HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Karen Burditt
Chair

Date: June 2, 2025

MEMORANDUM

TO: Rabbiah Sabbakhan
Department of Permitting Services
FROM: Devon Murtha
Historic Preservation Section
Maryland-National Capital Park & Planning Commission Historic
SUBJECT: Area Work Permit #1110498 –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: Todd Dorrien (Victory Housing); Mark Ballentine (agent).
Address: 7051 Carroll Avenue, Takoma Park, MD 20912

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 Devon Murtha at 301-495-1328 or devon.murtha@montgomeryplanning.org to schedule a follow-up site visit.

HISTORIC PRESERVATION COMMISSION

HAWP #: 1110498 at: 7501 Carroll Avenue

submitted on: 5/16/2025

has been reviewed and determined that the proposal fits into the following category/categories:

☐ Repair or replacement of a masonry foundation with new masonry materials that closely match the original in appearance;

☐ Installation of vents or venting pipes in locations not visible from the public right-of-way;

☐ New gutters and downspouts;

☐ Removal of vinyl, aluminum, asbestos, or other artificial siding when the original siding is to be repaired and/or replaced in kind;

☐ Removal of accessory buildings that are not original to the site or non-historic construction;

☐ Repair or replacement of missing or deteriorated architectural details such as trim or other millwork, stairs or stoops, porch decking or ceilings, columns, railings, balusters, brackets shutters, etc., with new materials that match the old in design, texture, visual characteristics, and, where possible materials, so long as the applicant is able to provide one extant example, photographic evidence, or physical evidence that serves as the basis for the work proposed;

☐ Construction of wooden decks that are at the rear of a structure and are not visible from a public right-of-way;

☐ Roof replacement with -compatible roofing materials, or with architectural shingles replacing 3-Tab asphalt shingles;

☐ Installation of storm windows or doors that are compatible with the historic resource or district;

☐ Repair, replacement or installation of foundation-level doors, windows, window wells, and areaways, or foundation vents, venting pipes, or exterior grills that do not alter the character-defining features and/or the historic character of the resource;

☐ Construction of fences that are compatible with the historic site or district in material, height, location, and design;

☐ Fence is lower than 48" in front of rear wall plane;

☐ Construction of walkways, parking pads, patios, driveways, or other paved areas that are not visible from a public right-of-way and measure no more than 150 square feet in size;

☐ Replacement of existing walkways, parking pads, patios, driveways, or other paved areas with materials that are compatible with the visual character of the historic site and district and that are no greater than the dimensions of the existing hardscape;

☐ Construction of small accessory buildings no larger than 250 square feet in size that are not visible from the public right-of-way;

☐ Installations of skylights on the rear of a structure that will not be visible from the public right-of-way, and would not remove or alter character-defining roof materials;

☐ Installation of solar panels and arrays in locations that are not readily visible from the public right-of-way or that are designed so as to have a minimal impact on the historic resource or the historic district (e.g., systems that are ground-mounted in areas other than the front or side yard of a corner lot, located on accessory or outbuildings, on non-historic additions, or on rear facing roof planes);

☐ Installation of car charging stations in any location on a property or in the right-of-way;

Installation of satellite dishes;

☐ Removal of trees greater than 6" in diameter (d.b.h.) that are dead, dying, or present an immediate hazard.

☐ Removal of trees greater than 6" in diameter (d.b.h.) in the rear of the property that will not impact the overall tree canopy of the surrounding district or historic site;

☐ Replacement tree required as a condition; and,

☐ Other minor alterations that may be required by the Department of Permitting Services post-Commission approval that would have no material effect on the historic character of the property.

Staff finds the proposal complies with Chapter 24A, the Secretary of the Interior's Standards for Rehabilitation, and any additional requisite guidance. Under the authority of COMCOR No. 24A.04.01, this HAWP is approved by_____ on _____. The approval memo and stamped drawings follow.

FOR STAFF ONLY:
HAWP# 1110498
DATE ASSIGNED_____

APPLICATION FOR HISTORIC AREA WORK PERMIT

HISTORIC PRESERVATION COMMISSION
301.563.3400

APPLICANT: Approval for 7051 Carroll Avenue, not 7501 Carroll Avenue

Name: Todd Dorrien/Victory Housing E-mail: tdorrien@victoryhousing.org

Address: 7501 Carroll Avenue City: Rockville Zip: 20852

Daytime Phone: (571) 721-9844 Tax Account No.: _____

AGENT/CONTACT (if applicable):

Name: Mark Ballantine E-mail: mark@universalrenewables.com

Address: 3516 Mass Ave City: DC Zip: 20007

Daytime Phone: (202) 725-5542 Contractor Registration No.: _____

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property Non-Contributing

Is the Property Located within an Historic District? X Yes/District Name Takoma Park
__No/Individual Site Name_____

Is there an Historic Preservation/Land Trust/Environmental Easement on the Property? If YES, include a map of the easement, and documentation from the Easement Holder supporting this application.

Are other Planning and/or Hearing Examiner Approvals /Reviews Required as part of this Application? (Conditional Use, Variance, Record Plat, etc.?) If YES, include information on these reviews as supplemental information.

