONE: 2482574054

ADDRESS: 24371 CATHERINE INDUSTRIAL DR, SUITE 231 NOVI, MI 48375

LIC. NO.:
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NEW PV SYSTEM: 5.610 kWp

HARTMANN RESIDENCE

509 ROBERT JOHN ST
GROSSE POINTE WOODS, MI 48236
APN: 40002010044002

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

SITE PLAN

DATE: 08.12.2019

DESIGN BY: K.A.

CHECKED BY: M.M.

REVISIONS

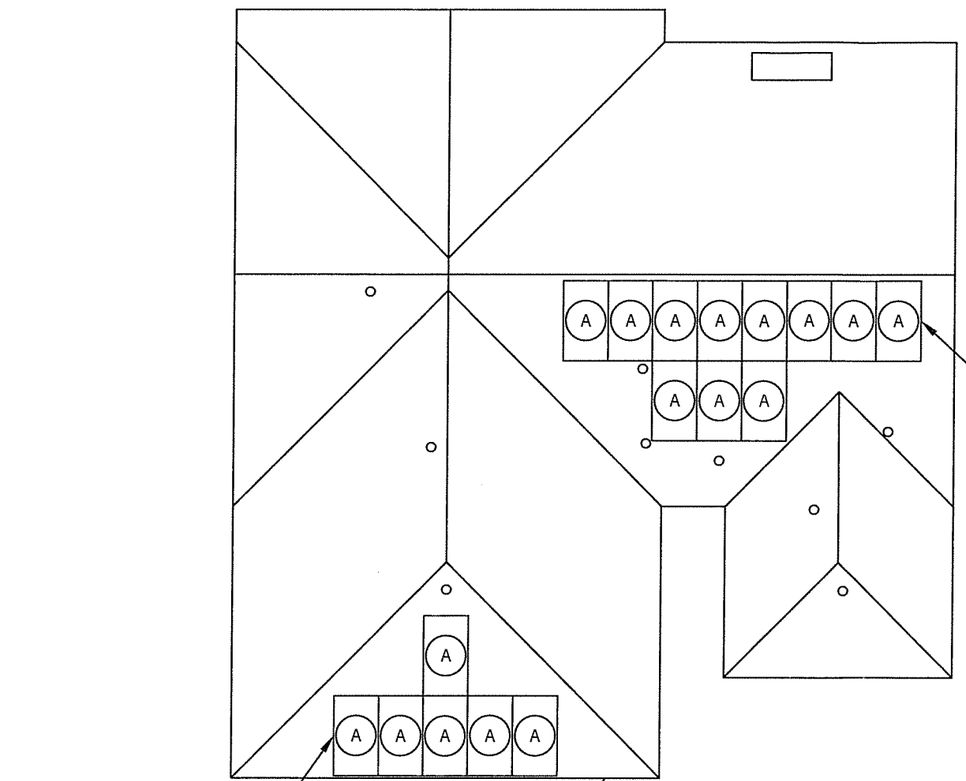
A-101.00

(SHEET 3)

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

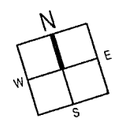
(A) MODULE STRINGING

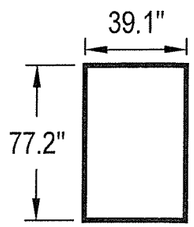


01 ELECTRICAL PLAN

3/32" = 1'

0 5'-4" 10'-8"





MODULE:
CANADIAN SOLAR
CS6U-330M
330 WATTS

Srinergy
Live Smart. Live Green.

CONTRACTOR

SRINERGY

PHONE: 2482574054
ADDRESS: 24371 CATHERINE INDUSTRIAL DR, SUITE 231 NOVI, MI 48375

LIC. NO.:
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 5.610 kWp

HARTMANN RESIDENCE

509 ROBERT JOHN ST
GROSSE POINTE WOODS, MI 48236
APN: 40002010044002

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

ELECTRICAL PLAN

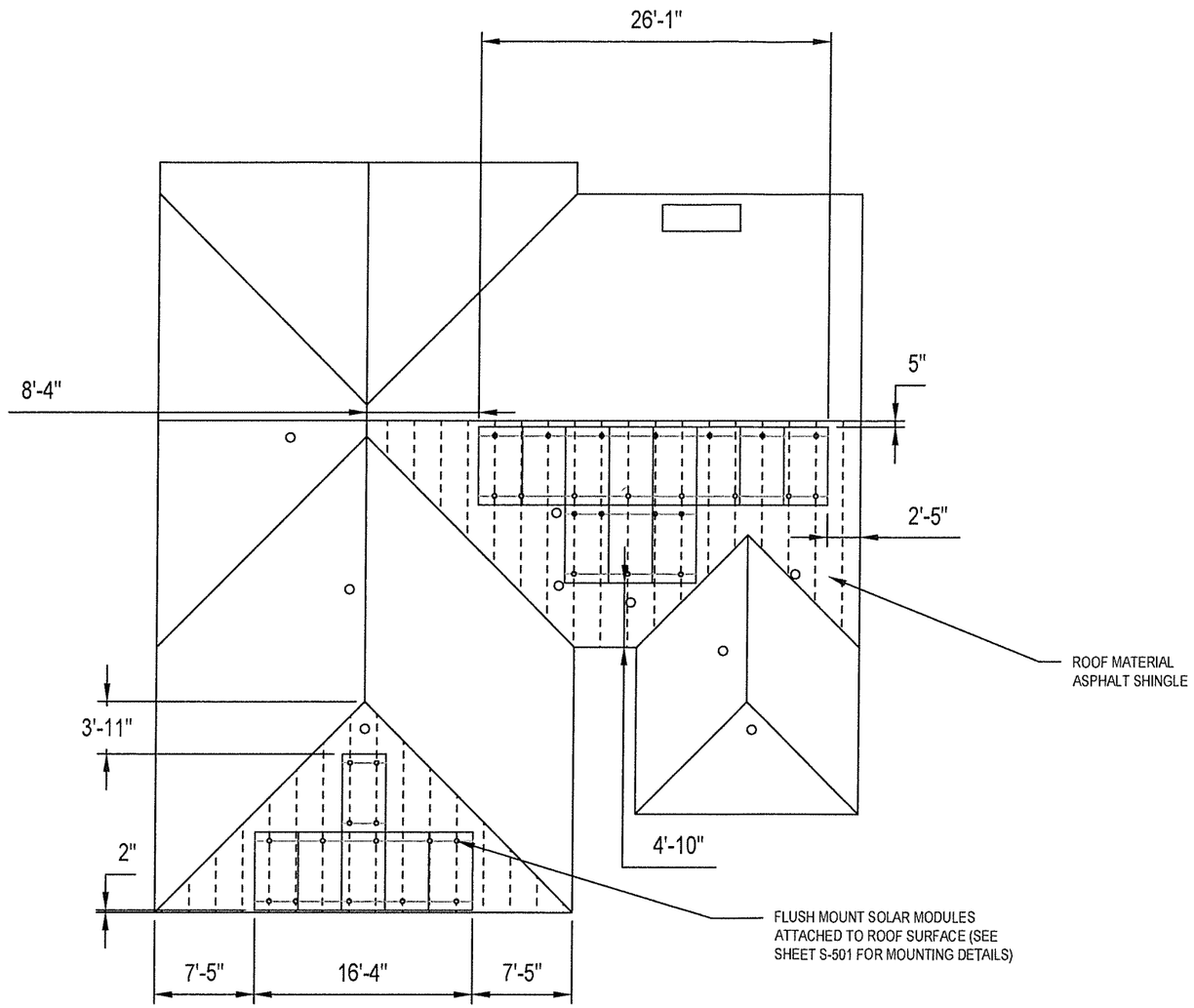
DATE: 08.12.2019
DESIGN BY: K.A.
CHECKED BY: M.M.

REVISIONS

A-102.00
(SHEET 4)

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

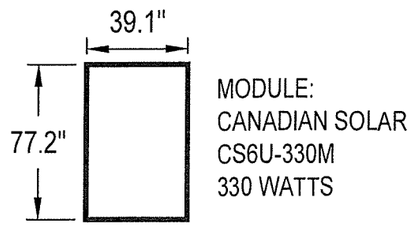


ROOF RAFTERS

01 SOLAR ATTACHMENT PLAN

1/8" = 1'

0 4' 8'



