



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Karen Burditt
Chair

Date: November 21, 2025

MEMORANDUM

TO: Rabbiah Sabbakhan
Department of Permitting Services

FROM: Laura DiPasquale
Historic Preservation Section
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit #1139693 – Solar panel installation

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **approved** by HPC staff.

The HPC staff has reviewed and stamped the attached submission materials.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Peter Gardner; Margo Ricks, Agent
Address: 14 W Kirke Street, Chevy Chase

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete, the applicant will contact Laura DiPasquale at 301-495-2167 or laura.dipasquale@montgomeryplanning.org to schedule a follow-up site visit.



Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

Description of Work Proposed: Please give an overview of the work to be undertaken:

REVIEWED
By Laura DIPasquale at 1:42 pm, Nov 21, 2025

APPROVED
Montgomery County
Historic Preservation Commission


Work Item 1: _____

Description of Current Condition:

Proposed Work:

REVIEWED

By Laura DiPasquale at 1:42 pm, Nov 21, 2025

APPROVED

Montgomery County

Historic Preservation Commission

Karen Benoit

Description of Current Condition:

Pro

Work Item 3: _____

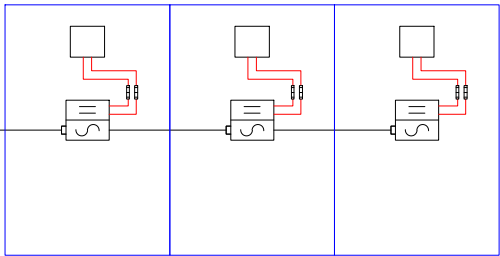
Description of Current Condition:

Proposed Work:

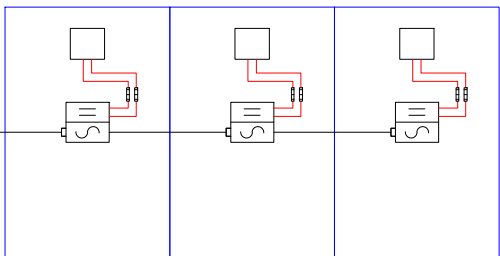
ENPHASE Q.CABLE (SEE SHEET A3)

#6 BARE CU WIRE
PROTECTED PER NEC 250.64(B)
OR
#10 AWG Cu WIRE
PER NEC 250.120(C)

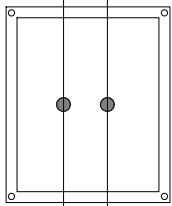
PV MODULES W/ MICROINVERTERS



... 06 Modules
(STRING A)

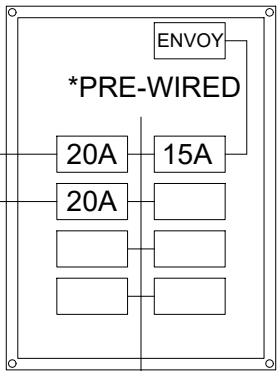


... 07 Modules
(STRING B)

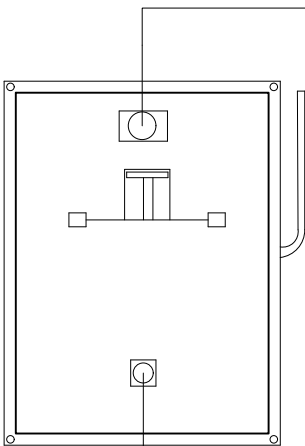


JUNCTION
BOX
NEMA 3R (N)

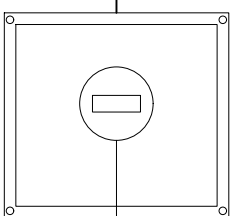
ENPHASE IQ
COMBINER
BOX 5/5C (N)



30A NON-FUSED
AC DISCONNECT (N)



240/120V, 200A
UTILITY METER (E)

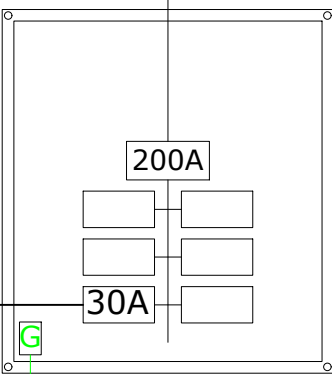


EXISTING
UNDERGROUND
UTILITY SERVICE

EXTERIOR
WALL

INTERIOR
WALL

200A PANEL
(E)



SEE BONDING &
GROUNDING NOTES
ON SHEET E2
EXISTING
#4 AWG Cu
GEC

(N) (2) #10 AWG THWN-Cu-RED
(2) #10 AWG THWN-Cu-BLACK
EGC #10 AWG THWN-Cu-GREEN
IN (1) 1/2" OR LARGER
PVC OR EMT CONDUIT

MAX STRING OUTPUT CURRENT: 11.06A
OCPD RATING: 20A

(N) (3) #8 AWG THWN-Cu
(1) #10 AWG EGC THWN-Cu
IN (1) 3/4" OR LARGER
PVC OR EMT CONDUIT

MAX OUTPUT CURRENT: 20.54A

(N) (3) #8 AWG THWN-Cu
(1) #10 AWG EGC THWN-Cu
IN (1) 3/4" OR LARGER
PVC OR EMT CONDUIT

MAX OUTPUT CURRENT: 20.54A
OCPD RATING: 30A

(E) (3) #2/0 AWG THWN-Cu
IN (1) 1 1/2" OR LARGER
PVC OR EMT CONDUIT

MAX OUTPUT CURRENT: 200A
OCPD RATING: 200A

LEGEND

N NEW
E EXISTING
CT WIRE

SYSTEM DETAILS

PV Module Type	ZNShine ZXM7-SH108-405 OR EQUIVALENT
PV Module Quantity	13
Solar PV DC System Rating (kWdc)	5.265
Solar PV AC System Rating (kWac)	4.47525
Inverter Type	ENPHASE IQ8HC-72-M-DOM-US
Inverter Quantity	13
Battery Type	N/A
Battery Quantity	0

INTERCONNECTION NOTES:

LOAD SIDE TAP VIA 30A TWO-POLE BREAKER ON
OPPOSITE END OF BUSBAR IN 200A INTERIOR PANEL

BUSBAR RATING = 200A
ALLOWABLE SOLAR BACK-FEED = 30A
ACTUAL SOLAR BACK-FEED = 30A
IN COMPLIANCE WITH NEC 705.12(B)(3)(2):



MardiEngineering.com

amardi@mardiengineering.com

(772) 643-3340



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY
AMJAD MARDI, A DULY LICENSED PROFESSIONAL
ENGINEER IN THE STATE OF MARYLAND (LICENSE NO.
MD-64690), AND EXPIRATION DATE 04-09-2027.
ITEM HAS BEEN DIGITALLY SIGNED AND SEALED ON THE
DATE BELOW THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT
CONSIDERED SIGNED AND
SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY
ELECTRONIC COPIES.

PROJECT NAME:

PETER GARDNER
RESIDENCE

PROJECT ADDRESS:

14 W KIRKE ST CHEVY
CHASE MD 20815

Date:	SEE P.E. STAMP
Designed By:	AKM
Reviewed by:	AKM
REVISION HISTORY	

DRAWING SCALE:

N.T.S.

SHEET NAME:

ELECTRICAL RISER
DIAGRAM

SHEET NUMBER:

E1

REVIEWED

By Laura DiPasquale at 1:43 pm, Nov 21, 2025

APPROVED

Montgomery County
Historic Preservation Commission

Karen Buelit

EQUIPMENT NOTES:

1. NEW EQUIPMENT CLEARANCES: 36" (FRONT), 30" (WORK AROUND), 6 FT (OH) (NEC 110.26)
2. NEW EQUIPMENT AND COMPONENTS SHALL BE CERTIFIED BY A NATIONAL LABORATORY.
3. LABEL READING, "WARNING: THIS EQUIPMENT FED BY MULTIPLE SOURCES" SHALL BE PROPERLY AFFIXED.
4. EQUIPMENT SHALL BE INSTALLED AND USED ACCORDING TO INSTALLATION MANUAL OR SPECIFICATIONS (NEC 110.3(B)), AND SHALL BE RATED FOR OUTDOOR USE IF INSTALLED OUTSIDE (NEMA 3-6P, TABLE 110.28)

GENERAL NOTES:

1. INSTALLER SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE ELECTRICAL SYSTEM PURSUANT TO THE PLANS IN ACCORDANCE WITH THE FBC, NEC, FHPA, OSHA AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. ELECTRICAL WORK AND RESPECTIVE PREPARATION WORK SHALL BE PERFORMED BY PROPERLY LICENSED SUBCONTRACTORS.
3. MATERIALS SHALL BE INCLUDED IN THE PLANS AND ANY NECESSARY EQUIVALENT SUBSTITUTIONS SHALL BE APPROVED BY THE EOR.
4. CONDUCTORS SHALL BE COPPER OF 98% CONDUCTIVITY. CABLES SHALL BE 600V-RATED, SINGLE-CONDUCTOR IN THERMOPLASTIC INSULATION SUITABLE FOR CONTINUOUS OPERATION AT 75° C. CONDUCTORS AND CABLE SHALL BE NEC-CLASS TYPE THW OR THWN, EXCEPT AWG SIZE #10 AND SMALLER MAY BE TW. INSULATION SHALL BE COLOR-CODED #6 AND SMALLER. COLOR-CODED TAPE SHALL BE USED ON #4 AND LARGER.
5. CONDUCTORS SHALL BE RUN IN CONDUIT WHEN NOT BENEATH MODULES. EXPOSED CONDUIT IS PERMITTED IN GARAGES OR OTHER AREAS ACCEPTABLE TO OWNER AND AS APPROVED BY EOR. CONDUIT SHALL BE PAINTED TO MATCH SURFACE AS REQUIRED BY OWNER.
6. FLEXIBLE CONDUIT SHALL BE USED FOR VIBRATING EQUIPMENT AND RECESSED, MOUNTED FIXTURES AND SHALL BE SEALED WITH LIQUID TIGHT IF EXPOSED TO WEATHER WITH GREEN BOND CONDUCTOR INSTALLED TOGETHER AT CIRCUIT CONDUCTORS. GALVANIZED EMT WITH SET-SCREW MAY BE USED FOR INTERIOR LOCATIONS. PVC WITH GREEN BOND CONDUCTOR (NEC 250) MAY BE USED IN UG LOCATIONS.
7. EXISTING AND CONNECTED ELECTRICAL PANELS, CIRCUIT BREAKERS AND SAFETY SWITCH SHALL BE SQUARE D OR EQUIV. LOAD SIDE SOLAR PV-SYSTEM CIRCUIT BREAKERS SHALL BE INSTALLED AT OPPOSITE END OF BUSBAR.
8.
 - 8.1. FOR PIERCING TAPS, THE TOTAL AREA OF ALL CONDUCTORS, SPLICES, AND TAPS INSTALLED AT ANY CROSS SECTION OF THE WIRING SPACE SHALL NOT EXCEED 75 PERCENT OF THE CROSS-SECTIONAL AREA OF THAT SPACE (NEC 312.8.A).
 - 8.2. SERVICE-ENTRANCE CONDUCTORS SHALL BE PERMITTED TO BE SPLICED OR TAPPED IN ACCORDANCE WITH NEC 110.14, 300.5(E), 300.13, AND 300.15 (NEC 230.46).
 - 8.3. TAPPED ENCLOSURE SHALL BE LOCATED IN A READILY ACCESSIBLE LOCATION IN COMPLIANCE WITH NEC 230.70(A)(1).
 - 8.4. AC DISCONNECT SHALL BE READILY ACESIBLE, OUTSIDE AND NO MORE THAN 10 FT FROM TAPPED CONDUCTORS.
 - 8.5. PV AC DISCONNECT SHALL BE SERVICE ENTRANCE RATED (NEC 230.66), LOCKABLE (NEC 110.25) AND SHALL COMPLY WITH NEC 690.13(A-E).
 - 8.6. ALL FUSES SHALL BE (R) RATED AND SHALL HAVE APPROPRIATE REJECTION CLIPS
9. CIRCUIT BREAKER DIRECTORY SHALL BE AFFIXED TO PANEL.
10. HVAC CONDUCTORS, CIRCUIT BREAKERS AD FUSES SHALL BE REPLACED AS NECESSARY TO COMPLY WITH MANUFACTURER'S RECOMMENDED OVER-CURRENT PROTECTION AT NO UP-CHARGE. CONDUIT AND BREAKERS SHALL BE COORDINATED WITH THE EQPT. NAMEPLATE. OTHER CIRCUITS PULLING 208-240V SHALL BE INSPECTED FOR COMPLIANCE WITH CONDUCTOR AND OVER-CURRENT PROTECTION REQUIREMENTS. REPLACEMENT SHALL BE THE RESPONSIBILITY OF THE OWNER AND PERFORMED BEFORE CONTRACTOR PERFORMS INITIAL SYSTEM TESTING.

CONDUIT NOTES:

PVC SCH 40 OR SCH 80 MAY BE USED AS REQUIRED FOR ADDITIONAL SAFETY OR FOR RUNS ≤ 3 FT WITH UPSIZE ACCORDING TO FILL TABLE.

ELECTRICAL METALLIC TUBING (EMT) NEC Art. 358:

1. EMT SHALL BE FASTENED EVERY 10 FT & FROM BOX, FITTING, TERMINAL POINT.
2. BENDS BETWEEN PULL POINTS SHALL COMBINE ≤ 360°.
3. CONNECTORS SHALL BE CORROSION RESISTANT.
4. GASKETS SHALL BE WATERTIGHT.
5. COUPLINGS AND CONNECTORS SHALL BE RAIN-TIGHT OR RAIN-TIGHT/INSULATED.

NEC FILL TABLES

RIGID PVC CONDUIT TABLE: SCHEDULE 80 - C10 / 40 - C11

FLEXIBLE METALLIC CONDUIT - TABLE C3

LIQUIDTIGHT FLEXIBLE CONDUIT TABLE- METALLIC C7 / NON-METALLIC (FNMC-B) - C5

ELECTRICIAN NOTES:

1. CONFIRM GROUND CONDUCTOR TO ELECTRODE
2. CONFIRM BUSBAR RATINGS & FEEDERS. IF ACTUAL CONDITIONS DIFFER, NOTIFY EOR.
3. CONDUCTORS MAY BE COMBINED USING RATED JUNCTIONS BOXES/CONDUIT UP-SIZE.

EXPANSION NOTE: FITTINGS SHALL BE INSTALLED BETWEEN SECURELY-MOUNTED ELBOWS AND TERMINATION POINTS (NOT INCL. WYES). IF JOINT IS VERTICAL, OPEN-END SHALL BE SECURELY FASTENED IN DOWN POSITION W/ COUPLING INSTALLED CLOSE TO TOP OF RUN W/ BARREL ALSO DOWN AND LOWER END SECURED AT BOTTOM TO ALLOW UPWARD MOVEMENT. (SEC. 352.44 NEC)

BONDING & GROUNDING NOTE:

1. MODULES SHALL BE BONDED BY BONDING MID-CLAMPS ACCORDING TO INSTALLATION MANUAL. MODULES WHICH CAN NOT BE FULLY BONDED SHALL BE PROPERLY GROUND USING GROUNDING LUG WIRED DIRECTLY TO SYSTEM GROUND WIRE. ALTERNATIVES REQUIRE A CUSTOMIZED PLAN FROM EOR.
2. (2) ROD AND PIPE ELECTRODES REQUIRED. ROD AND PIPE ELECTRODES SHALL NOT BE LESS THAN 2.44 M (8 FT) IN LENGTH AND SHALL CONSIST OF THE FOLLOWING MATERIALS: COPPER, GALVANIZED STEEL, STAINLESS STEEL.
3. GROUNDING ELECTRODES OF PIPE OR CONDUIT SHALL NOT BE SMALLER THAN METRIC DESIGNATOR 21 (TRADE SIZE 3/4) AND, WHERE OF STEEL, SHALL HAVE THE OUTER SURFACE GALVANIZED OR OTHERWISE METAL-COATED FOR CORROSION PROTECTION.
4. ROD-TYPE GROUNDING ELECTRODES OF STAINLESS STEEL AND COPPER OR ZINC-COATED STEEL SHALL BE AT LEAST 15.87 MM (5/8 IN.) IN DIAMETER, UNLESS LISTED. (2014 NEC)
5. THE METAL WATER PIPING SYSTEM SHALL BE BONDED AS REQUIRED PER NEC 250.104
6. INTERSYSTEM BONDING REQUIRED PER NEC 250.94

SMOKE ALARM NOTES:

INTERCONNECTED SMOKE ALARMS SHALL BE INSTALLED THROUGHOUT THE DWELLING, INCLUDING IN ROOMS, ATTACHED GARAGES, AND AREAS IN WHICH ESS ARE INSTALLED IN COMPLIANCE WITH LOCAL BUILDING CODE. WHERE ESS ARE INSTALLED IN AN ATTACHED GARAGE OR AREA IN WHICH SMOKE ALARMS CANNOT BE INSTALLED IN ACCORDANCE WITH THEIR LISTING, AN INTERCONNECTED LISTED HEAT ALARM SHALL BE INSTALLED AND BE CONNECTED TO THE SMOKE ALARM SYSTEM REQUIRED BY THE LOCAL BUILDING CODE PER NFPA 855 EDITION 2020 15.9.2.

ESS NOTES:

ESS SHALL BE PROTECTED FROM IMPACT FROM VEHICLE DAMAGE.

Surge Protection Notes:

WHERE SERVICE EQUIPMENT IS REPLACED, A SURGE PROTECTION DEVICE SHALL BE INSTALLED IN ACCORDANCE WITH NEC 230.67 & 242.12

Temperature Adjusted Conductor Ampacity - Assuming 45 °C						
Conductor Size (AWG)	Ampacity at 75 °C	Temp. Adjusted Ampacity (0.82 Adjustment Factor at 45 °C)	Temp. Adjusted Ampacity (4-6 Current-Carrying Conductors - 0.80 Adjustment Factor)	Ampacity at 90 °C	Temp. Adjusted Ampacity (0.87 Adjustment Factor at 45 °C)	Temp. Adjusted Ampacity (4-6 Current-Carrying Conductors - 0.80 Adjustment Factor)
14	20	16.4	13.12	25	21.75	17.4
12	25	20.5	16.4	30	26.1	20.88
10	35	28.7	22.96	40	34.8	27.90
8	50	41	32.8	55	47.9	38.3
6	65	53.3	42.64	75	65.3	52.2
4	85	69.7	55.76	95	82.7	66.2
3	100	82	65.6	110	95.7	76.6
2	115	94.3	75.44	130	113.1	90.5
1	130	106.6	85.28	150	130.5	104.4
1/0	150	123	98.4	170	147.9	118.3
2/0	175	143.5	114.8	195	169.7	135.8
3/0	200	164	131.2	225	195.8	156.6
4/0	230	188.6	150.88	260	226.2	181.0
Site Condition Assumptions						
Interconnection Frequency				60 Hz		
Voltage - Line 1 to Neutral				120 V		
Voltage - Line 2 to Neutral				120 V		
Voltage Line 1 to Line 2				240 V		
Environmental Assumptions						
Minimum Annual Temperature				10 °C		
Maximum Annual Temperature				45 °C		
PV Module Specifications						
Manufacturer				ZNShine		
Model Number				ZXM7-SH108-405		
Temperature Coefficient - Voltage				-0.29% / oC		
Temperature Coefficient - Current				0.05% / oC		
Temperature Coefficient - Power				-0.35% / oC		
Specifications at STC						
Maximum Power - Pmp				405 W		
Maximum Power Voltage - Vmp				31.1 V		
Maximum Power Current - Imp				13.03 A		
Open Circuit Voltage - Voc				37.3 V		
Short Circuit Current - Isc				13.77 A		
Temperature Adjusted						
Vmp Min				26.14 V		
Voc Max				38.92 V		
Inverter Specifications						
Manufacturer				ENPHASE		
Model Number				IQ8HC-72-M-DOM-US		
MPPT Voltage Range				29.5-45 V		
Operating Voltage Range				25-58 V		
Maximum Input Voltage				60 V		
Max Continuous AC Output Power				380 VA		
Max Continuous AC Output Current				1.58 A		
Conduit Fill Calculations for Raceways Containing More than 3 Current-Carrying Conductors						
Current-Carrying Conductor Sizes (AWG)				#10		
Conductor Cross Sectional Area (in2)				0.02036		
Number of Current-Carrying Conductors				4		
Total Cross Sectional Area of Conductors (in2)				0.081433223		
Total Conduit Size (in)				0.5		
Total Cross Area of Conduit (in2)				0.285		
Conduit Fill Percentage (%)				28.57		
Max Voltage Drop Percentage Calculation (%)						
From Rooftop Junction Box to Combiner Conductor Size (AWG)				#10		
Max String OCPD Rating (Amps)				20		
From Combiner Box to ACD & ACD to Point of Interconnection (AWG)				#8		
Max PV OCPD Rating (Amps)				30		
Max Circuit Distance (ft)				30		
Voltage Drop Percentage From Rooftop Junction Box to Combiner Box (%)				0.54		
Voltage Drop Percentage From Combiner Box to ACD & ACD to Point of Interconnection (%)				0.5265		
				APPROVED Montgomery County Historic Preservation Comm Karen B...		

REVIEWED

By Laura DiPasquale at 1:43 pm, Nov 21, 2025

APPROVED
Montgomery County
Historic Preservation Commission

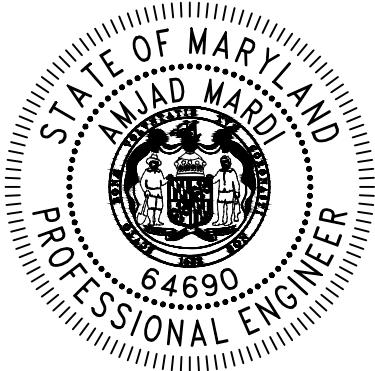
Karen Boubert



MardiEngineering.com

amardi@mardiengineering.com

(772) 643-3340



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY AMJAD MARDI, A DULY LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND (LICENSE NO. MD-64690), AND EXPIRATION DATE 04-09-2027. ITEM HAS BEEN DIGITALLY SIGNED AND SEALED ON THE DATE BELOW THE SEAL.

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PROJECT NAME:

PETER GARDNER
RESIDENCE

PROJECT ADDRESS:

14 W KIRKE ST CHEVY
CHASE MD 20815

Date:	SEE P.E. STAMP
Designed By:	AKM
Reviewed by:	AKM
REVISION HISTORY	

DRAWING SCALE:

N.T.S.

SHEET NAME:

ELECTRICAL NOTES &
EQUIPMENT SPECIFICATIONS

SHEET NUMBER:

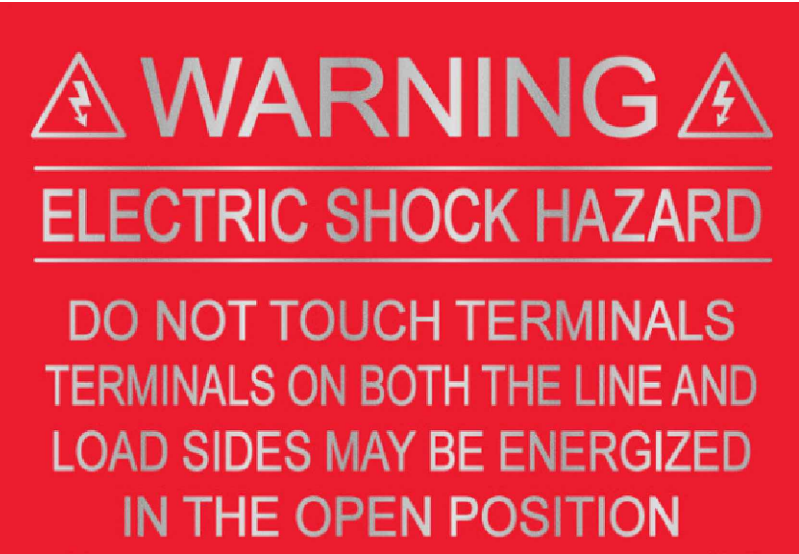
E2



NEC 690.13(B) label is required at each PV system disconnecting means. This will include combiner boxes, AC/DC switches & AC Disconnects.



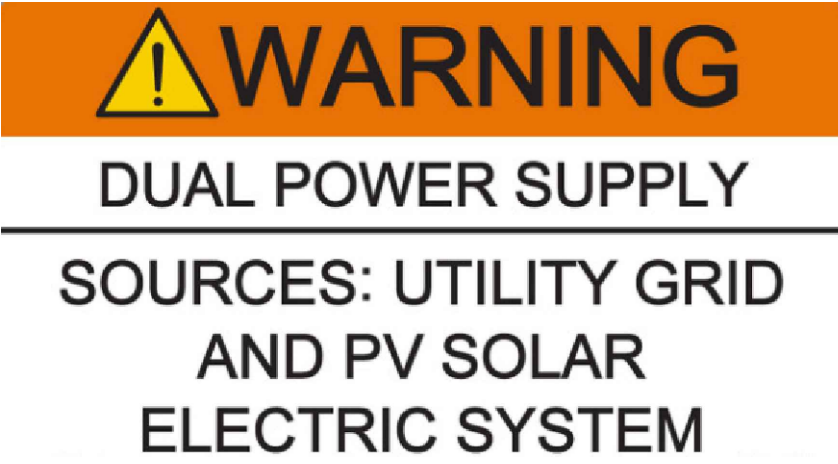
NEC 690.31(D)(2) label is required at all areas where PV system conductors are enclosed including junction boxes, raceways, conduit bodies, pull boxes, etc.



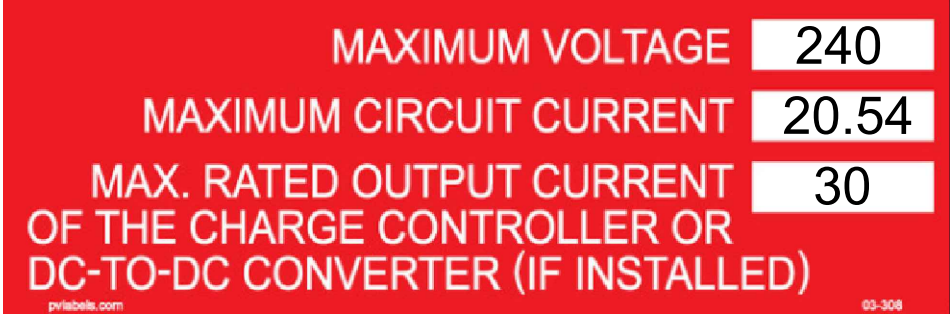
NEC 690.13(B) label is an optional addition to the previous label on systems where the line and load sides of the disconnect may be energized. This label is not required but “shall be permitted” by the NEC.



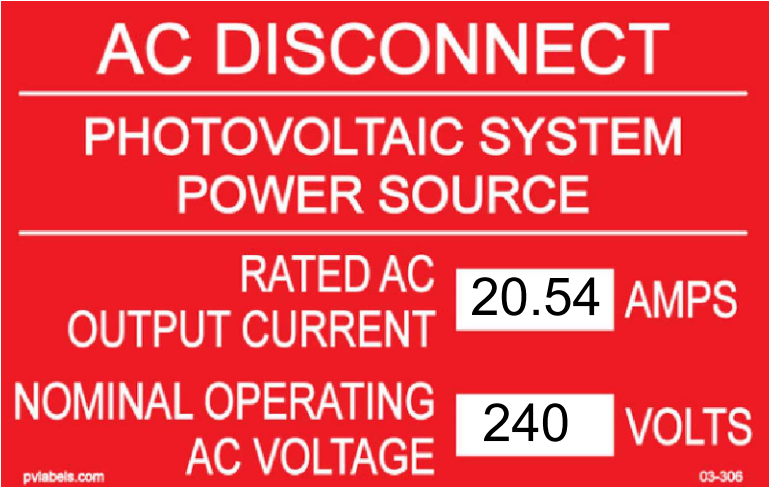
NEC 690.56(C)(2) label is required at the rapid shut down switch for the system. Typically, that is going to be the AC disconnect.