Building Number: 7051 Street: Carroll Avenue

Town/City: Takoma Park Nearest Cross Street: Tulip Avenue

Lot: P24 Block: 6 Subdivision: HE Rogers Parc

13-01072074
APPROVED
Montgomery County
Historic Preservation Commission

TYPE OF WORK PROPOSED: See the checklist on Page 4 to ver
for proposed work are submitted with this application. Incom
be accepted for review. Check all that apply:

☐	New Construction	☐	Deck/Porch	☑	
☐	Addition	☐	Fence	☐	
☐	Demolition	☐	Hardscape/Landscape	☐	
☐	Grading/Excavation	☐	Roof	☐	

I hereby certify that I have the authority to make the foregoing appl
and accurate and that the construction will comply with plans reviewed and approved by all necessary agencies and hereby acknowledge and accept this to be a condition for the issuance of this permit.

5/2/2025

Signature of owner or authorized agent Date

REVIEWED
By Devon.Murtha at 12:52 pm, Jun 02, 2025

HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFING
[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

Owner's mailing address	**Owner's Agent's** mailing address
Todd Dorrien VP Sustainability Victory Housing Inc. 6001 Executive Boulevard, Suite 300 Rockville, MD 20852	Mark Ballantine President Universal Renewables 3516 Massachusetts Avenue NW Washington, DC 20007
Adjacent and confronting Property Owners mailing addresses	
7063 Carroll Avenue Takoma Park MD 20912 7060 Carroll Avenue Takoma Park MD 20912	11 Pine Avenue Takoma Park MD 20912 17 Pine Avenue Takoma Park MD 20912
7054 Carroll Avenue Takoma Park MD 20912 7050 Carroll Avenue Takoma Park MD 20912	
7044 Carroll Avenue Takoma Park MD 20912	7003 Westmoreland Avenue Takoma Park MD 20912 7005 Westmoreland Avenue Takoma Park MD 20912

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

Victory Tower is a 187 unit, 12 story retirement community designated by as a non-contributing resource to the adjacent Takoma Park Historic District.

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

Universal Renewables is proposing to install an elevated 72.52kW solar power system on the building's rooftop to offset the building load and reduce the building's carbon footprint.

APPROVED

Montgomery County

Historic Preservation Commission

Karen Burditt

REVIEWED

By Devon.Murtha at 12:49 pm, Jun 02, 2025

Work Item 1: Install Solar PV System

Description of Current Condition:	Proposed Work:
The building's rooftop is highly obstructed by mechanical and telecom equipment.	Install and interconnect an elevated solar power system over rooftop obstructions to provide maximal clean renewable energy. Interconnection pathway via existing rooftop sub-panel [no exterior conduit run].

Work Item 2: _____

Description of Current Condition:	Proposed Work:

Work Item 3: _____

Description of Current Condition:	Proposed Work:

APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED

By Devon.Murtha at 12:49 pm, Jun 02, 2025

HISTORIC AREA WORK PERMIT
CHECKLIST OF
APPLICATION REQUIREMENTS

	Required Attachments						
Proposed Work	1. Written Description	2. Site Plan	3. Plans/ Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/ Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/ Parking Area	*	*		*	*	*	*
Grading/Excavation/Landscaing	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

APPROVED

Montgomery County

Historic Preservation Commission

Karen Burdette

REVIEWED

By Devon.Murtha at 12:49 pm, Jun 02, 2025

GENERAL NOTES

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 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 TABLE 310.15 (B)(2)(A).
2.2.4 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.
2.2.5 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.
2.2.6 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.
2.2.7 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 DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.
2.4.3 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 DC PV ARRAYS SHALL BE PROVIDED WITH DC GROUND-FAULT PROTECTION MEETING THE REQUIREMENTS OF 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS

2.5.1 INTERCONNECTION NOTES:
2.5.2 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 705.12 (B)]
2.5.3 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(B)(2)(3)].
2.5.4 AT MULTIPLE ELECTRIC POWER SOURCES 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 (B)(2)(3)(C).
2.5.5 FEEDER TAP INTERCONNECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (B)(2)(1)
2.5.6 SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.12 (A) WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42
2.5.7 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (B)(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 ISOLATING DEVICES OR EQUIPMENT DISCONNECTING MEANS SHALL BE INSTALLED IN CIRCUITS CONNECTED TO EQUIPMENT AT A LOCATION WITHIN THE EQUIPMENT, OR WITHIN SIGHT AND WITHIN 10 FT. OF THE EQUIPMENT. AN EQUIPMENT DISCONNECTING MEANS SHALL BE PERMITTED TO BE REMOTE FROM THE EQUIPMENT WHERE THE EQUIPMENT DISCONNECTING MEANS CAN BE REMOTELY OPERATED FROM WITHIN 10 FT. OF THE EQUIPMENT, ACCORDING TO NEC 690.15 (A).
2.6.6 PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D)
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 PV SOURCE CIRCUITS AND OUTPUT CIRCUITS SHALL USE WIRE LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE [690.31 (C)]. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE ON PV ARRAYS, ACCORDING TO NEC 690.31 (A).
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, GRAY AND GREEN
DC NEGATIVE- BLACK, OR OTHER COLOR EXCLUDING WHITE, GRAY AND GREEN
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 GRAY
2.7.8 * IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