MODULE:
CANADIAN SOLAR
CS6U-330M
330 WATTS

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REVISIONS

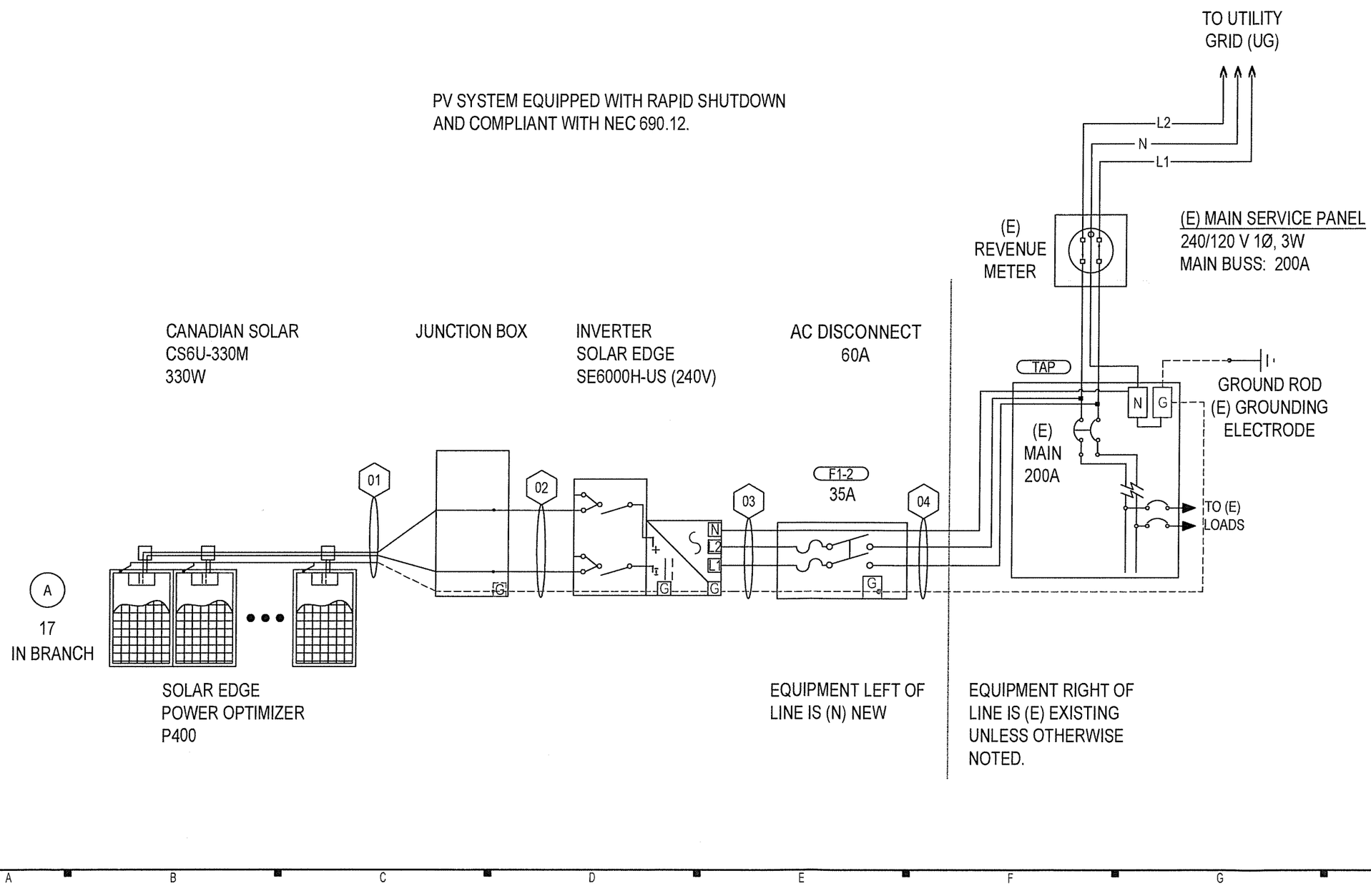
A-103.00
(SHEET 5)

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPO	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL
01	1	10 AWG PV WIRE, COPPER	FREE AIR	2	N/A	6 AWG BARE, COPPER	0.76 (54.8°C)	1	15A	18.75A	55A	41.8A	75°C	50A
02	1	10 AWG THWN-2, COPPER	0.5" DIA EMT	2	N/A	10 AWG THWN-2, COPPER	0.76 (54.8°C)	1	15A	18.75A	40A	30.4A	75°C	35A
03	1	8 AWG THWN-2, COPPER	0.75" DIA EMT	2	35A	8 AWG THWN-2, COPPER	0.96 (32.8°C)	1	25A	31.25A	55A	52.8A	75°C	50A
04	1	6 AWG THWN-2, COPPER	0.75" DIA EMT	2	N/A	6 AWG THWN-2, COPPER	0.96 (32.8°C)	1	25A	31.25A	75A	72A	75°C	65A

(A) MODULE STRINGING

PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN
AND COMPLIANT WITH NEC 690.12.



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LINE DIAGRAM

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REVISIONS

E-601.00
(SHEET 6)

SYSTEM SUMMARY	
	STRING #1
POWERBOX MAX OUTPUT CURRENT	15A
OPTIMIZERS IN SERIES	17
NOMINAL STRING VOLTAGE	380V
ARRAY OPERATING CURRENT	14.76A
ARRAY STC POWER	5,610W
ARRAY PTC POWER	5,165W
MAX AC CURRENT	25A
MAX AC POWER	6,000W
DERATED (CEC) AC POWER	5,052W

DESIGN TEMPERATURES	
ASHRAE EXTREME LOW	-22°C (-7.6°F), SOURCE: DETROIT CITY (42.41°; -83.01°)
ASHRAE 2% HIGH	32.8°C (91°F), SOURCE: DETROIT CITY (42.41°; -83.01°)

MODULES										
REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-17	17	CANADIAN SOLAR CS6U-330M	330W	303.8W	9.31A	8.8A	45.9V	37.5V	-0.142V/°C (-0.31%/°C)	15A

POWER OPTIMIZERS						
REF.	QTY.	MODEL	RATED INPUT POWER	MAX OUTPUT CURRENT	MAX INPUT ISC	MAX DC VOLTAGE	WEIGHTED EFFICIENCY
PO1-17	17	SOLAR EDGE P400	400W	15A	10.1A	80V	98.8%

INVERTERS										
REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1	1	SOLAR EDGE SE6000H-US (240V)	240V	FLOATING	35A	6000W	25A	16.5A	480V	99.0%

DISCONNECTS				
REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE
SW1	1	SQUARE D D222NRB OR EQUIV.	60A	240VAC

OCPDS			
REF.	QTY.	RATED CURRENT	MAX VOLTAGE
F1-2	2	35A	240VAC

BILL OF MATERIALS

CATEGORY	MAKE	MODEL NUMBER	REF	QTY	UNIT	QTY/UNIT	DESCRIPTION
MODULE	CANADIAN SOLAR	CS6U-330M	PM1-17	17	PIECES	1	CANADIAN SOLAR CS6U-330M 330W 72 CELLS, MONOCRYSTALLINE SILICON
INVERTER	SOLAR EDGE	SE6000H-US (240V)	I1	1	PIECE	1	SOLAR EDGE SE6000H-US (240V) 6000W INVERTER
MODULE OPTIMIZER	SOLAR EDGE	P400	PO1-17	17	PIECES	1	SOLAR EDGE P400 OPTIMIZER (REQUIRED PART OF INVERTER'S DISTRIBUTED DC ARCHITECTURE)
DISCONNECT	SQUARE D	D222NRB	SW1	1	PIECE	1	SQUARE D D222NRB, 2-POLE, 60A, 240VAC OR EQUIVALENT
WIRING		GEN-10-AWG-PV-WIRE-CU	WR1	90	FEET	1	10 AWG PV WIRE, COPPER (POSITIVE AND NEGATIVE)
WIRING		GEN-6-AWG-BARE-CU	WR1	45	FEET	1	6 AWG BARE, COPPER (GROUND)
WIRING		GEN-10-AWG-THWN-2-CU-RD	WR2	20	FEET	1	10 AWG THWN-2, COPPER, RED (POSITIVE)
WIRING		GEN-10-AWG-THWN-2-CU-BLK	WR2	20	FEET	1	10 AWG THWN-2, COPPER, BLACK (NEGATIVE)
WIRING		GEN-10-AWG-THWN-2-CU-GR	WR2	20	FEET	1	10 AWG THWN-2, COPPER, GREEN (GROUND)
WIRING		GEN-8-AWG-THWN-2-CU-RD	WR3	10	FEET	1	8 AWG THWN-2, COPPER, RED (LINE 1)
WIRING		GEN-8-AWG-THWN-2-CU-BLK	WR3	10	FEET	1	8 AWG THWN-2, COPPER, BLACK (LINE 2)
WIRING		GEN-8-AWG-THWN-2-CU-WH	WR3	10	FEET	1	8 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIRING		GEN-8-AWG-THWN-2-CU-GR	WR3	10	FEET	1	8 AWG THWN-2, COPPER, GREEN (GROUND)
WIRING		GEN-6-AWG-THWN-2-CU-RD	WR4	10	FEET	1	6 AWG THWN-2, COPPER, RED (LINE 1)
WIRING		GEN-6-AWG-THWN-2-CU-BLK	WR4	10	FEET	1	6 AWG THWN-2, COPPER, BLACK (LINE 2)
WIRING		GEN-6-AWG-THWN-2-CU-WH	WR4	10	FEET	1	6 AWG THWN-2, COPPER, WHITE (NEUTRAL)
WIRING		GEN-6-AWG-THWN-2-CU-GR	WR4	10	FEET	1	6 AWG THWN-2, COPPER, GREEN (GROUND)
WIREWAY		GEN-EMT-0.5" DIA	WW2	20	FEET	1	EMT CONDUIT, 0.5" DIA
WIREWAY		GEN-EMT-0.75" DIA	WW3-4	20	FEET	1	EMT CONDUIT, 0.75" DIA
OCPD	GENERIC MANUFACTURER	GEN-FU-35A-240VAC	F1-2	2	PIECES	1	FUSE, 35A, 240VAC
TRANSITION BOX	GENERIC MANUFACTURER	GEN-AWB-TB-4-4X	JB1	1	PIECE	1	TRANSITION/PASS-THROUGH BOX, WITH 4 TERMINAL BLOCKS

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DESIGN TABLES

DATE: 08.12.2019
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CHECKED BY: M.M.