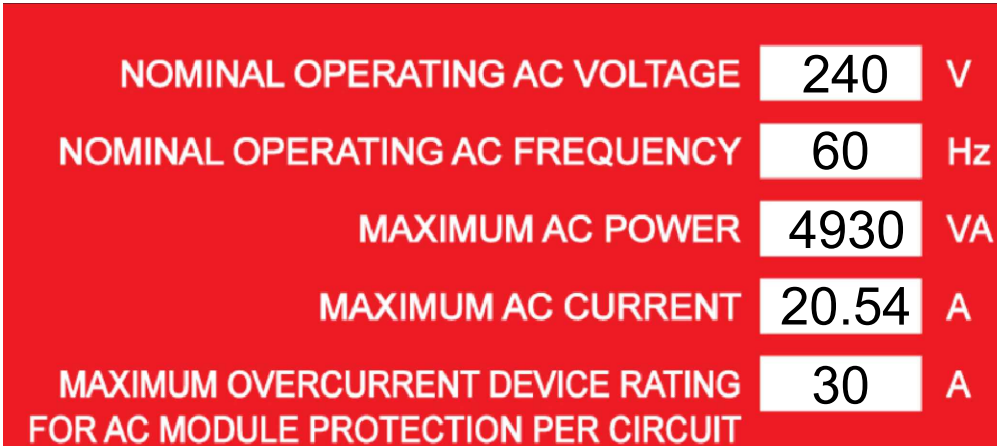
NEC 705.12(C) label is required at the main service equipment.



NEC 690.54 label is required at the point of interconnection disconnecting means, i.e. the AC disconnect.



NEC 690.54 label is required at the AC disconnecting means



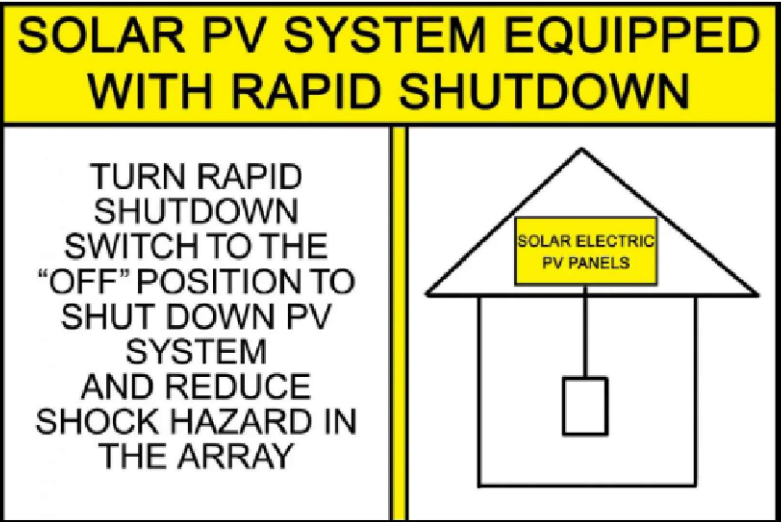
NEC 690.54 label is required at the AC disconnecting means



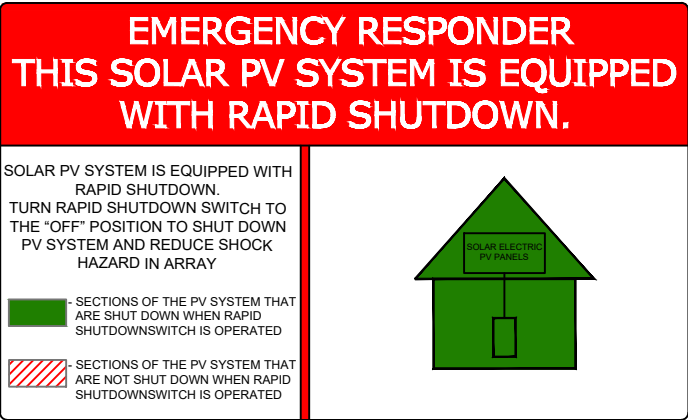
NEC 690.56(B) or NEC 705.10 label is required at every power source disconnecting means denoting location(s) of other power source(s) disconnecting means.



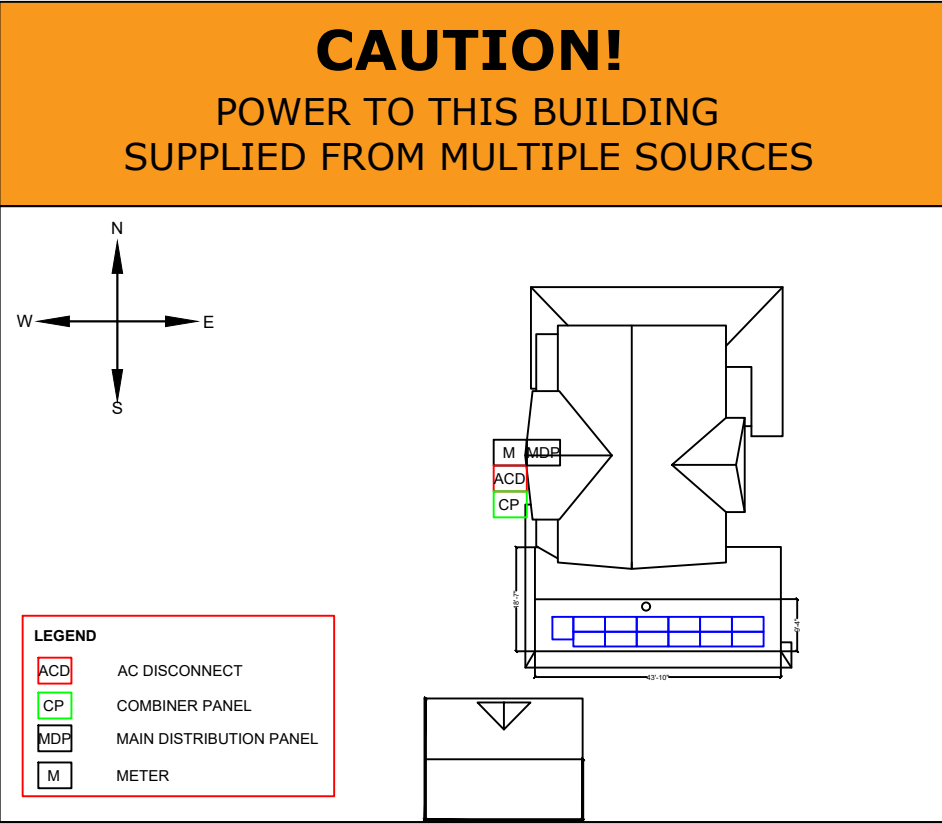
NEC 705.12(C) label is required at the main service equipment.



NEC 690.56(C) label is required at the service disconnecting means of the property.



NFPA 1.11.12.2.1.1 LABEL IS REQUIRED AT AC DISCONNECTING MEANS



705.10 LABEL LOCATION:
MAIN SERVICE DISCONNECT / MAIN DISTRIBUTION PANEL,
PV DISCONNECT LOCATED NO MORE THAN 3FT (1M)
FROM THE SERVICE DISCONNECT
(TEXT HEIGHT SHOULD BE A MINIMUM OF 3/8")



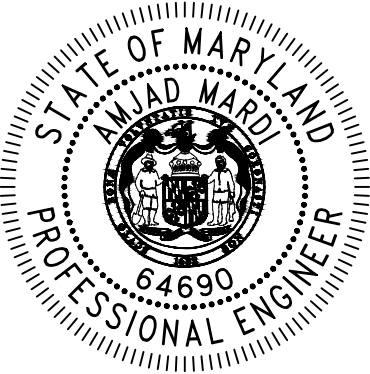
NFPA - 1, 11.12.2.1.5:
THIS LABEL IS REQUIRED AT MAIN DISCONNECT

REVIEWED

By Laura DiPasquale at 1:43 pm, Nov 21, 2025



MardiEngineering.com
amardi@mardiengineering.com
(772) 643-3340



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PROJECT NAME:
PETER GARDNER RESIDENCE

PROJECT ADDRESS:
14 W KIRKE ST CHEVY CHASE MD 20815

Date:	SEE P.E. STAMP
Designed By:	AKM
Reviewed by:	AKM
REVISION HISTORY	

DRAWING SCALE:
N.T.S.

SHEET NAME:
SOLAR PV LABELS

SHEET NUMBER:
E3

SCOPE of WORK	
This set of plans details the installation of a new grid-interactive solar photovoltaic system	
PV SYSTEM DETAILS	
PV Module Type	ZNShine ZXM7-SH108-405 OR EQUIVALENT
PV Module Quantity	13
Solar PV DC System Rating (kWdc)	5.265
Solar PV AC System Rating (kWac)	4.47525
Inverter Type	ENPHASE IQ8HC-72-M-DOM-US
Inverter Quantity	13
Battery Type	N/A
Battery Quantity	0
Mounting Location (Roof/Ground/Pergola)	Roof
Mounting Attachments Type	Unirac Stronghold w/ Butyl
Racking & Rails Type	Unirac SM Rail
CONTRACTOR DETAILS	
Company Name	Solar Solution
MHIC License	05-151456
SITE DETAILS	
Property Owner Name	Peter Gardner
Site Coordinates	38.970069, -77.079235
Property Address	14 W Kirke St Chevy Chase MD 20815
Utility Company	Peter Gardner
Building Occupancy	R-3 Single or Double dwelling unit
Construction Type	V-B
EXPOSURE NOTES	
Wind Exposure Category	B
Design Wind Speed (mph)	115
Risk Category/Structure Type	II/Enclosed
NAVD Flood Elevation	N/A (Not in a Flood Zone)
GOVERNING CODES	
Structural Codes	2021 IBC/IRC, IEBC 2021, ASCE 7-22, IFC 2018
Electrical Codes	IECC 2021, NEC 2017 (NFPA 70)
Fire Safety Codes	FIRE CODE 2018 NFPA 1, 2019 NFPA 13D, IRC 2018 (With Local AHJ Amendments, if applicable)
STRUCTURAL & ELECTRICAL AFFIDAVITS/CERTIFICATIONS	
Structural Certification	I, AMJAD MARDI, PE, CERTIFY THAT THE INSTALLATION OF THE SOLAR MODULES IS IN COMPLIANCE WITH ALL APPLICABLE BUILDING CODES. BUILDING STRUCTURE WILL SAFELY ACCOMMODATE WIND LATERAL AND UPLIFT FORCES, AND EQUIPMENT DEAD LOADS.
Electrical Certification	I, AMJAD MARDI, PE, CERTIFY THAT THE SOLAR PHOTOVOLTAIC ELECTRICAL SYSTEM AND COMPONENTS ARE DESIGNED AND APPROVED USING ALL APPLICABLE CODE REQUIREMENTS AND STANDARDS.