SYMBOL LEGEND

E MAIN ENTRANCE DOOR
MEP MAIN ELECTRICAL PANEL
JB JUNCTION BOX
S AC DISCONNECT
INV DC/AC INVERTER
DCSW DC DISCONNECT
PNL AC PANELBOARD

CBR COMBINER BOX
TB TAP BOX
SUB SUB (AC) PANEL
MM METER/MAIN
RSD RAPID SHUTDOWN
CBR (DC) COMBINER BOX

M (E) UTILITY METER
V PV REVENUE METER
U UTILITY POLE
A-D MODULE STRINGING

FENCE
PROPERTY LINE
SETBACK
ROOF RAFTERS
MODULE STRINGING
EQUIPMENT GROUND
CONDUIT
FIRE CLEARANCE

SOLAR (PV) MODULE
RAILS
ATTACHMENTS
26 SHEET KEYNOTE INDICATOR
D1 / S-501 DETAIL INDICATOR
01 / A-201 ELEVATION INDICATOR
N / W / E / S NORTH INDICATOR

DISCLAIMER: PLEASE NOTE THAT THE ABBREVIATIONS, ANNOTATIONS, AND SYMBOLS LISTED ARE INTENDED TO ILLUSTRATE THOSE THAT ARE COMMONLY USED, NOT ALL ARE NECESSARILY UTILIZED WITHIN THIS SET OF DRAWINGS.

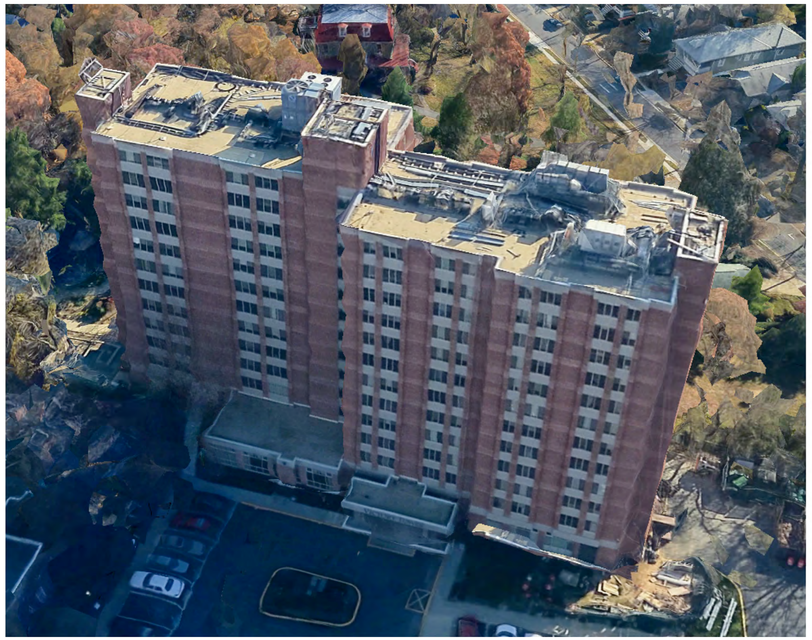
NEW PV SYSTEM: 73.010 kWp

VICTORY TOWER

7051 CARROLL AVENUE,
TAKOMA PARK, MD 20912

ASSESSOR'S #: 01072074

01 AERIAL PHOTO
NOT TO SCALE



02 SKETCH FROM THE ROOF
NOT TO SCALE

SHEET LIST TABLE

PROJECT INFORMATION

OWNER
NAME: VICTORY TOWER

LOCATION
LOT 2
BLOCK F

PROJECT MANAGER
NAME:
PHONE:

CONTRACTOR
NAME: UNIVERSAL RENEWABLES
PHONE: 202.956.8565

AUTHORITIES HAVING JURISDICTION
BUILDING: MONTGOMERY CO MD
ZONING: MONTGOMERY CO MD
UTILITY: PEPCO

DESIGN SPECIFICATIONS
OCCUPANCY: GROUP R-4
ZONE DISTRICT: COMMERCIAL
CONSTRUCTION: TYPE III-B
GROUND SNOW LOAD: 25 PSF
WIND EXPOSURE: B
WIND SPEED: 115 MPH
FIRE SPRINKLERS: NO
ROOF FIRE-RESISTANCE CLASS: TYPE-C

APPLICABLE CODES & STANDARDS
2018 INTERNATIONAL BUILDING CODE ER 31-19
CHAPTER 8 COUNTY BUILDING CODE
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2018 IGCC PUBLISHED
MARYLAND ACCESSIBILITY CODE
2012 INTERNATIONAL GREEN CONSTRUCTION CODE
2015 IBC AMENDMENTS
2015 NFPA 1 FIRE CODE
2015 NFPA 101 LIFE SAFETY CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2017 NFPA 70 (NATIONAL ELECTRIC CODE)
CHAPTER 35 OF IBC-2018 REFERENCED STANDARDS

SCOPE OF WORK
SYSTEM SIZE: STC: 149 x 490W = 73.010kW
PTC: 149 x 458.1W = 68.406kW
(149) HANWHA Q.CELLS Q.PEAK DUO BLK ML-G11+ 490
(1) SOLAR EDGE SE50KUS (208V), (1) SOLAR EDGE SE17.3KUS (208V)