REVISIONS

E-602.00
(SHEET 7)

! WARNING !
ELECTRIC SHOCK HAZARD.
THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED.

PLACARD 3
AT EACH JUNCTION, COMBINER, DISCONNECT AND DEVICE WHERE ENERGIZED UNGROUNDED CONDUCTORS MAY BE EXPOSED DURING SERVICE
[NEC 690.35(F)]

! WARNING !
ELECTRIC SHOCK HAZARD.
DO NOT TOUCH TERMINALS.
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION.

LABEL 2
AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT
[NEC 690.17]

OPERATING CURRENT: 14.76 A DC
OPERATING VOLTAGE: 380 V DC
MAX SHORT CURRENT: 15 A DC
MAX VOLTAGE: 480 V DC

LABEL 3
AT EACH DC DISCONNECTING MEANS
[NEC 690.53]

PHOTOVOLTAIC AC DISCONNECT
OPERATING CURRENT: 25 A AC
OPERATING VOLTAGE: 240 V AC

LABEL 4
AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS
[NEC 690.54]

! WARNING !
DUAL POWER SOURCES
SECOND SOURCE IS PV SYSTEM

LABEL 5

! CAUTION !
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL 6

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED
PHOTOVOLTAIC SYSTEM DISCONNECT LOCATED SOUTH SIDE OF THE HOUSE

PLAQUE

AT POINT OF INTERCONNECTION; LABEL, SUCH AS LABEL 5 OR LABEL 6 MUST IDENTIFY PHOTOVOLTAIC SYSTEM
[NEC 705.12(D)(4)]

DIRECTORY
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION
[NEC 690.56(B)]
WHERE THE INVERTERS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE INSTALLED AT EACH DC PV SYSTEM DISCONNECTING MEANS, AT EACH AC DISCONNECTING MEANS, AND AT THE MAIN SERVICE DISCONNECTING MEANS SHOWING THE LOCATION OF ALL AC AND DC PV SYSTEM DISCONNECTING MEANS IN THE BUILDING.
[NEC 690.4(H)]

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED

LABEL 7
AT UTILITY METER
[NEC 690.56(B)]

PHOTOVOLTAIC DC DISCONNECT

LABEL 8
AT EACH DC DISCONNECTING MEANS
[NEC 690.13(B)]

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

LABEL 9
AT RAPID SHUTDOWN SWITCH
[NEC 690.56(B)].
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE
[IFC 605.11.1.1]

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL 10
AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.
[NEC 690.31(G)]
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE
[IFC 605.11.1.1]

PHOTOVOLTAIC AC DISCONNECT

LABEL 11
AT EACH AC DISCONNECTING MEANS
[NEC 690.13(B)]

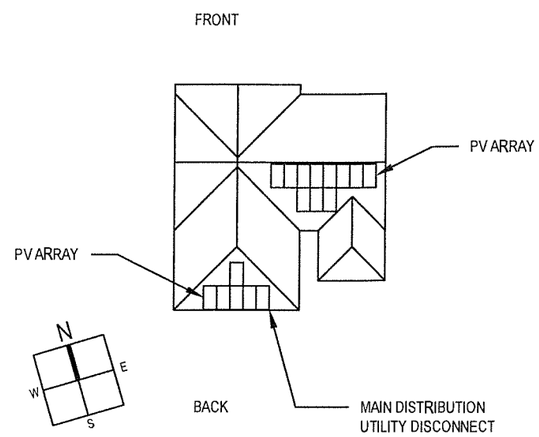
! WARNING !
INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

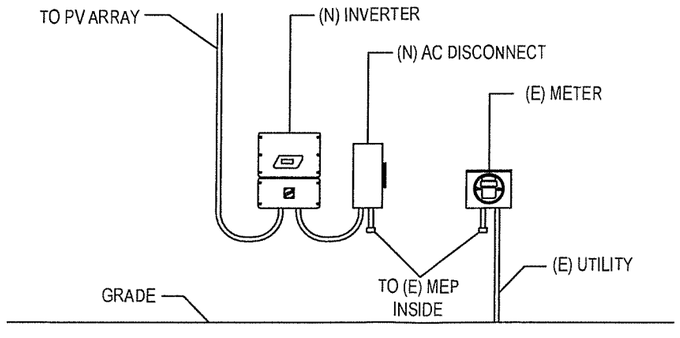
LABEL 12
AT POINT OF INTERCONNECTION OVERCURRENT DEVICE
[NEC 705.12(D)(7)]

LABELING NOTES
1.1 LABELING REQUIREMENTS BASED ON THE 2014 NATIONAL ELECTRICAL CODE, INTERNATIONAL FIRE CODE 605.11, OSHA STANDARD 1910.145, ANSI Z535
1.2 MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
1.3 LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
1.4 LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
1.5 ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]

!CAUTION!

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:





01 EQUIPMENT ELEVATION
NOT TO SCALE

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CONTRACTOR

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APN: 40002010044002

ENGINEER OF RECORD

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PLACARDS

DATE: 08.12.2019
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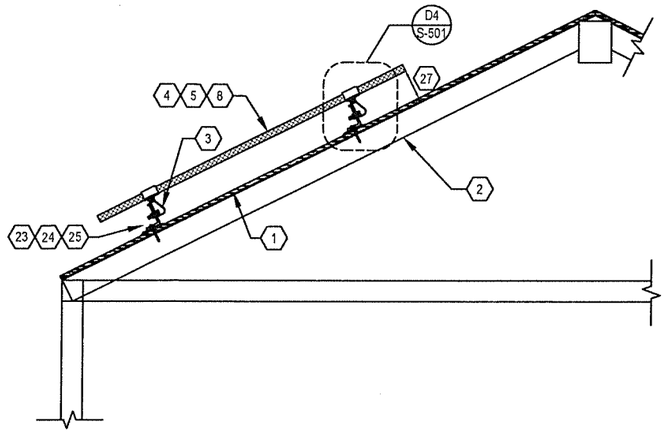
CHECKED BY: M.M.

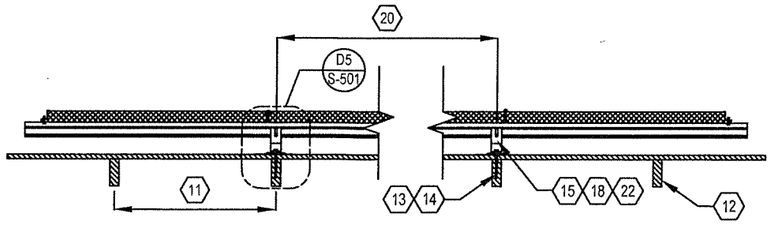
REVISIONS

E-603.00
(SHEET 8)



D1 RACKING DETAIL (TRANSVERSE)

NOT TO SCALE

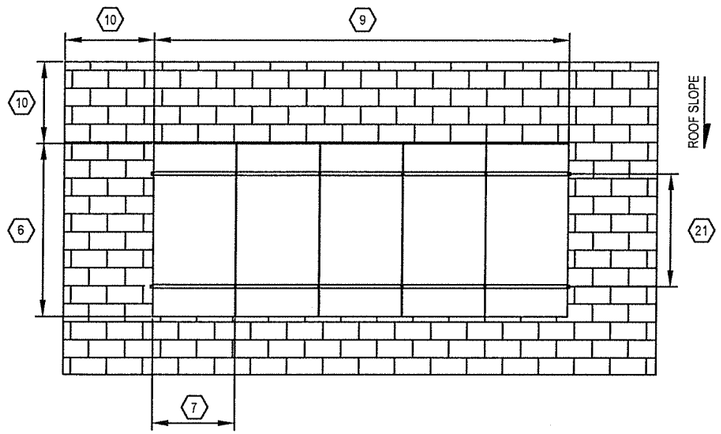


D2 RACKING DETAIL (LONGITUDINAL)

NOT TO SCALE

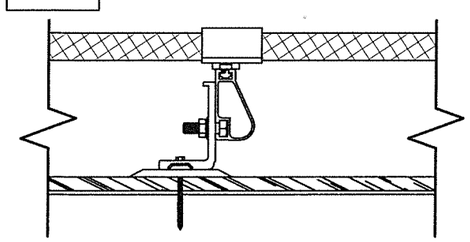
GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS



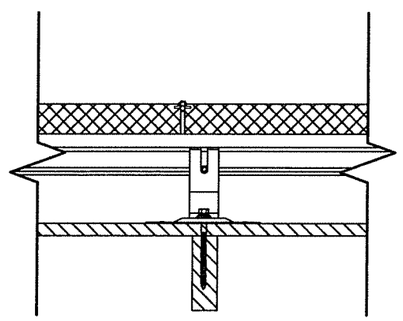
D3 RACKING DETAIL (TOP)

NOT TO SCALE



D4 DETAIL (TRANSVERSE)

NOT TO SCALE



D5 DETAIL (LONGITUDINAL)