LEGEND

MBE

CP

MDP

M

#

MAIN BREAKER ENCLOSURE

COMBINER PANEL

MAIN DISTRIBUTION PANEL

METER

OF PLANE

FIRE SETBACK

ROOF ZONE 1

ROOF ZONE 2

ROOF ZONE 3

RAILS

TRUSS

ATTACHMENT

EXPOSED MODULE

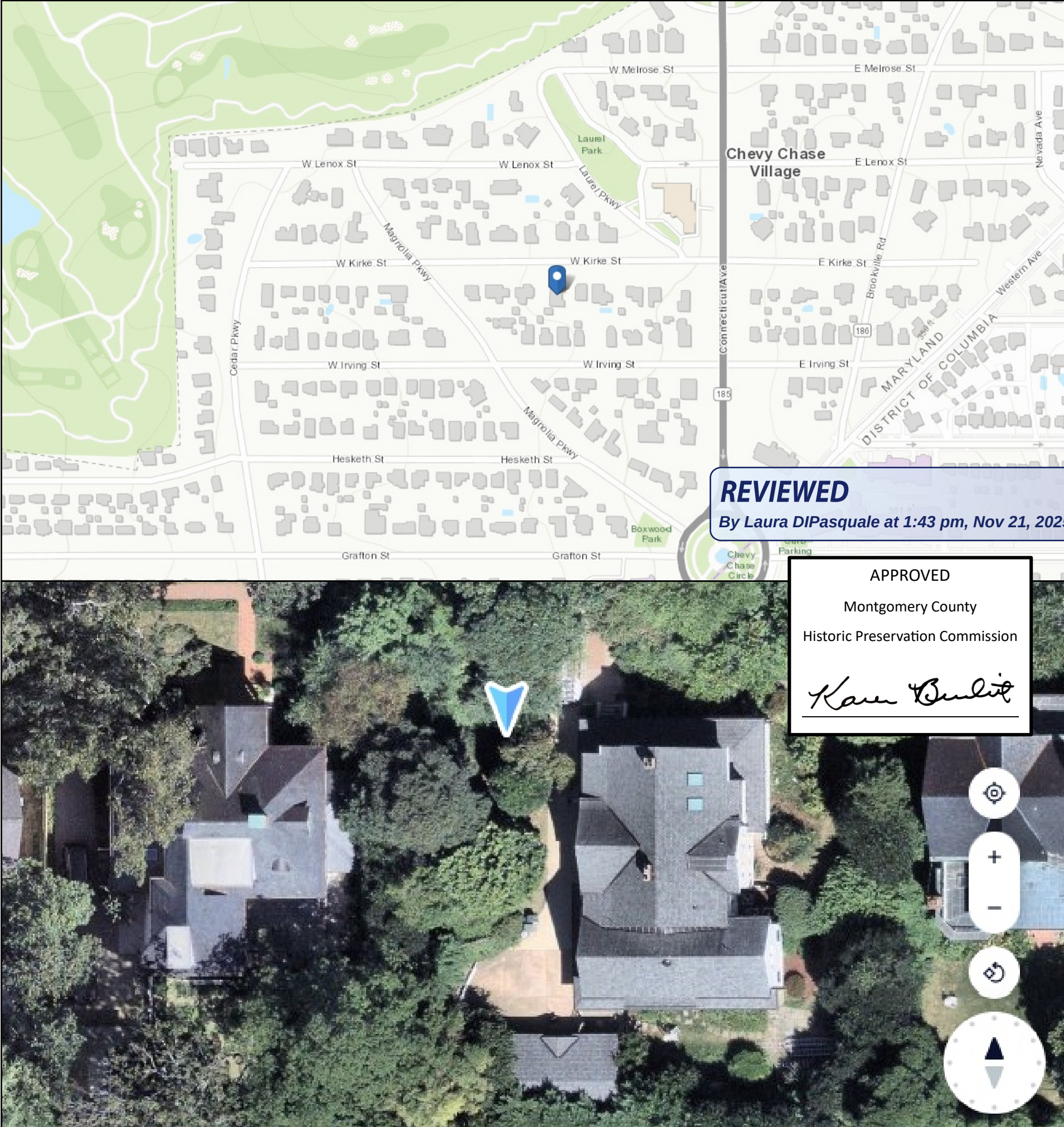
MODULE

33.42 PSF

21.02 SF

5.649'

Table Of Contents		
Sheet	Description	REV.
G1	COVER PAGE	0
S1	SITE & ELECTRICAL PLAN	0
S2	WIND CALCULATIONS & ARRAY LAYOUT	0
S3	ATTACHMENT DETAIL & ARRAY LAYOUT	0
S4	MOUNTING & FLASHING DETAIL	0
S5	ROOF FRAMING DETAILS	0
E1	ELECTRICAL RISER DIAGRAM	0
E2	ELECTRICAL NOTES & EQUIPMENT SPECIFICATIONS	0
E3	SOLAR PV LABELS	0
APP.1	SOLAR MODULE SPECIFICATIONS	0
APP.2	INVERTER SPECIFICATIONS	0
APP.3	ENPHASE Q.CABLE SPECIFICATIONS	0
APP.4	ENPHASE COMBINER SPECIFICATIONS	0
APP.5	WIND SIMULATION	0



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[\(772\) 643-3340](tel:7726433340)



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PROJECT NAME:
PETER GARDNER RESIDENCE

PROJECT ADDRESS:
14 W KIRKE ST CHEVY CHASE MD 20815

Date:	SEE P.E. STAMP
Designed By:	AKM
Reviewed by:	AKM
REVISION HISTORY	

DRAWING SCALE:
N.T.S.

SHEET NAME:
COVER PAGE

SHEET NUMBER:
G1

GENERAL NOTES:

1. THE PROJECT IS DESIGNED IN GENERAL ACCORDANCE WITH ALL APPLICABLE BUILDING CODE AND OTHER REFERENCED CODES.
2. ABBREVIATIONS OTHER THAN AS PROVIDED ARE INDUSTRY STANDARD.
3. CONDITION AND CONSTRUCTION OF ROOF ASSEMBLY SHALL BE VERIFIED BY PHYSICAL INSPECTION AND ACCEPTED BY CONTRACTOR PRIOR TO COMMENCEMENT.
4. WORK TO BE COMPLETED SHALL BE VERIFIED BY INSTALLER AND ELECTRICIAN PRIOR TO COMMENCEMENT AND MATERIAL ORDER.
5. ALL CONTRACTORS AND SUB-CONTRACTORS SHALL BE LICENSED BY THE STATE OF MARYLAND AND AS REQUIRED BY PERMITTING AGENCY; NO UNLICENSED CONTRACTORS OR CONSTRUCTION AND TRADE WORKERS SHALL BE ALLOWED ON JOBSITE.
6. ALL CONTRACTORS AND SUB-CONTRACTORS SHALL INSPECT THE SITE AND ALL RESPECTIVE BUILDINGS IMMEDIATELY BEFORE PREPARING ANY BID AND BEFORE ORDERING ANY MATERIALS, AND SHALL PROVIDE CONTRACTOR WRITTEN NOTICE OF ANY DISCREPANCY BETWEEN FIELD CONDITIONS AND THE PLANS. AFTER VERIFICATION, MARDI ENGINEERING SHALL PREPARE ANY NECESSARY PLAN REVISION, GENERALLY WITHIN 72 HOURS OF SUCH NOTICE.
7. REQUIRED PLAN DIMENSIONS NOT PROVIDED SHALL BE CONFIRMED WITH ENGINEER OF RECORD. DIMENSIONS IN PARENTHESES ARE FOR ENGINEERING REFERENCE ONLY.
8. UNPLANNED ALTERATION OF STRUCTURAL ROOF OR WALL FRAMING SHALL REQUIRE WRITTEN APPROVAL BY THE EOR AND OWNER; PLANS SHALL BE SO REVISED.
9. FIRE PROTECTION PROCEDURES SHALL BE FOLLOWED IN ACCORDANCE WITH NEC 2014, Art. 690. 9. WORK SHALL BE INSPECTED PRIOR TO COVER BY BUILDING INSPECTOR, AND EOR UPON REQUEST.
10. BEST MANAGEMENT PRACTICES SHALL BE EXERCISED AT ALL TIMES TO MAINTAIN A SAFE AND CLEAN JOBSITE IN COORDINATION WITH PROPERTY OWNER AS APPLIES TO PARKING, TRASH REMOVAL, STORAGE, SOUND, UTILITIES AND TIMES OF WORK.
11. NO WORK SHALL BE PERFORMED IN RIGHT-OF-WAY OR EASEMENTS WITHOUT WRITTEN PERMISSION FROM THE APPROPRIATE PERMITTING AGENCY AND OWNER.
12. ALL MATERIALS NOT LISTED OR SPECIFIED HEREIN SHALL BE OBTAINED THROUGH CONTRACTOR-APPROVED VENDORS, GENERALLY NECESSARY TO COMPLETE TYPICAL SIMILAR CONSTRUCTION AND SHALL CONFORM TO CODE TABLE, INDUSTRY STANDARDS AND POLICIES OF THE PERMITTING AGENCY.
13. DETAILS OR SPECIFICATIONS ARE CALLED OUT BY LOCATION, ARRAY, ELEMENT OR AS OTHERWISE APPLIES.
14. IN THE EVENT OF WEATHER AND OTHER CIRCUMSTANCES THAT COULD MATERIALLY AFFECT BUILDING CONDITIONS OR INSTALLATION, CONTRACTOR SHALL PERFORM A RE-INSPECTION ALONG WITH OTHER CONTRACTORS AS REQUIRED THEN ADJUST PROJECT SCHEDULE TO INCLUDE RESPECTIVE PLAN REVISIONS.