ATTACHMENT TYPE: UNIVERSAL AL ELEVATED RACKING
MSP UPGRADE: NO

SQUARE FOOTAGE OF ROOF: 8049.90 SQ. FT.
SQUARE FOOTAGE OF ARRAY: 3708.36 SQ. FT.
PERCENTAGE OF ROOF SPACE USED BY SOLAR PV ARRAYS 46.07%< 66%
PV COVERAGE: 46.07%

CODE ANALYSIS

	EXISTING BUILDING	PROPOSED ALTERATION
IBC OCCUPANCYC LASSIFICATION	R-4	R-4
NFPA 101 – OCCUPANCY CLASSIFICATION	ASSEMBLY	ASSEMBLY
TYPE OF CONSTRUCTION	III-B	III-B
NUMBER OF STORIES ABOVE GRADE	12	12
HIGH RISE	N	N
COVERED MALL	N	N
FULLY SPRINKLERED	N	N
FIRE ALARM	N	N
FLOOR AREA OF RENOVATION	8049.90	3708.36

NOTE: NEW PHOTOVOLTAIC SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 11.10, SECTION 11.12 OF NFPA 1 2015 AND NFPA 70 2017

APPROVED
Montgomery County
Historic Preservation Commission

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR
UNIVERSAL RENEWABLES
ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007
PHONE: 202.956.8565

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT
NEW PV SYSTEM: 73.010 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

APN: 01072074

ENGINEER OF RECORD

STATE OF MARYLAND · METHODE MANIRAGUHA · PROFESSIONAL ENGINEER · ELECTRICAL

Digitally signed by Methode Maniraguha
Date: 2024.12.10 01:31:41 +05'30'

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland:
License No. 52692
Expiration Date: 05/24/2026

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE: COVER PAGE

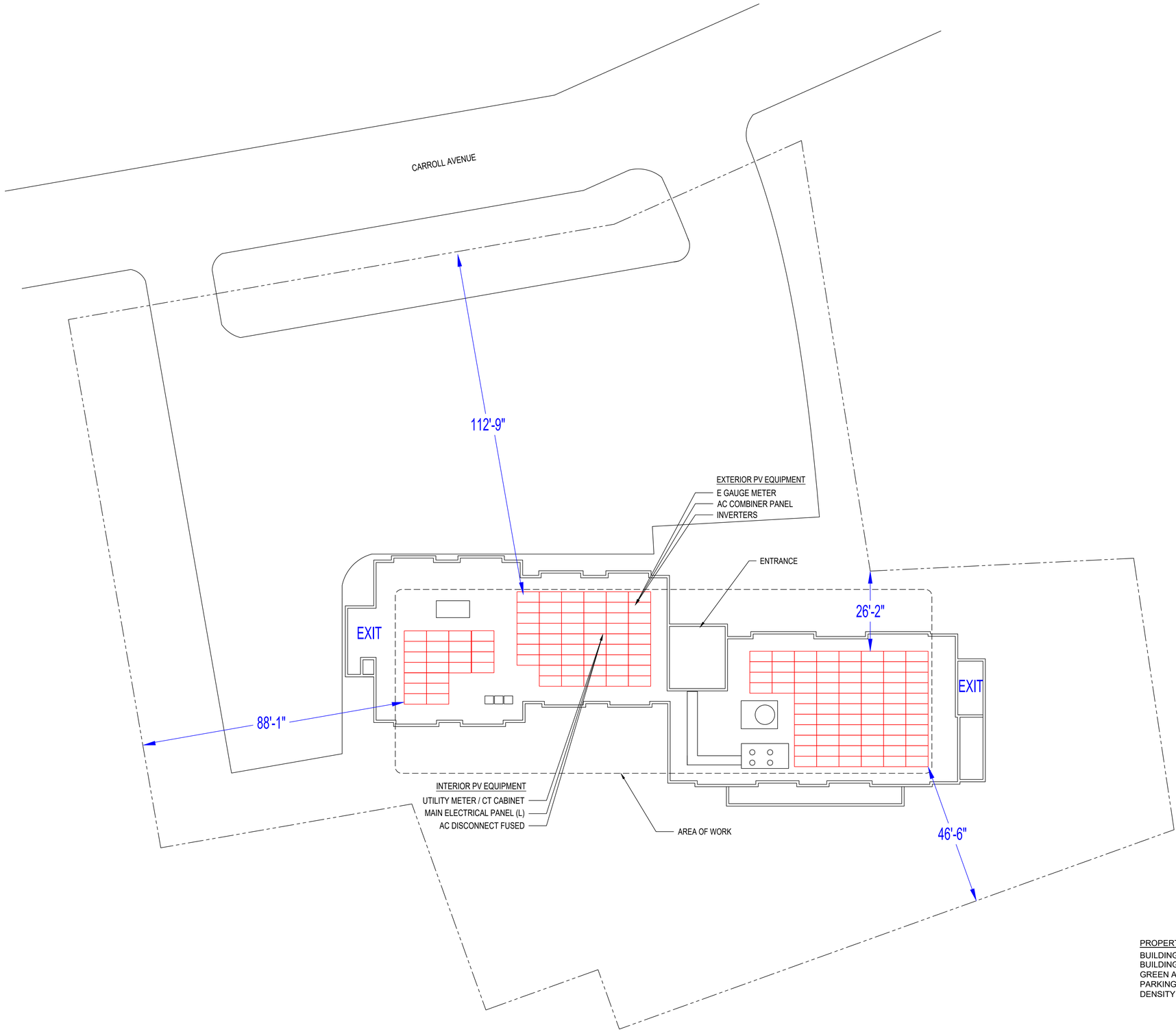
DATE: 11.07.2024
DESIGN BY: V.G.
CHECKED BY: M.M.
.\signature.png