NOT TO SCALE

SHEET KEYNOTES

1. ROOF MATERIAL: ASPHALT SHINGLE
2. ROOF STRUCTURE: SINGLE SPAN RAFTER
3. ATTACHMENT TYPE: IRONRIDGE FLASHFOOT
4. MODULE MANUFACTURER: CANADIAN SOLAR
5. MODULE MODEL: CS6U-330M
6. MODULE LENGTH: 77.2'
7. MODULE WIDTH: 39.1"
8. MODULE WEIGHT: 49.4 LBS.
9. SEE SHEET A-103 FOR DIMENSION(S)
10. MIN. FIRE OFFSET: NO FIRE CODE ENFORCED
11. RAFTER SPACING: 24 IN. O.C.
12. RAFTER SIZE: 2X4, 2X6, 2X8 NOMINAL
13. LAG BOLT DIAMETER: 5/16 IN.
14. LAG BOLT EMBEDMENT: 3 IN.
15. TOTAL # OF ATTACHMENTS: 36
16. TOTAL AREA: 356.35 SQ. FT.
17. TOTAL WEIGHT: 944.03 LBS.
18. WEIGHT PER ATTACHMENT: 26.22 LBS.
19. DISTRIBUTED LOAD: 2.65 PSF
20. MAX. HORIZONTAL STANDOFF: 48 IN.
21. MAX. VERTICAL STANDOFF: LANDSCAPE: 26 IN., PORTRAIT: 33 IN.
22. STANDOFF STAGGERING: YES
23. RAIL MANUFACTURER (OR EQUIV.): IRONRIDGE
24. RAIL MODEL (OR EQUIVALENT): XR100
25. RAIL WEIGHT: 0.68 PLF.
26. MAX. RAFTER SPAN: 5 FT.
27. MODULE CLEARANCE: 3 IN. MIN., 6 IN. MAX.

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ASSEMBLY DETAILS

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REVISIONS

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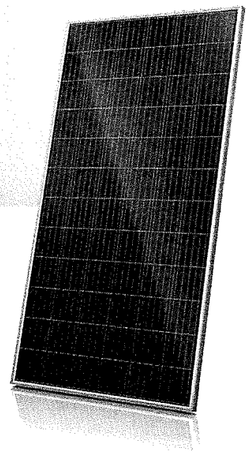
(SHEET 9)

CanadianSolar



MAXPOWER
CS6U-325|330|335|340P

Canadian Solar's modules use the latest innovative cell technology, increasing module power output and system reliability, ensured by 15 years of experience in module manufacturing, well-engineered module design, stringent BOM quality testing, an automated manufacturing process and 100% EL testing.

KEY FEATURES

- Excellent module efficiency of up to: 17.49 %
- Outstanding low irradiance performance of up to: 96.0 %
- No.1 PTC — High PTC rating of up to: 92.21 %
- IP68 junction box for long-term weather endurance
- Heavy snow load up to 5400 Pa, wind load up to 2400 Pa

25 years — **linear power output warranty**

10 years — **product warranty on materials and workmanship**

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2008 / Quality management system
ISO 14001:2004 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730: VDE / CE / CQC / MCS / INMETRO / CEC AU
UL 1703 / IEC 61215 performance: CEC listed (US) / FSEC (US Florida)
UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE
UNI 9177 Reaction to Fire: Class 1
IEC 60068-2-68: SGS
Take-e-way

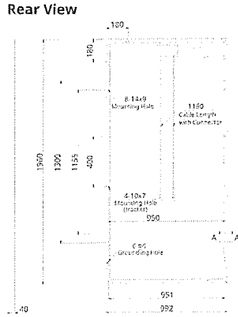
* Please contact your local Canadian Solar sales representative for the specific product certificates applicable in your market.

CANADIAN SOLAR INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. As a leading PV project developer and manufacturer of solar modules with over 21 GW deployed around the world since 2001, Canadian Solar Inc. (NASDAQ: CSIQ) is one of the most bankable solar companies worldwide.

CANADIAN SOLAR INC.
545 Speedvale Avenue West, Guelph, Ontario N1K 1E6, Canada, www.canadiansolar.com, support@canadiansolar.com

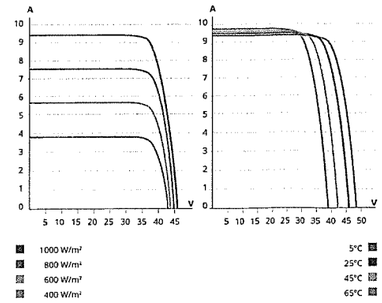
ENGINEERING DRAWING (mm)

Rear View



Frame Cross Section A-A

CS6U-330P / I-V CURVES



ELECTRICAL DATA | STC*

CS6U	325P	330P	335P	340P
Nominal Max. Power (Pmax)	325 W	330 W	335 W	340 W
Opt. Operating Voltage (Vmp)	37.0 V	37.2 V	37.4 V	37.6 V
Opt. Operating Current (Imp)	8.78 A	8.88 A	8.96 A	9.05 A
Open Circuit Voltage (Voc)	45.5 V	45.6 V	45.8 V	45.9 V
Short Circuit Current (Isc)	9.34 A	9.45 A	9.54 A	9.62 A
Module Efficiency	16.72%	16.97%	17.23%	17.49%
Operating Temperature	-40°C ~ +85°C			
Max. System Voltage	1000 V (IEC) or 1000 V (UL)			
Module Fire Performance	TYPE 1 (UL 1703) or CLASS C (IEC 61730)			
Max. Series Fuse Rating	15 A			
Application Classification	Class A			
Power Tolerance	0 ~ + 5 W			

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

MECHANICAL DATA

Specification	Data
Cell Type	Poly-crystalline, 6 inch
Cell Arrangement	72 (6×12)
Dimensions	1960×992×40 mm (77.2×39.1×1.57 in)
Weight	22.4 kg (49.4 lbs)
Front Cover	3.2 mm tempered glass
Frame Material	Anodized aluminium alloy
J-Box	IP68, 3 diodes
Cable	4.0 mm² (IEC), 12 AWG (UL), 1160 mm (45.7 in)
Connector	T4 series
Per Pallet	26 pieces, 635 kg (1400 lbs)
Per Container (40' HQ)	624 pieces

ELECTRICAL DATA | NMOT*

CS6U	325P	330P	335P	340P
Nominal Max. Power (Pmax)	239 W	242 W	246 W	250 W
Opt. Operating Voltage (Vmp)	34.0 V	34.2 V	34.4 V	34.6 V
Opt. Operating Current (Imp)	7.01 A	7.08 A	7.15 A	7.22 A
Open Circuit Voltage (Voc)	42.4 V	42.5 V	42.6 V	42.7 V
Short Circuit Current (Isc)	7.54 A	7.63 A	7.70 A	7.77 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.41 % / °C
Temperature Coefficient (Voc)	-0.31 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature (NMOT)	43 ± 2 °C

PERFORMANCE AT LOW IRRADIANCE

Outstanding performance at low irradiance, with an average relative efficiency of 96.0 % for irradiances between 200 W/m² and 1000 W/m² (AM 1.5, 25°C).

PARTNER SECTION

The aforesaid datasheet only provides the general information on Canadian Solar products and, due to the on-going innovation and improvement, please always contact your local Canadian Solar sales representative for the updated information on specifications, key features and certification requirements of Canadian Solar products in your region.

Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

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CONTRACTOR

SRINERGY

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LIC. NO.:
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM: 5.610 kWp

HARTMANN RESIDENCE

509 ROBERT JOHN ST
GROSSE POINTE WOODS, MI 48236
APN: 40002010044002

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

RESOURCE DOCUMENT

DATE: 08.12.2019
DESIGN BY: K.A.
CHECKED BY: M.M.

REVISIONS

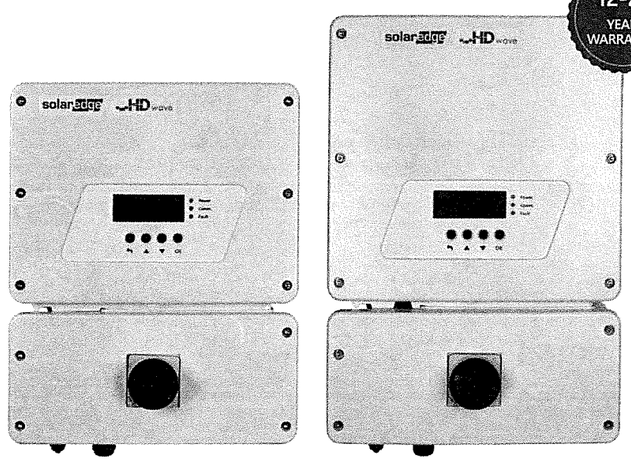
R-001.00
SHEET 10

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

12-25 YEAR WARRANTY



Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

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INVERTERS

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)				59.3 - 60 - 60.5[1]				Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
GFDI Threshold				1				A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds				Yes				
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded				Yes				
Maximum Input Voltage				480				Vdc
Nominal DC Input Voltage		380				400		Vdc
Maximum Input Current @240V[2]	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V[2]	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current				45				Adc
Reverse-Polarity Protection				Yes				
Ground-Fault Isolation Detection				600kΩ Sensitivity				
Maximum Inverter Efficiency	99			99.2				%
CEC Weighted Efficiency				99			99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption				< 2.5				W
ADDITIONAL FEATURES								
Supported Communication Interfaces				RS485, Ethernet, ZigBee (optional), Cellular (optional)				
Revenue Grade Data, ANSI C12.20				Optional[3]				
Rapid Shutdown - NEC 2014 and 2017 690.12				Automatic Rapid Shutdown upon AC Grid Disconnect				
STANDARD COMPLIANCE								
Safety				UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07				
Grid Connection Standards				IEEE1547, Rule 21, Rule 14 (HI)				
Emissions				FCC Part 15 Class B				
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range				3/4" minimum / 14-6 AWG			3/4" minimum /14-4 AWG	
DC Input Conduit Size / # of Strings / AWG Range				3/4" minimum / 1-2 strings / 14-6 AWG			3/4" minimum / 1-3 strings / 14-6 AWG	
Dimensions with Safety Switch (HxWxD)				17.7 x 14.6 x 6.8 / 450 x 370 x 174			21.3 x 14.6 x 7.3 / 540 x 370 x 185	in / mm
Weight with Safety Switch		22 / 10		25.1 / 11.4		26.2 / 11.9	38.8 / 17.6	lb / kg
Noise				< 25			< 50	dBA
Cooling				Natural Convection				
Operating Temperature Range				-40 to +140 / -25 to +60[4] (-40°F / -40°C option)[5]				°F / °C
Protection Rating				NEMA 4X (Inverter with Safety Switch)				