ROOF FIRE SAFETY NOTES:

1. FIRE PROTECTION PROCEDURES SHALL BE FOLLOWED IN ACCORDANCE WITH NEC 2014, A. 690.9. WORK SHALL BE INSPECTED PRIOR TO COVER BY BUILDING INSPECTOR, AND EOR UPON REQUEST.
2. ACCESS POINT ARE LOCATED FOR FIRE DEPT. LADDER(S) CLEAR OF OPENINGS/OBSTRUCTIONS.
3. WORK SHALL BE PERFORMED IN ACCORDANCE WITH ROOF SAFETY RATING (CLASS A). (UL 790 / ASTM E108)

NOTE TO INSTALLER:

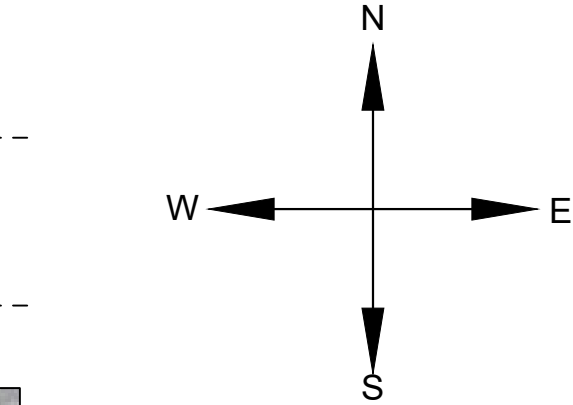
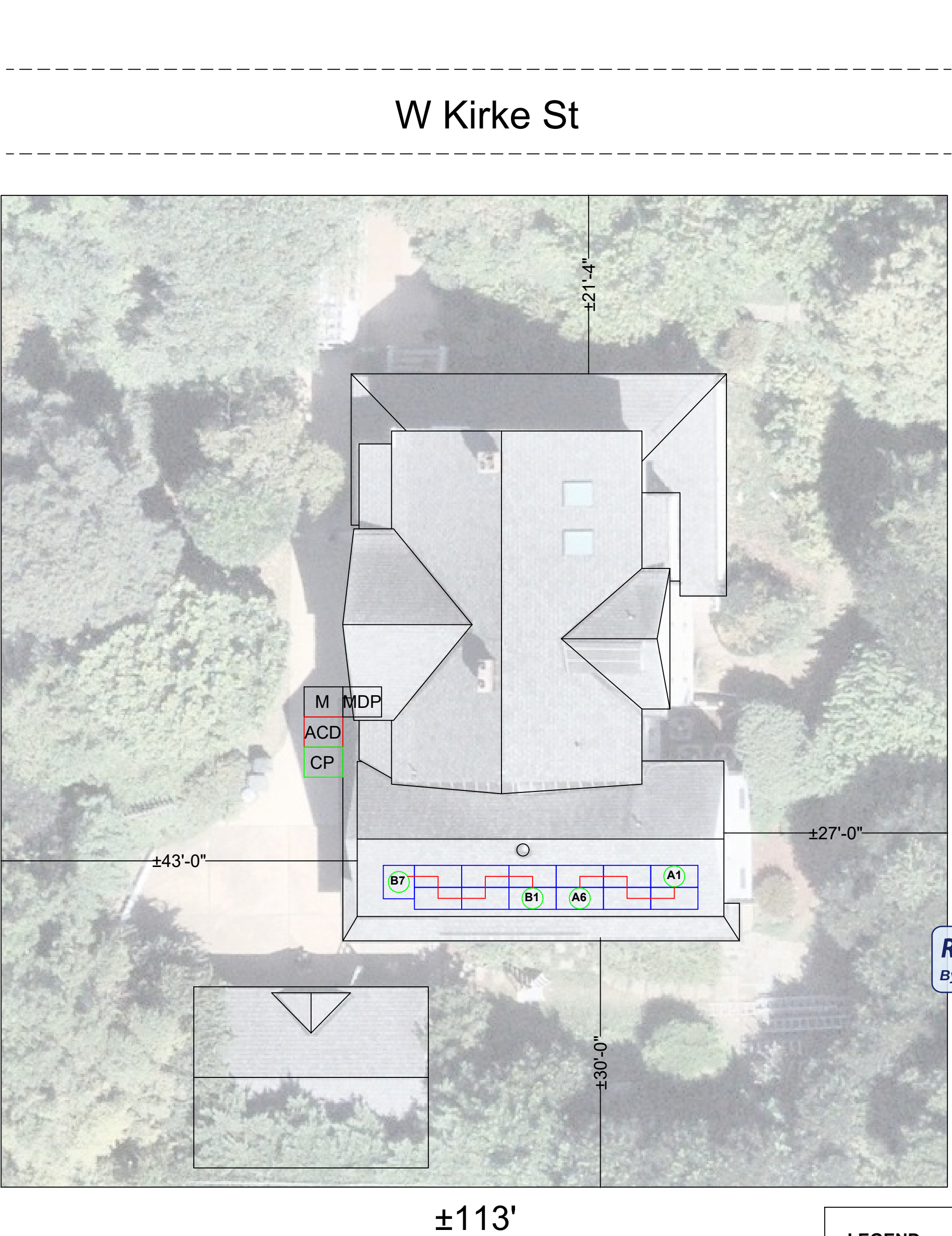
1. ALL PANELS SHALL BE ATTACHED TO EXISTING ROOF STRUCTURE USING THE REQUIRED NUMBER OF ATTACHMENTS IN THE PROPER CONFIGURATION AS DEFINED IN THIS PLAN SET.
2. ALL PANELS SHALL BE FULLY OUTSIDE OF ANY ROOF AREAS DEFINED AS "FIRE SETBACK" IN THIS SITE PLAN. FIRE SETBACKS ARE DEFINED BY THE DIMENSIONS IN RED AND ARE CONSIDERED ABSOLUTE.
3. ANY DIMENSIONS NOTED AS "MAX" SHALL BE BE UNDERSTOOD TO BE ABSOLUTE REQUIREMENTS WITH A TOLERANCE OF +0.0"
3. ANY DIMENSIONS NOTED AS "MIN" SHALL BE BE UNDERSTOOD TO BE ABSOLUTE REQUIREMENTS WITH A TOLERANCE OF -0.0"
4. STANDARD DIMENSIONS (NOT INCLUDING FIRE SETBACKS) SHALL BE UNDERSTOOD TO BE REQUIREMENTS WITH A TOLERANCE OF ±2.0"
5. ANY DIMENSIONS NOTED AS "APPROX" SHALL BE UNDERSTOOD TO BE APPROXIMATE IN NATURE AND SHOULD BE USED AS A GUIDE. EXACT PLACEMENT OF THE PANELS RELATIVE TO THESE DIMENSIONS ARE LEFT TO THE INSTALLERS DISCRETION ASSUMING THAT ALL OTHER DEFINED REQUIREMENTS ARE MET.
6. ANY DIMENSIONS IN PARENTHESES () ARE FOR ENGINEERING REFERENCE ONLY AND ARE NOT NEEDED FOR INSTALLATION.
7. IT IS THE CONTRACTOR RESPONSIBILITY TO INSTALL THE SYSTEM AND ITS SUPPORTS AS INDICATED IN THESE PLANS. THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD IF SITE CONDITIONS DIFFER FROM WHAT IS DEPICTED ON PLANS.

ATTACHMENT SYSTEM:

ATTACHMENT SYSTEM AND FLASHING METHOD SHALL BE CONSTRUCTED ACCORDING MANUFACTURER'S INSTALLATION MANUAL AND AS SPECIFIED BY EOR.

SUGGESTED ELECTRICAL EQUIPMENT MOUNTING LOCATION

THE SUGGESTED EQUIPMENT MOUNTING LOCATION MAY BE ADJUSTED AT INSTALLER'S DISCRETION SO LONG AS LOCAL AHJ REQUIREMENTS ARE ADHERED TO



±119'

REVIEWED

By Laura DiPasquale at 1:43 pm, Nov 21, 2025



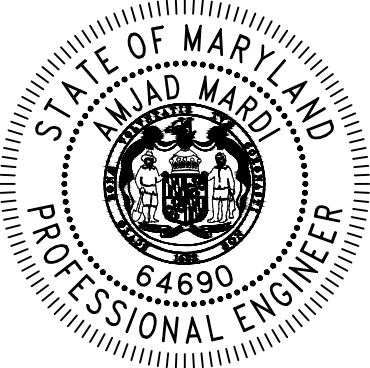
LEGEND

- ACD AC DISCONNECT
- CP COMBINER PANEL
- MDP MAIN DISTRIBUTION PANEL
- M METER
- # STRING NUMBER
- 33.42 PSF
21.02 SF
5,649' MODULE



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PETER GARDNER
RESIDENCE

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14 W KIRKE ST CHEVY
CHASE MD 20815

Date:	SEE P.E. STAMP
Designed By:	AKM
Reviewed by:	AKM
REVISION HISTORY	

DRAWING SCALE:

N.T.S.