SHEET NUMBER: T-001

REVIEWED
By Devon.Murtha at 12:49 pm, Jun 02, 2025

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS
2. SEE SHEET T-001 FOR LEGEND OF SYMBOLS
3. FIELD VERIFY EQUIPMENT LOCATIONS



PROPERTY LAND AREA

BUILDING HEIGHT	126'-10"
BUILDING LOT COVERAGE	9850 SQFT
GREEN AREA	30,694 SQFT
PARKING	6400 SQFT
DENSITY	132.62 UNITS PER ACRE

APPROVED
Montgomery County
Historic Preservation Commission

01 SITE PLAN
1/16" = 1'-0"
0 8' 16'

N
W E
S

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR

UNIVERSAL RENEWABLES

ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007

PHONE: 202.966.6565

LIC. NO.: 410519000079

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 72.520 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

APN: 01072074

ENGINEER OF RECORD

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE: SITE PLAN

DATE: 11.07.2024
DESIGN BY: V.G.
CHECKED BY: M.M.
SHEET NUMBER: A-101

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REVIEWED
By Devon.Murtha at 12:49 pm, Jun 02, 2025

GENERAL NOTES

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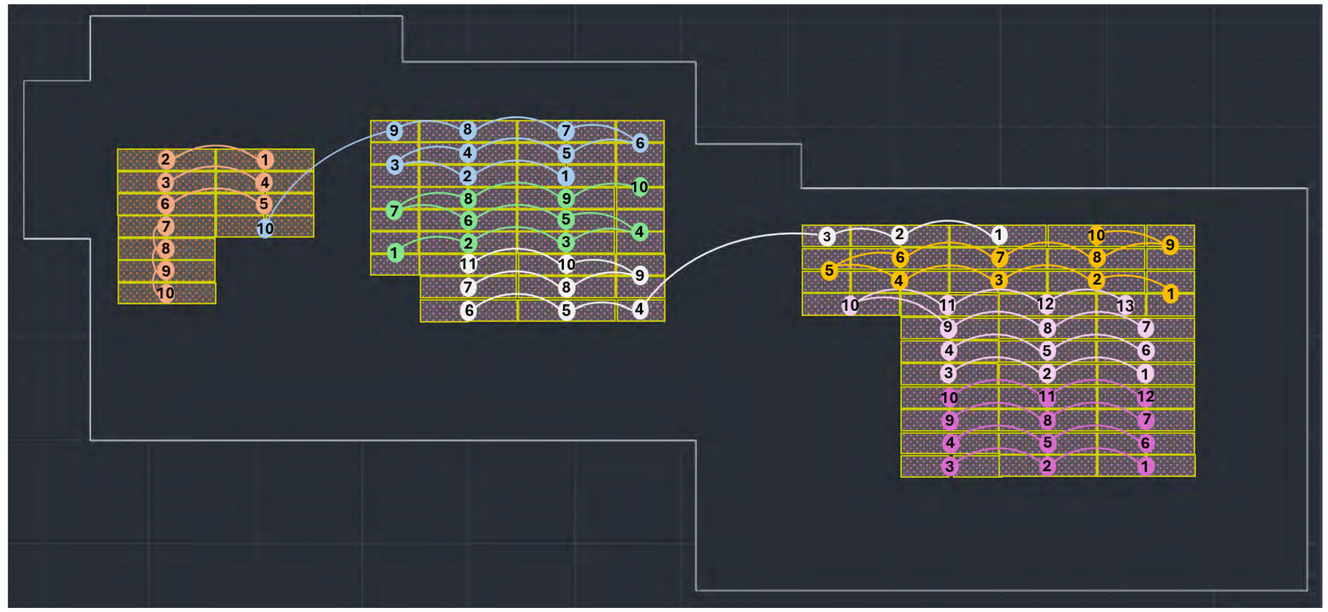
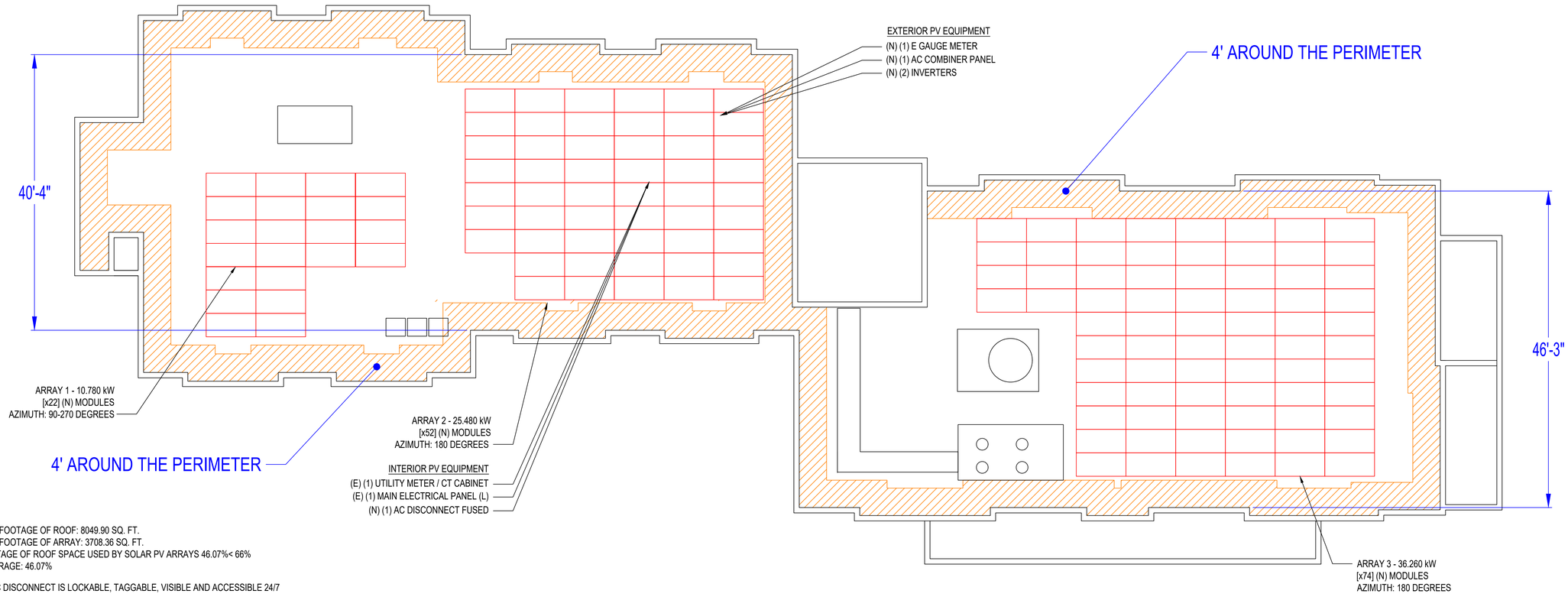
3. FIELD VERIFY EQUIPMENT LOCATIONS