(1) For other regional settings please contact SolarEdge support
(2) A higher current source may be used; the inverter will limit its input current to the values stated
(3) Revenue grade inverter P/N: SExxxxH-US000NNC2
(4) For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf
(5) -40 version P/N: SExxxxH-US000NNU4

RoHS

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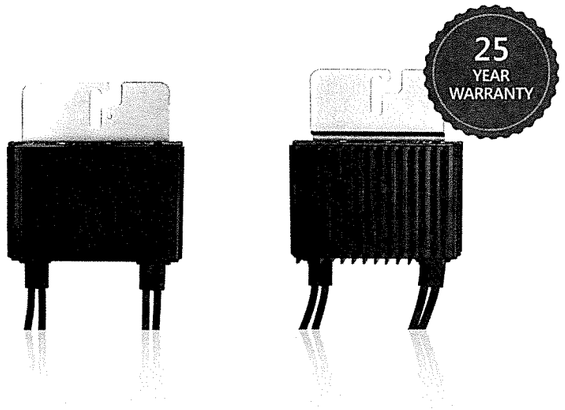
SHEET 11

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505



POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com

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Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT							
Rated Input DC Power[1]	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125[2]	83[2]	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11			10.1		14	Adc
Maximum DC Input Current	13.75			12.63		17.5	Adc
Maximum Efficiency	99.5						%
Weighted Efficiency	98.8					98.6	%
Overvoltage Category	II						
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)							
Maximum Output Current	15						Adc
Maximum Output Voltage	60				85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)							
Safety Output Voltage per Power Optimizer	1 ± 0.1						Vdc
STANDARD COMPLIANCE							
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3						
Safety	IEC62109-1 (class II safety), UL1741						
RoHS	Yes						
INSTALLATION SPECIFICATIONS							
Maximum Allowed System Voltage	1000						Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters						
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1			129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	630 / 1.4			750 / 1.7	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4[3]						
Output Wire Type / Connector	Double Insulated; MC4						
Output Wire Length	0.95 / 3.0		1.2 / 3.9				m / ft
Input Wire Length	0.16 / 0.52						m / ft
Operating Temperature Range	-40 - +85 / -40 - +185						°C / °F
Protection Rating	IP68 / NEMA6P						
Relative Humidity	0 - 100						%

[1] Rated STC power of the module. Module of up to +5% power tolerance allowed
[2] NEC 2017 requires max input voltage be not more than 80V
[3] For other connector types please contact SolarEdge

PV System Design Using a SolarEdge Inverter[4][5]		Single Phase HD-Wave	Single phase	Three Phase 208V	Three Phase 480V	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400	8		10	18	
	P405 / P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50[6]	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000[7]	12750[8]	W
Parallel Strings of Different Lengths or Orientations		Yes				

[4] For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
[5] It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string
[6] A string with more than 30 optimizers does not meet NEC rapid shutdown requirements, safety voltage will be above the 30V requirement
[7] For SE14.4KUS/SE43.2KUS: it is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W
[8] For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W

CE RoHS

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SHEET 12

Tech Brief

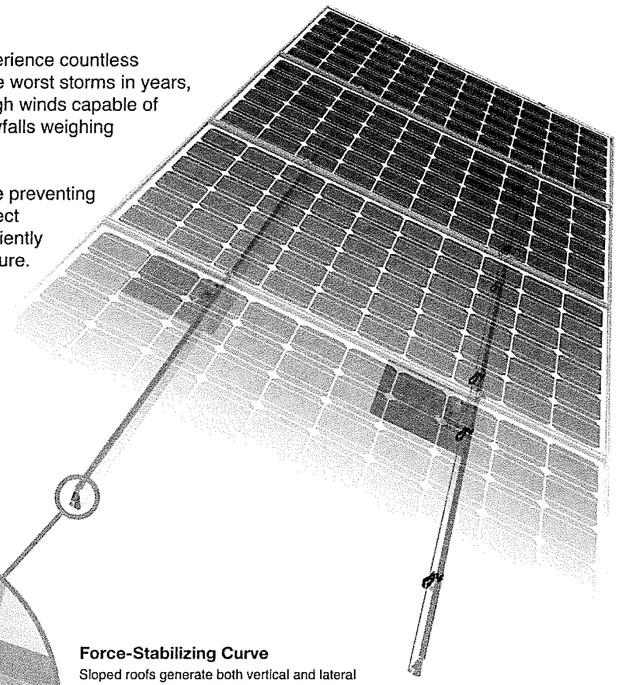
IRONRIDGE

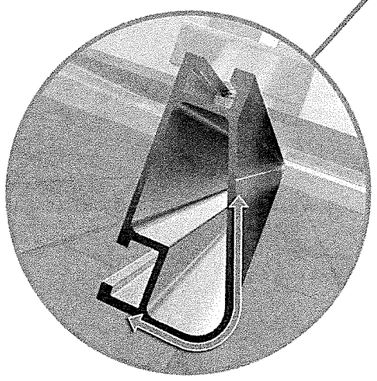
XR Rail Family

Solar Is Not Always Sunny

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

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





Force-Stabilizing Curve

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

Compatible with Flat & Pitched Roofs

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

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

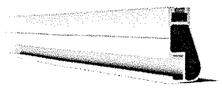
Corrosion-Resistant Materials

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

Tech Brief

XR Rail Family

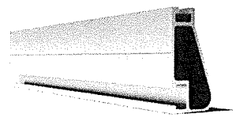
The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.



XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves 6 foot spans, while remaining light and economical.

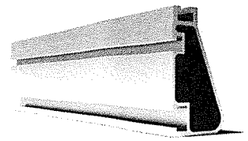
- 6' spanning capability
- Moderate load capability
- Clear anodized finish
- Internal splices available



XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 8 feet.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available



XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The following table was prepared in compliance with applicable engineering codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100	XR10		XR100		XR1000	
	120						
	140						
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						

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R-004.00
SHEET 13

Tech Brief

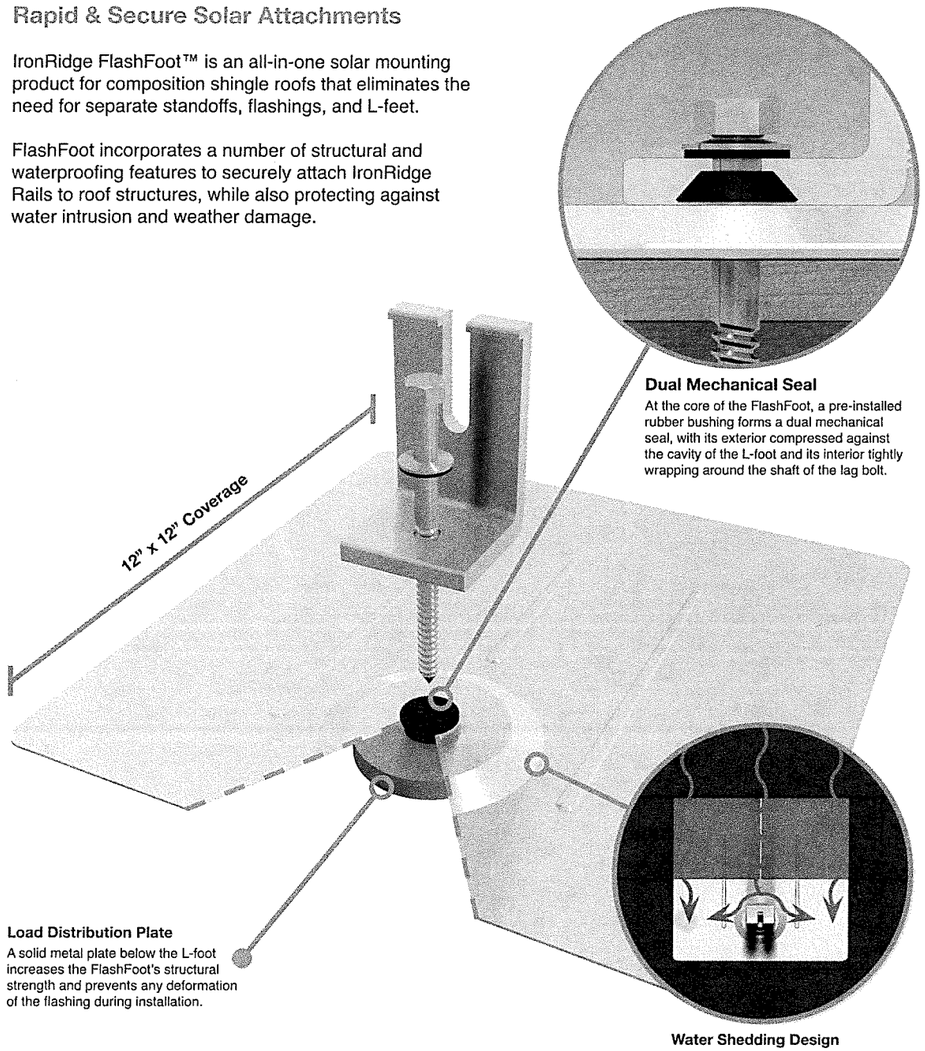
IRONRIDGE

FlashFoot™

Rapid & Secure Solar Attachments

IronRidge FlashFoot™ is an all-in-one solar mounting product for composition shingle roofs that eliminates the need for separate standoffs, flashings, and L-feet.