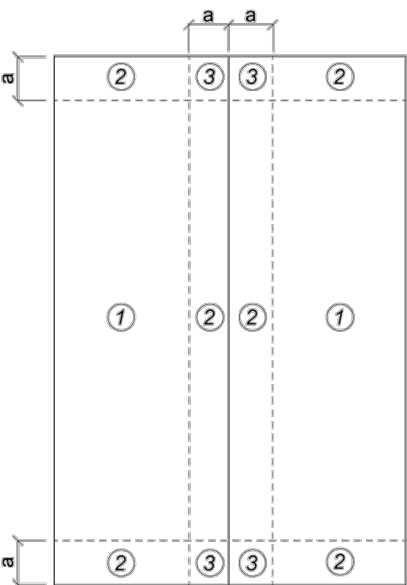
SHEET NAME:

SITE & ELECTRICAL PLAN

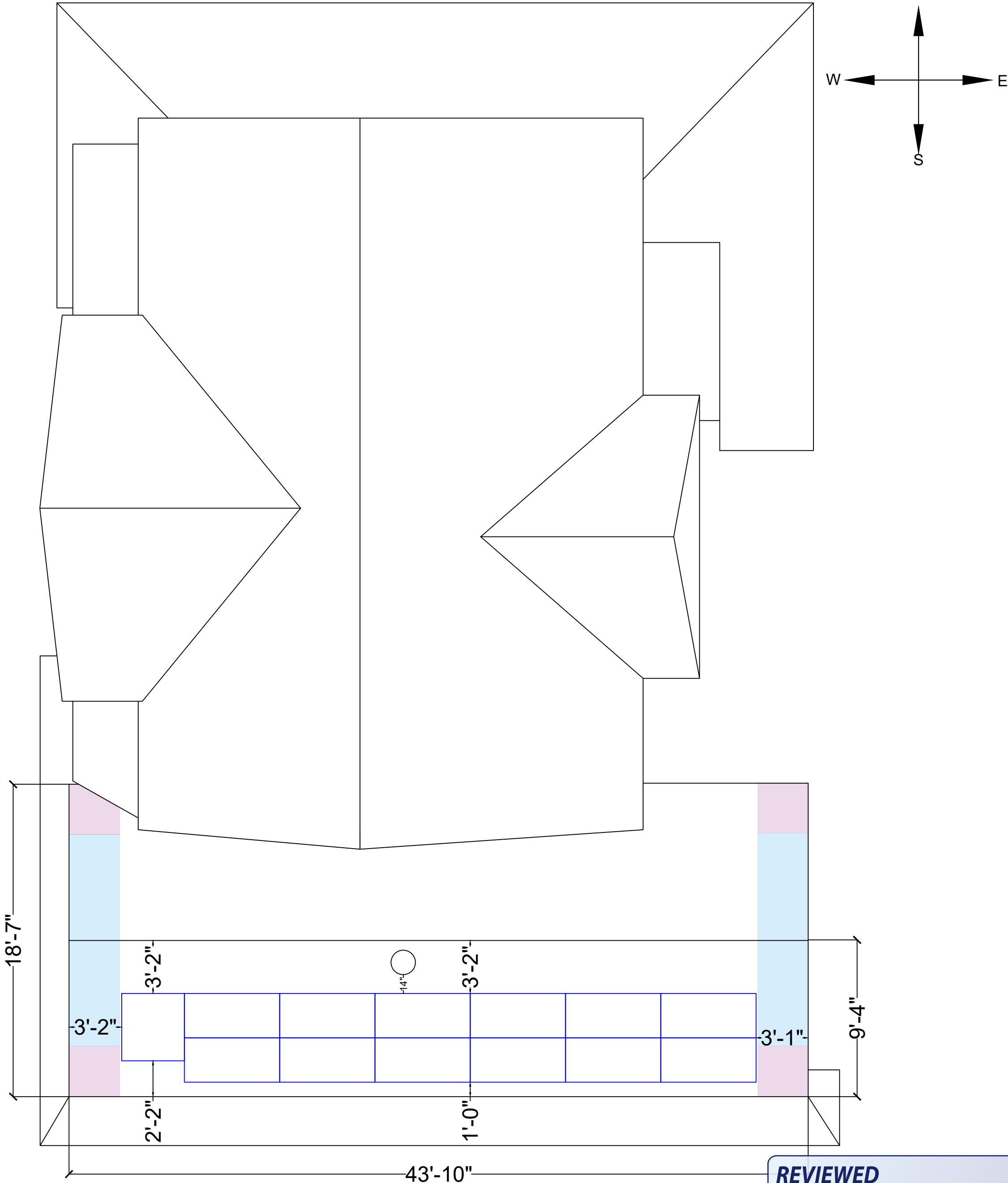
SHEET NUMBER:

S1

Wind Pressures (psf) where Solar Panels are to be installed per ASCE 7-22 Sec 29.4.4 (All wind pressures include a load factor of 0.6)		
	EXPOSED (DOWNWARD/ UPLIFT)	NOT EXPOSED (DOWNWARD/ UPLIFT)
1	NONE	5.45/-10.06
2	NONE	NONE
3	NONE	NONE
1_OH	NONE	NONE
2_OH	NONE	NONE
3_OH	NONE	NONE
Existing Structure & Limiting Factors		
Roof Type	Gable	
Roof Material	Shingle	
Sheathing	Plywood	
Framing	Wood Trusses, 24" O.C.	
Fire Rating	Class A	
Roof Slope	12:12	
Mean Roof Height (h) [ft]	±24.63	
Overhang (OH) [ft]	1	
Dead Load [psf]	19.9	
Live Load [psf]	20	
a = Width for Zone 2 and 3 determination (per C&C figure) [ft]	3	
h/2 = Width used to determine if exposed [ft]	12.32	
h1 = Distance from roof to lower panel edge: Min (hny,hnp) [ft]	0.29	
h2 = Distance from roof to upper panel edge: Max (hny,hnp) [ft]	0.29	
d1 = limit for adjacent panels [ft]	4.00	
Minimum height above roof edge [ft]	0.58	



PV Module Data		
Chord length [ft]	5.650	
Width [ft]	3.721	
Area [sqft]	21.02	
Thickness [ft]	0.098	
Weight [lbs]	45.19	
Module Dead Load	2.15	
Angle to Roof [degrees °]	0	
Environmental Data		
Design Wind Speed (V)	115	
Elevation Factor(Ke)	1.0	
Topographic factor (Kzt)	1.0	
pressure exposure (Kz)	0.9	
Velocity Pressure (qh)	30.47	
PV Module Loads		
	Downward	Uplift
Module Design Pressure [psf]	33.42	-33.42
Worst Case Pressure [psf]	5.45	-10.06
Worst Case Roof Zone	1 (Non-Exposed)	1 (Non-Exposed)
Net Load Pressure [psf]	7.60	-7.91
Margin [psf]	25.82	-25.51
Safety Factor (OK IF OVER 1.0)	4.40	4.22
Total Array Calculations		
Minimum Number of Attachments	32	
Number of Fasteners per Attachment	2	
Total Array Weight [lbs]	587.47	
Total Array Area [sqft]	273.30	
Total Roof Area [sqft]	711.10	
Percentage of Total Occupied Roof Area [%]	38.43	
Total Array Uplift [lbs]	-2161.90	
Force per Attachment [lbs]	-67.56	
Force Per Fastener [lbs]	-33.78	
Max Allowed Force Per Fastener [lbs]	453.665	
Safety Factor (OK if over 1.50)	13.43	



REVIEWED
By Laura DiPasquale at 1:43 pm, Nov 21, 2025

LEGEND

- ROOF ZONE 1
- ROOF ZONE 2
- ROOF ZONE 3
- EXPOSED MODULE
- 3.721'
21.02 SF
5.649'

33.42 PSF
MODULE

APPROVED
Montgomery County
Historic Preservation Commission

Karen Bulleit

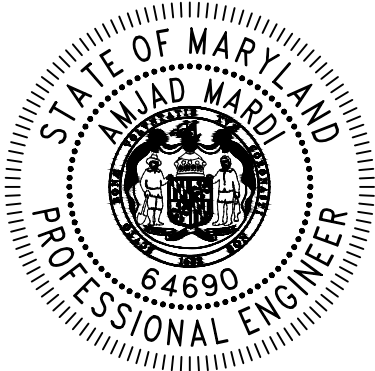
DRAWING SCALE:
N.T.S.