SQUARE FOOTAGE OF ROOF: 8049.90 SQ. FT.
SQUARE FOOTAGE OF ARRAY: 3708.36 SQ. FT.
PERCENTAGE OF ROOF SPACE USED BY SOLAR PV ARRAYS 46.07%< 66%
PV COVERAGE: 46.07%

NOTE: AC DISCONNECT IS LOCKABLE, TAGGABLE, VISIBLE AND ACCESSIBLE 24/7

NOTE: SOLAR INVERTER INSTALLED IS A SMART INVERTER PER CALIFORNIA RULE 21

FUSED AC DISCONNECT INSIDE WITHIN 10FT OF PANEL

01 ELECTRICAL PLAN
1/8" = 1'-0"

APPROVED
Montgomery County
Historic Preservation Commission

87.2'

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR

UNIVERSAL RENEWABLES

ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007

PHONE: 202.966.6565

LIC. NO.: 410519000079

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 72.520 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

APN: 01072074

ENGINEER OF RECORD

STATE OF MARYLAND
METHODE MANIRAGUHA
PROFESSIONAL ENGINEER

Digitally signed by Methode Maniraguha
Date: 2024.12.10 01:31:41 +05'30'

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland:
License No. 52692
Expiration Date: 05/24/2026

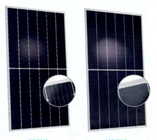
PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE: ELECTRICAL PLAN

DATE: 11.07.2024
DESIGN BY: V.G.
CHECKED BY: M.M.
SHEET NUMBER: A-102

.\signature.png

REVIEWED
By Devon.Murtha at 12:49 pm, Jun 02, 2025



powered by Q.ANTUM DUO Z

Q.PEAK DUO XL-G10.3 / BFG
475-490

BIFACIAL DOUBLE GLASS MODULE WITH EXCELLENT RELIABILITY AND ADDITIONAL YIELD

Quality Controlled PV
TÜVRheinland CERTIFIED
www.tuv.com ID 1111232615

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2021

Q CELLS Yield Security

BIFACIAL ENERGY YIELD GAIN OF UP TO 20%
Bifacial Q.ANTUM solar cells with zero gap cell layout make efficient use of light shining on the module rear-side for radically improved LCOE.

LOW ELECTRICITY GENERATION COSTS
Q.ANTUM DUO Z combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology for higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 21.4%.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID and Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

FRAME FOR VERSATILE MOUNTING OPTIONS
High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (5400 Pa) and wind loads (2400 Pa).

A RELIABLE INVESTMENT
Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty[2].