FlashFoot incorporates a number of structural and waterproofing features to securely attach IronRidge Rails to roof structures, while also protecting against water intrusion and weather damage.



Dual Mechanical Seal
At the core of the FlashFoot, a pre-installed rubber bushing forms a dual mechanical seal, with its exterior compressed against the cavity of the L-foot and its interior tightly wrapping around the shaft of the lag bolt.

Load Distribution Plate
A solid metal plate below the L-foot increases the FlashFoot's structural strength and prevents any deformation of the flashing during installation.

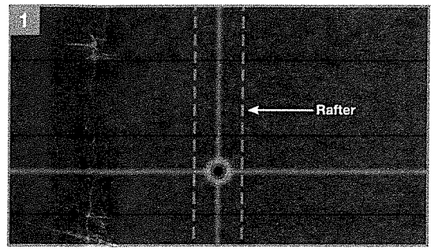
Water Shedding Design
A wide flashing layer combined with an elevated sealing platform maximizes the FlashFoot's water shedding ability.

Certified compliant with IBC and IRC.

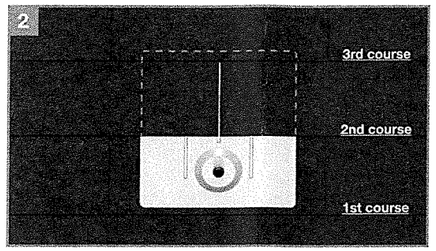
Tech Brief

Installation Overview

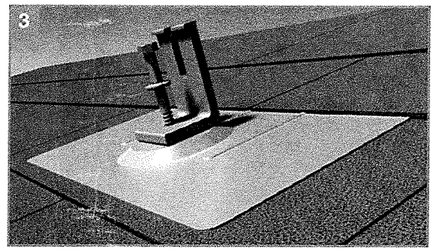
Tools Required: tape measure, chalk line, stud finder, roofing bar, caulking gun with an approved sealant, drill with 1/4" bit and 1/2" socket.



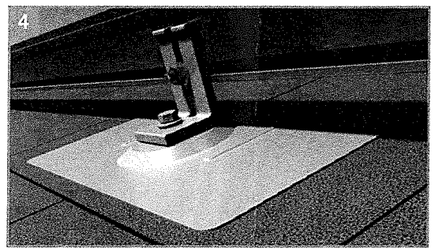
Locate rafters and snap vertical and horizontal lines to mark locations of flashings. Drill 1/4" pilot holes, then backfill with an approved sealant.



Slide flashing, between 1st and 2nd course, so the top is at least 3/4" above the edge of the 3rd course and the bottom is above the edge of the 1st course.



Line up pilot hole with flashing hole and insert lag bolt through bonded washer, L-Foot, and flashing. Tighten lag bolt until fully seated.



The FlashFoot is now installed and ready for IronRidge Rails. With provided L-foot fasteners pre-loaded into rails, drop rails into open L-foot slots.

Testing & Certification

FlashFoot is certified for compliance with the International Building Codes (IBC) & International Residential Codes (IRC) by IAPMO-ES. Mechanical testing conformed to the standard for Testing and Analysis of Joist Hangers and Miscellaneous Connectors (EC002-2011), and rain testing conformed to the Underwriters Laboratory Standard for Gas Vents (UL 441-96 Section 25).

Lag pull-out (withdrawal) capacities (lbs) in typical roof lumber (ASD)	Specific Gravity	5/16" Shaft, 3" Thread Depth
Douglas Fir, Larch	.50	798
Douglas Fir, South	.46	705
Engelmann Spruce, Lodgepole Pine (MSR 1650 f & higher)	.46	705
Hem, Fir	.43	636
Hem, Fir (North)	.46	705
Southern Pine	.55	921
Spruce, Pine, Fir	.42	615
Spruce, Pine, Fir (E of 2 million psi and higher grades of MSR and MEL)	.50	798

Sources: American Wood Council, NDS 2005, Table 11.2A, 11.3.2A; Notes: i) Thread must be embedded in a rafter or other structural roof member. ii) See IBC for required edge distances.

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SHEET 14

CITY OF GROSSE POINTE WOODS
BUILDING DEPARTMENT
MEMORANDUM

DATE: December 4, 2019

TO: Zoning Board of Appeals

FROM: Gene Tutag, Building Official

SUBJECT: 509 Robert John – Solar Panels

The attached application to install roof-top solar panels at 509 Robert John has been denied. The plans are in violation of Section 50-539(5) which states solar panels shall not be located within four feet of any peak, eave or valley of a roof to maintain adequate accessibility. The application indicates the panels located on the roof are less than 4 feet from the peak and eaves of the roof. The applicant is appealing the denial and is requesting relief from Section 50-539(5) to permit the installation of 17 solar panels on the south roof of 509 Robert John as shown in the attached plans. The installation is otherwise compliant with the City's Code.

The following standards are required to be met for the Board to grant a variance on this matter.

Sec. 50-149 – Variance standards

(a) *Dimensional or nonuse variances.* The zoning board of appeals may grant a dimensional or nonuse variance only upon a finding that compliance with the restrictions governing area, setbacks, frontage, height, bulk, density, or other dimensional provisions would create a practical difficulty. A finding of practical difficulty, based on competent, material, and substantial evidence on the record, shall require the petitioner to demonstrate that all of the following conditions are met:

(1) That strict compliance with the restrictions governing area, setbacks, frontage, height, bulk, density, and other similar items would unreasonably prevent the petitioner from using the property for a permitted purpose or would render conformity with said restrictions unnecessarily burdensome;

(2) That a variance would do substantial justice to the petitioner as well as to other petitioners in the zoning district; or whether a lesser relaxation of the restrictions would give substantial relief to the petitioner and be more consistent with justice to others (i.e., are there other more reasonable alternatives);

(3) That the plight of the petitioner is due to unique circumstances of the property;

(4) That the petitioner's problem is not self-created;

(5) That the spirit of this chapter will be observed, public safety and welfare secured, and substantial justice done.

The property at 509 Robert John has been inspected. It is a well-maintained single family home on the south side of Robert John. We have met with the petitioner and her contractor, there appears to be no manner in which to install a solar array on the roof without a variance, this is due to the fact that the home is a relatively small ranch style dwelling with a low pitched roof with many hips and valleys.

A subsequent inspection of the property was conducted with Public Safety Director Kosanke. The petitioner, Pamela J. Hartman, summarized reasons for the need of the solar panels and justification for the variance in the attached correspondence dated November 1, 2019. Section 50-539(5) Solar energy systems was adopted on December 17, 2012. Since that time regulations regarding solar arrays have been included in the Michigan Residential Code that are in conflict with our ordinance as the setback requirements are not as restrictive as required by our regulation. On a side note, a recommendation to amend our ordinance to be in sync with the State Code will be forthcoming.

The regulation of placement of rooftop solar panels is to allow fire personnel safe access to a roof in the event that the roof will require vertical venting techniques as a result of a fire occurring at the structure. The Fire Inspector and Director of Public Safety have reviewed this application for the variance and have no objections to the granting of the variance due to the size of this dwelling (copies attached).

It is recommended that the requested variance to allow the installation of photovoltaic roof top panels as shown on drawings prepared by Srienergy, sheets 1 thru 14 dated 08.12.2019, be granted as the standards of Section 50-149 have been met as follows:

(1) That strict compliance with the restrictions governing area, setbacks, frontage, height, bulk, density, and other similar items would unreasonably prevent the petitioner from using the property for a permitted purpose or would render conformity with said restrictions unnecessarily burdensome;
Alternative energy systems are permitted in the zoning district the property is located in. A functional solar array cannot be installed on the roof without relief from the ordinance.

(2) That a variance would do substantial justice to the petitioner as well as to other petitioners in the zoning district, or whether a lesser relaxation of the restrictions would give substantial relief to the petitioner and be more consistent with justice to others (i.e. are there other more reasonable alternatives);
No reasonable alternative to the petitioner installing a solar array on the property exists with the exception of a ground mounted array which is not permitted.