SHEET NAME:
WIND CALCULATIONS &
ARRAY LAYOUT

SHEET NUMBER:
S2



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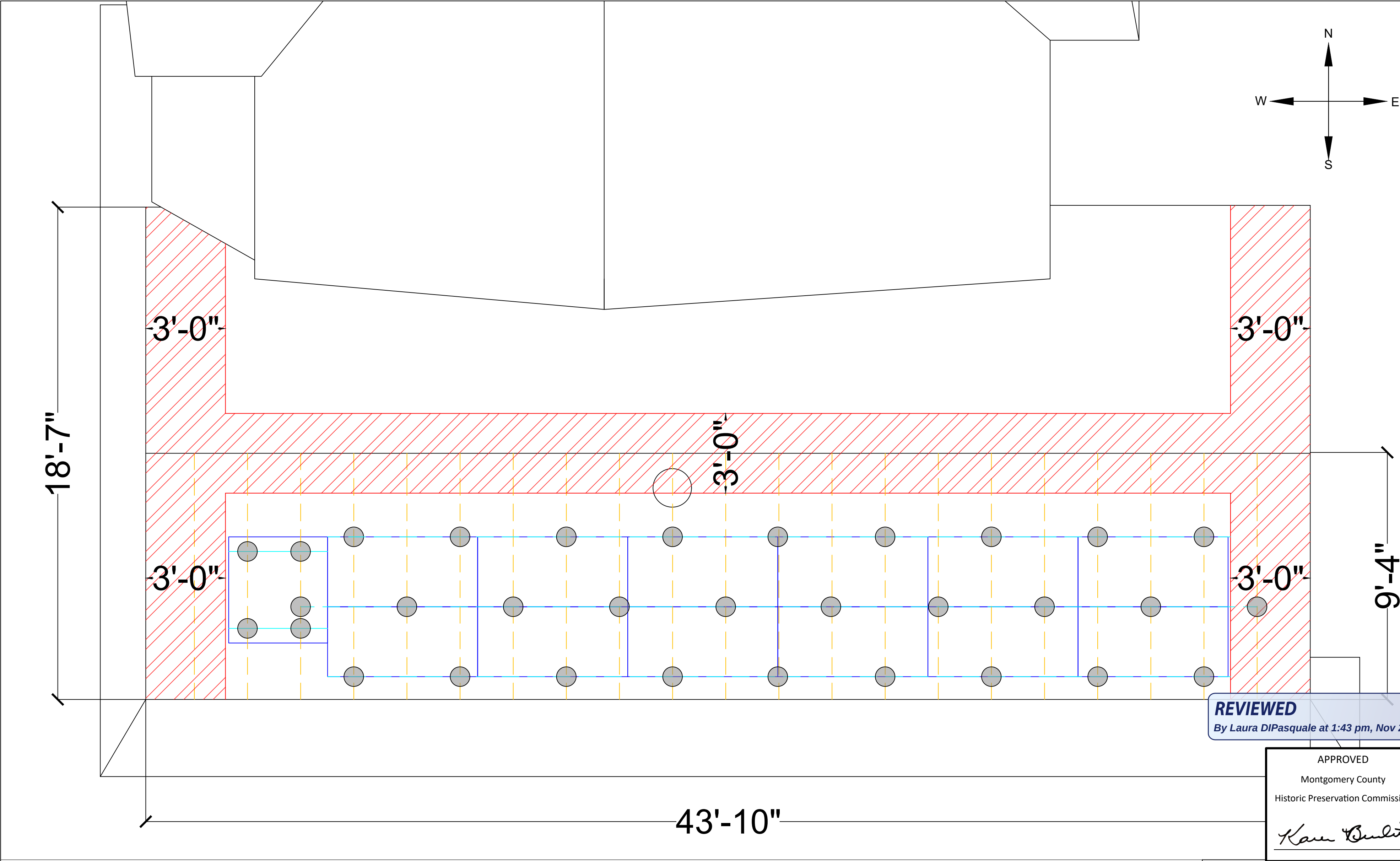
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APPROVED
Montgomery County
Historic Preservation Commission
Karen Bulleit

PROJECT NAME:
PETER GARDNER
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PROJECT ADDRESS:
14 W KIRKE ST CHEVY
CHASE MD 20815

SYSTEM SUMMARY					
ROOF PLANE	NUMBER OF MODULES	ARRAY TILT (DEGREES)	AZIMUTH ANGLE (DEGREES)	ROOF SLOPE	ROOF SLOPE (DEGREES)
1	12	0	180	12:12	45

NOTE:
MAX CANTILEVER: 1/3 OF ALLOWABLE SPAN
MAX ALLOWABLE SPAN: 48"

LEGEND

FIRE SETBACK

RAILS

TRUSS

ATTACHMENT

#

ROOF PLANE #

33.42 PSF

21.02 SF

MODULE

3.721'5.649'

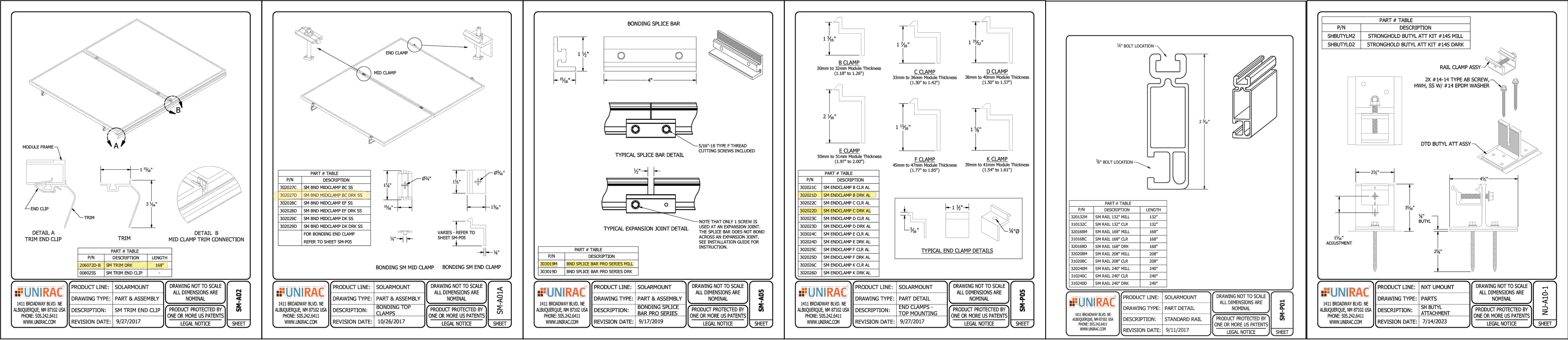
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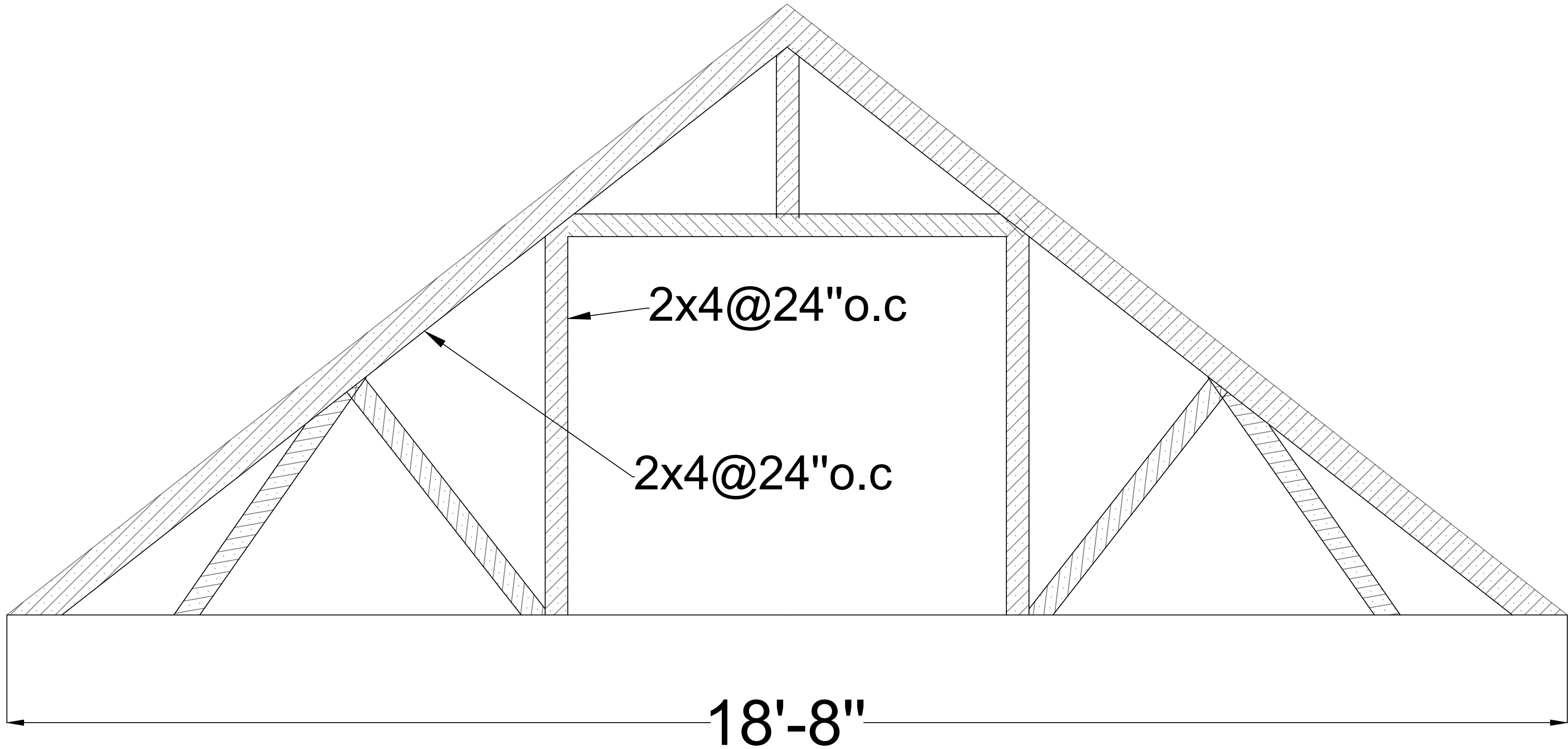
SHEET NAME:
ATTACHMENT DETAIL &
ARRAY LAYOUT

SHEET NUMBER:
S3

RACKING & MOUNTING SPECIFICATIONS



9'-4"

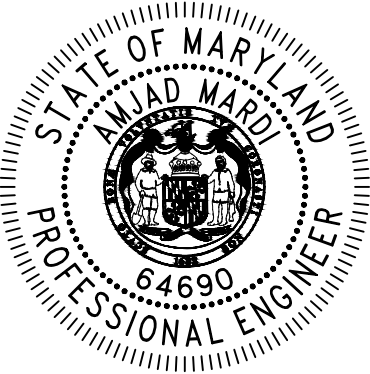


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APPROVED
Montgomery County
Historic Preservation Commission
Karen Benoit



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DRAWING SCALE:
3/4"-1'-0"

SHEET NAME:
ROOF FRAMING DETAILS

SHEET NUMBER:
S5