6 BUSBAR CELL TECHNOLOGY
12 BUSBAR CELL TECHNOLOGY

[1] APT test conditions according to IEC / TS 62804-1:2015 method B (−1500V, 168h) including post treatment according to IEC 61215-1-1 Ed. 2.0 (CD)
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:
Ground-mounted solar power plants

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	87.2 in × 41.1 in × 1.38 in (including frame) (2216 mm × 1045 mm × 35 mm)
Weight	64.2 lbs (29.1 kg)
Front Cover	0.08 in (2.0 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	0.08 in (2.0 mm) semi-tempered glass
Frame	Anodized aluminum
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥27.6 in (700 mm), (−) ≥13.8 in (350 mm)
Connector	Stäubli MC4, Stäubli MC4-Evo2, Hanwha Q CELLS HQC4, IP68

Drawing not to scale

ELECTRICAL CHARACTERISTICS

POWER CLASS			475		480		485		490	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] AND BSTC[1] (POWER TOLERANCE +5 W / −0 W)										
				BSTC*		BSTC*		BSTC*		BSTC*
Power at MPP[1]	P_{MPP}	[W]	475	519.6	480	525.0	485	530.5	490	536.0
Short Circuit Current[1]	I_{SC}	[A]	11.08	12.12	11.12	12.17	11.16	12.21	11.20	12.26
Open Circuit Voltage[1]	V_{OC}	[V]	53.15	53.34	53.39	53.58	53.63	53.82	53.86	54.06
Current at MPP	I_{MPP}	[A]	10.55	11.54	10.59	11.58	10.63	11.63	10.67	11.67
Voltage at MPP	V_{MPP}	[V]	45.03	45.02	45.33	45.32	45.63	45.62	45.93	45.92
Efficiency[1]	η	[%]	≥20.5	≥22.4	≥20.7	≥22.7	≥20.9	≥22.9	≥21.2	≥23.1

Bifaciality of P_{MPP} and I_{SC} 70% ±5% • Bifaciality given for rear side irradiation on top of STC (front side) • According to IEC 60904-1-2

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}, V_{OC} ±5% at STC: 1000 W/m²; *at BSTC: 1000 W/m² + φ × 135 W/m², φ = 70% ±5%, 25±2°C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]			475	480	485	490
Power at MPP	P_{MPP}	[W]	357.6	361.4	365.1	368.9
Short Circuit Current	I_{SC}	[A]	8.92	8.96	8.99	9.02
Open Circuit Voltage	V_{OC}	[V]	50.27	50.49	50.72	50.95
Current at MPP	I_{MPP}	[A]	8.30	8.34	8.37	8.40
Voltage at MPP	V_{MPP}	[V]	43.06	43.35	43.63	43.92

[2] 800 W/m², NMOT, spectrum AM 1.5

Q CELLS PERFORMANCE WARRANTY

At least 98% of nominal power during first year. Thereafter max. 0.45% degradation per year. At least 93.95% of nominal power up to 10 years. At least 84.95% of nominal power up to 30 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE

Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°F]	108±5.4 (42±3°C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1500	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 29[4]
Max. Design Load, Push / Pull[3]	[lbs/ft²]	75 (3600 Pa) / 33 (1600 Pa)	Permitted Module Temperature on Continuous Duty	−40°F up to +185°F (−40°C up to +85°C)
Max. Test Load, Push / Pull[3]	[lbs/ft²]	113 (5400 Pa) / 50 (2400 Pa)		

[3] See Installation Manual
[4] New Type is similar to Type 3 but with metallic frame

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland;
UL 61730, CE-compliant,
IEC 61215:2016,
IEC 61730:2016,
U.S. Patent No. 9,893,215 (solar cells)

PACKAGING INFORMATION

Horizontal packaging	89.4 in 2270 mm	43.1 in 1095 mm	47.6 in 1210 mm	1975 lbs 896 kg	20 pallets	20 pallets	29 modules
Vertical packaging	90.8 in 2306 mm	45.3 in 1150 mm	47.4 in 1205 mm	2013 lbs 913 kg	20 pallets	20 pallets	30 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

Specifications subject to technical changes © Q CELLS Q.PEAK DUO XL-G10.3/BFG_475-490_2021-12_Rev04_NA

Three Phase Inverter for the 120/208V Grid
For North America
SE17.3KUS

INVERTERS

12-20 YEAR WARRANTY

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for superior efficiency (97.5%) and longer strings
- Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- Built-in module-level monitoring with Ethernet, wireless or cellular communication for full system visibility
- Integrated Safety Switch
- UL1741 SA certified, for CPUC Rule 21 grid compliance

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Three Phase Inverter for the 120/208V Grid[1]
For North America
SE17.3KUS