(3) That the plight of the petitioner is due to unique circumstances of the property;
The petitioner's home is rather small ranch with a number of hips and valleys which would preclude the installation of the solar panels without relief.

(4) That the petitioner's problem is not self-created;
Neither the orientation of the roof, nor the size of the roof or dwelling were explicitly established by the homeowner.

(5) That the spirit of this chapter will be observed, public safety and welfare secured, and substantial justice done.
The granting of the proposed variance will not in any way impair health, safety, comfort or morals, or in any other respect be contrary to the intent of this chapter. The granting of the proposed variance is in accordance with the intent of the zoning code.

The following conditions are recommended:

1. Work to commence within 6 months and be completed in a year.
2. The board's decision is not precedent setting.

REVIEWED FOR COUNCIL/ZONING OF APPEALS CONSIDERATION:

Dec 19, 2019

BRUCE SMITH **DATE**
City Administrator

CITY OF GROSSE POINTE WOODS
DEPARTMENT OF PUBLIC SAFETY

Date: December 19th, 2019

To: Bruce Smith, City Administrator

From: John G. Kosanke, Director of Public Safety

Subject: Proposed Solar Panel Variance- 509 Robert John

The resident of 509 Robert John is requesting a variance to the current Solar Panel ordinance. I have reviewed the Building Permit Application and recommend granting the variance for the placement of solar panels.

I need to be clear that increased fire damage could occur, if firefighters are not able to access the roof in the proper location for ventilation purposes. The purpose of ventilation is to release the hot smoke and gases from an interior fire. This allows firefighters to work more safely in hot and smoke-filled environments.

The solar panels will also prevent firefighters from being able to place roof ladders in certain areas. Firefighters rely on roof ladders to make it safe to move up and down on a roof and support them during roof operations. The contractor assured me that the rear solar panels will not be placed right up to the ridge line of the house. Space will be left in order to allow firefighters to position a roof ladder on the north side of the residence.

The contractor (Prasad Gullapalli) will also submit a modified plan for the panels at the southwest area of the roof. Currently the plans show the panels being installed at the eave line. The contractor will try to move the panels as far up as possible in order to give firefighters room to work.

The contractor will provide training to the Public Safety Department to educate our personnel on how to safely disconnect the power and work around the panels.

This recommendation does not set a precedent and any further solar panel variances will have to be reviewed and approved from the Public Safety Department based on the architecture of the residence and design of the solar panel project.

AFFIDAVIT OF LEGAL PUBLICATION

Grosse Pointe News
16980 Kercheval Avenue
Grosse Pointe, Michigan 48230
(313) 882-3500

COUNTY OF WAYNE
STATE OF MICHIGAN, SS.

John Minnis
being duly sworn deposes and says that attached advertisement of

City of Grosse Pointe Woods
was duly published in accordance with instructions, in the GROSSE POINTE NEWS on the following date:

December 19, 2019

#3 GPW 12/19 ZBA 1-6 HARTMAN

City of Grosse Pointe Woods, Michigan

NOTICE IS HEREBY GIVEN that the City Council, meeting as Zoning Board of Appeals under the provisions of Michigan Zoning Enabling Act, PA 110 of 2006, MCL 125.3101 et seq, will meet in the Council-Court Room of the Municipal Building, 20025 Mack Plaza, on Monday, January 6, 2020, at 7:05 p.m. to hear the appeal of Pamela J. Hartmann, 509 Robert John Rd., Grosse Pointe Woods, MI, who is appealing the denial of the Building Official to issue a building permit due to noncompliance with Sec. 50-539(5) Solar Energy Systems of the 2017 City Code of the City of Grosse Pointe Woods, accessibility. A dimensional variance is therefore required.

The public hearing materials are available for public inspection at the Municipal Building, 20025 Mack Plaza, between 8:30 a.m. and 5:00 p.m., Monday through Friday. All interested persons are invited to attend and will be given opportunity for public comment. The public may appear in person or be represented by counsel. Written comments will be received in the City Clerk's office, up to the close of business preceding the hearing. A group spokesperson is encouraged on agenda items concerning organized groups. Individuals with disabilities requiring auxiliary aids or services at the meeting should contact the Grosse Pointe Woods Clerk's Office at 313 343-2440 seven days prior to the meeting.

Lisa Kay Hathaway
City Clerk

G.P.N.:12/19/19

nd that he is the Publisher of said

h day of December A.D., 2019

December 19, 2019

Notary Public

Barbara Vethacke
Notary Public of Michigan/
Macomb County
Expires 04/26/2024
Acting in the County of Wayne

cc: Dir. of Public Services
City Clerk File

AFFIDAVIT OF PROPERTY OWNERS NOTIFIED

Re: 509 Robert John Rd.
Pamela Hartmann

State of Michigan)
) ss.
County of Wayne)

I HEREBY CERTIFY that the notice of Hearing was duly mailed First Class Mail on 12/20/19 to the following property owners within a 300 foot radius of the above property in accordance with the provisions of the 2017 City Code of Grosse Pointe Woods. A Hearing fee of $375.00 has been received with receipt # 370076.

Lisa Kay Hathaway, CMMC/MMC

City Clerk

See attached document for complete list.

City of Grosse Pointe Woods, Michigan

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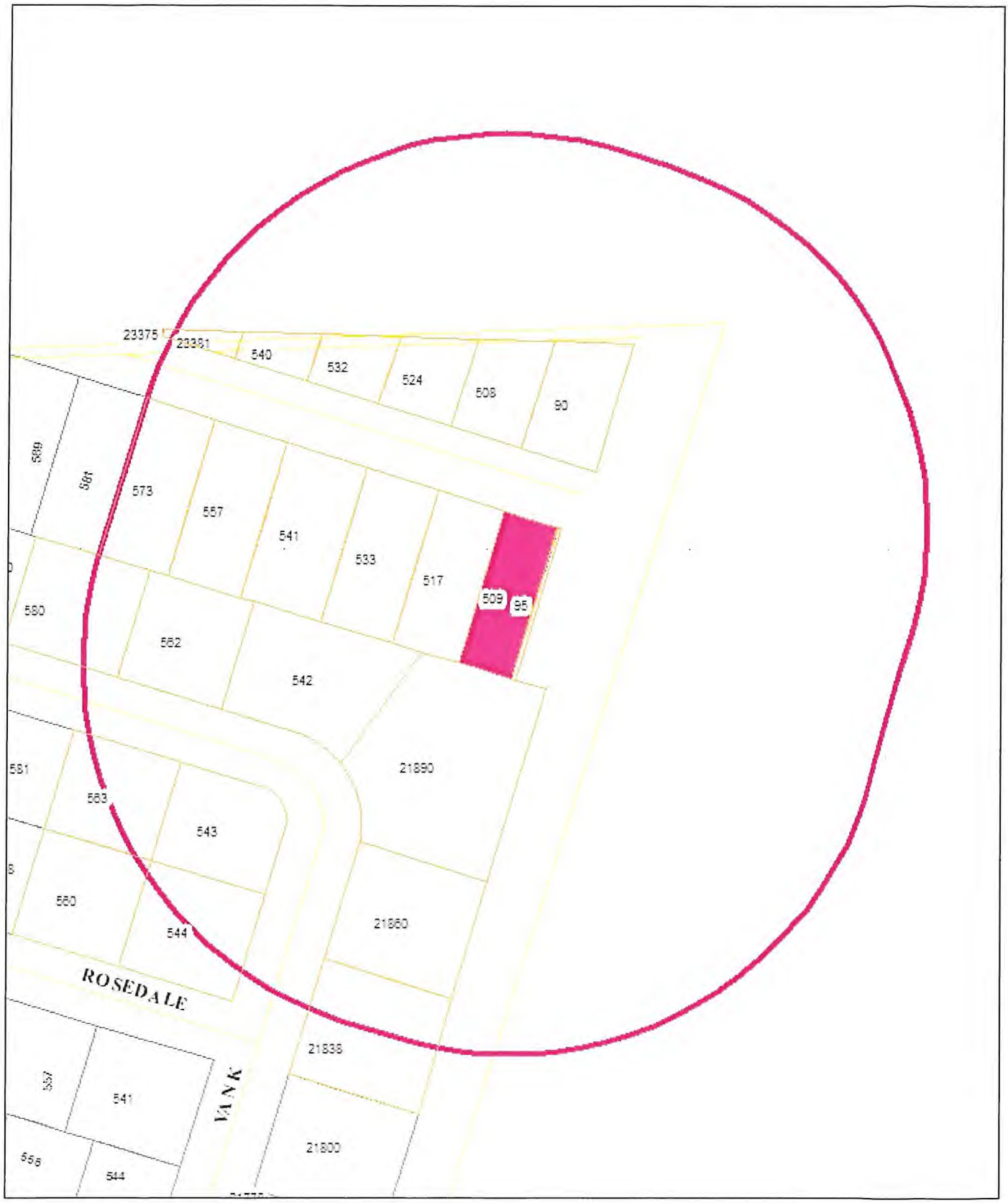
Lisa Kay Hathaway
City Clerk

905 Robert John - 300' Radius

ownersname	ownersna_1	ownersname2	ownerstree	ownercity	ownerstate	ownerzipco	propertyst
BRETT, MARILYN E		MARILYN E BRETT	23381 ROBERT JOHN RD	SAINT CLAIR SHORES	MI	48080	23381 ROBERT JOHN RD
TATTARIAN MATT		MATT TATTARIAN	540 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	540 ROBERT JOHN RD
KERN MICHAEL		MICHAEL KERN	532 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	532 ROBERT JOHN RD
PRESENT JOYCE A		JOYCE A PRESENT	524 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	524 ROBERT JOHN RD
PAPUGA JEREMY & SHIRLEY		JEREMY & SHIRLEY PAPUGA	508 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	508 ROBERT JOHN RD
SULOLLI SADIJE		SADIJE SULOLLI	90 CRESTWOOD DR	GROSSE POINTE SHORES	MI	48236	90 CRESTWOOD DR
MOORE FREDERIC W	MOORE EMILY E	FREDERIC & EMILY MOORE	573 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	573 ROBERT JOHN RD
TZETZO CHRISTOPHER O & KATHERINE R		CHRISTOPHER & KATHERINE TZETZO	557 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	557 ROBERT JOHN RD
SECCO LISA		LISA SECCO	541 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	541 ROBERT JOHN RD
HALLMANN SHIRLEY J		SHIRLEY J HALLMANN	533 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	533 ROBERT JOHN RD
JOSEFIAK AMANDA C & SNYDER MICHAEL		AMANDA JOSEFIAK & MICHAEL SNYDER	517 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	517 ROBERT JOHN RD
HARTMANN, PAMELA		PAMELA HARTMANN	509 ROBERT JOHN RD	GROSSE POINTE WOODS	MI	48236	509 ROBERT JOHN RD
MALENDOWSKI, JANETTE E		JANNETTE E MALENDOWSKI	580 N ROSEDALE CT	GROSSE POINTE WOODS	MI	48236	580 N ROSEDALE CT
BUCKLER DAVID	BUCKLER SUSAN	DAVID & SUSAN BUCKLER	562 N ROSEDALE CT	GROSSE POINTE WOODS	MI	48236	562 N ROSEDALE CT
GUDENAU JAMES M	GUDENAU ALLISON M	JAMES & ALLISON GUDENAU	542 N ROSEDALE CT	GROSSE POINTE WOODS	MI	48236	542 N ROSEDALE CT
HAGE PHILIP J	HAGE MARTHA B	PHILIP AND MARTHA HAGE	21890 VAN K DR	GROSSE POINTE WOODS	MI	48236	21890 VAN K DR
SANTALUCIA JOHN JR	SANTALUCIA HOLLY	JOHN & HOLLY SANTALUCIA	563 N ROSEDALE CT	GROSSE POINTE WOODS	MI	48236	563 N ROSEDALE CT
ANDARY, FREDERICK		FREDERICK ANDARY	543 N ROSEDALE CT	GROSSE POINTE WOODS	MI	48236	543 N ROSEDALE CT
JANKOWSKI, MATTHEW - MICHAUX, ERIN		MATTHEW JANKOWSKI & ERIN MICHAUX	560 S ROSEDALE CT	GROSSE POINTE WOODS	MI	48236	560 S ROSEDALE CT
STEPULLA JOSEPH F		JOSEPH F STEPULLA	21860 VAN K DR	GROSSE POINTE WOODS	MI	48236	21860 VAN K DR
KYPROS, GEORGE		GEORGE KYPROS	544 S ROSEDALE CT	GROSSE POINTE WOODS	MI	48236	544 S ROSEDALE CT
WILLIAMS JOHN M		JOHN M WILLIAMS	171 CLOVERLY RD	GROSSE POINTE FARMS	MI	48236	21838 VAN K DR
OCCUPANT		OCCUPANT	21838 VAN K DR	GROSSE POINTE WOODS	MI	48236	21838 VAN K DR
SPADA ROBERT		ROBERT SPADA	95 CRESTWOOD DR	GROSSE POINTE SHORES	MI	48236	95 CRESTWOOD DR
		ROSALEEN BECIGNEUL	23375 ROBERT JOHN RD	SAINT CLAIR SHORES	MI	48080	
		MICHAEL G KELLY	23389 ROBERT JOHN RD	SAINT CLAIR SHORES	MI	48080	
		MICHAEL KERN	532 ROBERT JOHN RD	SAINT CLAIR SHORES	MI	48080	
		JEREMY & SHIRLEY PAPUGA	508 ROBERT JOHN RD	SAINT CLAIR SHORES	MI	48080	
		JOYCE A PRESENT	524 ROBERT JOHN RD	SAINT CLAIR SHORES	MI	48080	
		CYNTHIA & ROSS MARKESINO	23436 COLONIAL CT S.	SAINT CLAIR SHORES	MI	48080	
		L.P. & LOUISE IACOBELL	23430 COLONIAL CT S.	SAINT CLAIR SHORES	MI	48080	
		OCCUPANT	70 CRESTWOOD DR	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	80 CRESTWOOD DR	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	75 CRESTWOOD DR	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	85 CRESTWOOD DR	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	35 SHORECREST CR	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	85 S. DUVAL RD	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	60 N. DUVAL RD	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	61 N. DUVAL RD	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	70 N. DUVAL RD	GROSSE POINTE SHORES	MI	48236	
		OCCUPANT	80 N. DUVAL RD	GROSSE POINTE SHORES	MI	48236	



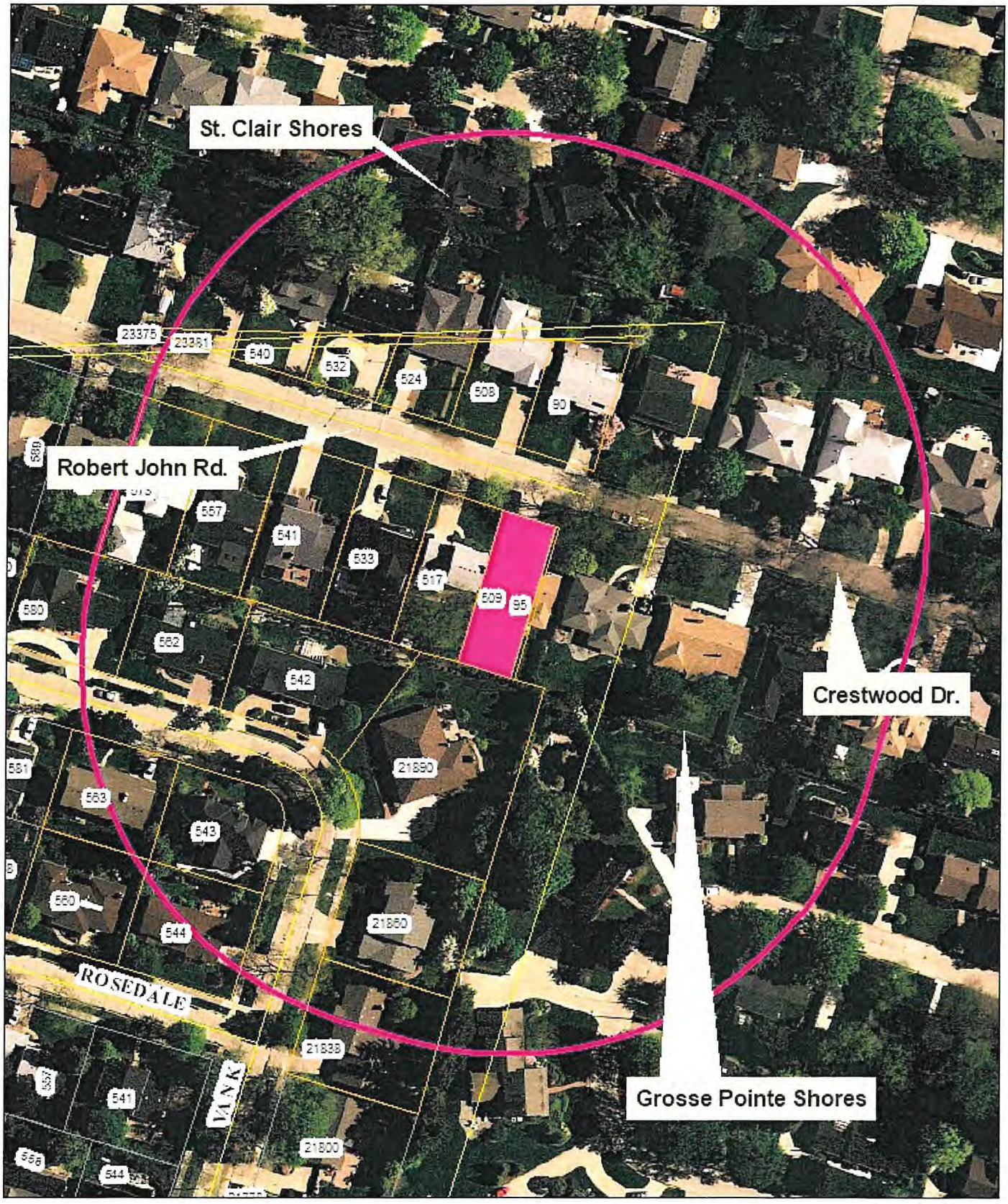
CITY OF GROSSE POINTE WOODS
MICHIGAN

INFORMATION TECHNOLOGY DEPARTMENT
Geographic Information Systems (GIS) Division

Subject: 509 Robert John Rd.

Date: 11/27/19

N W E S



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