MODEL NUMBER APPLICABLE TO INVERTERS WITH PART NUMBER	SE17.3KUS SEXXK-USX2IXXXX	UNITS
OUTPUT		
Rated AC Power Output	17300	W
Maximum apparent AC output power	17300	VA
AC Output Line Connections	3W + PE, 4W + PE	
AC Output Voltage Minimum-Nominal-Maximum[2] (L-N)	105-120-132.5	Vac
AC Output Voltage Minimum-Nominal-Maximum[2] (L-L)	183-208-229	Vac
AC Frequency Min-Nom-Max[2]	59.3 - 60 - 60.5	Hz
Continuous Output Current (per Phase)	48.25	Aac
GFDI Threshold	1	A
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes	
THD	≤ 3	%
Power Factor Range	+/- 0.85 to 1	
INPUT		
Maximum DC Power (Module STC)	30275	W
Transformer-less, Ungrounded	Yes	
Maximum Input Voltage DC+ to DC-	600	Vdc
Operating Voltage Range	370 - 600	Vdc
Maximum Input Current	48.25	Adc
Maximum Input Short Circuit Current	55	Adc
Reverse-Polarity Protection	Yes	
Ground-Fault Isolation Detection	167kΩ Sensitivity[3]	
CEC Weighted Efficiency	97.5	%
Night-time Power Consumption	< 4	W
ADDITIONAL FEATURES		
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)	
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection	
Rapid Shutdown	NEC2014, NEC2017 and NEC2020 compliant/certified	
RS485 Surge Protection Plug-in	Supplied with the inverter, Built-in	
AC, DC Surge Protection	Type II, field replaceable, Built-in	
DC Fuses (Single Pole)	25A, Built-in	
Smart Energy Management	Export Limitation	
DC SAFETY SWTICH		
DC Disconnect	Integrated	
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 part15 class A	
INSTALLATION SPECIFICATIONS		
AC output conduit size /AWG range	¾" or 1" / 6 - 10 AWG	
DC input conduit size / AWG range	¾" or 1" / 6 - 12 AWG	
Number of DC inputs pairs	4	
Dimensions with Safety Switch (H x W x D)	31.8 x 12.5 x 11.8 / 808 x 317 x 300	in / mm
Weight with Safety Switch	78.2 / 35.5	lb / kg
Cooling	Fans (user replaceable)	
Noise	< 62	dBA
Operating Temperature Range	-40 to +140 / -40 to +60[4]	˚F / ˚C
Protection Rating	NEMA 3R	
Mounting	Bracket provided	

(1) For 277/480V inverters refer to: https://www.solaredge.com/sites/default/files/se-three-phase-us-inverter-277-480V-setapp-datasheet.pdf
(2) For other regional settings please contact SolarEdge support
(3) Where permitted by local regulations
(4) For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

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solaredge | DESIGNER REPORT | Page 2 of 2 Site ID: 777302866580840

VICTORY TOWER, 7051 CARROLL AVENUE
Carroll Avenue 7051, Takoma Park, Maryland, 20912, United States | Nov 9, 2024

BILL OF MATERIALS (BOM) (CONTINUED)

Items	Part Number	Quantity
SE17.3K-US		1
P1101 (For rooftops)		75
Q.PEAK DUO XL-G10.3 / BFG 490W		149

ELECTRICAL DESIGN

Inverters & Storage		Strings per inverter	Optimizers per string	PV modules per string
1 x SE50K Synergy Manager Center Unit 62kW | 124% Oversizing		1 x string	12 x P1101 (For rooftops) (2:1), 1 x P1101 (For rooftops) (1:1)	25
		1 x string	12 x P1101 (For rooftops) (2:1)	24
	Left Unit	1 x string	10 x P1101 (For rooftops) (2:1)	20
	Right Unit	3 x strings	10 x P1101 (For rooftops) (2:1)	20
1 x SE17.3K-US 9.61kW | 56% Oversizing		1 x string	10 x P1101 (For rooftops) (2:1)	20

Three Phase Inverter with Synergy Technology
For the 208V Grid for North America
SE43.2KUS / SE50KUS

INVERTERS

12-20 YEAR WARRANTY

Powered by unique pre-commissioning process for rapid system installation

- Pre-commissioning feature for automated validation of system components and wiring during the site installation process and prior to grid connection
- Easy 2-person installation with lightweight, modular design (each inverter consists of 3 Synergy units and one Synergy Manager)
- Independent operation of each Synergy unit enables higher uptime and easy serviceability
- Built-in thermal sensors detect faulty wiring ensuring enhanced protection and safety
- Built-in arc fault protection and rapid shutdown
- Built-in PID mitigation for maximized system performance
- Monitored* and field-replaceable surge protection devices, to better withstand surges caused by lightning or other events
- Built-in module-level monitoring with Ethernet or cellular communication for full system visibility

*Applicable only for DC and AC SPDs

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Three Phase Inverter with Synergy Technology
For the 208V Grid for North America
SE43.2KUS / SE50KUS

Applicable to inverter with Part Numbers	SExxK-USx2Ixxxx		
	SE43.2KUS	SE50KUS	
OUTPUT			
Rated AC Active Output Power	43200	50000	W
Maximum AC Apparent Output Power	43200	50000	VA
AC Output Line Connections	3W + PE, 4W + PE		
Supported Grids	WYE: TN-C, TN-S, TN-C-S, TT, IT; Delta: IT		
AC Output Voltage Minimum-Nominal-Maximum[1] (L-N)	105-120-132.5		Vac
AC Output Voltage Minimum-Nominal-Maximum[1] (L-L)	183-208-229		Vac
AC Frequency Min-Nom-Max[1]	59.5 - 60 - 60.5		Hz
Maximum Continuous Output Current (per Phase, PF=1)	120	139.5	Aac
GFDI Threshold	1		A
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes		
Total Harmonic Distortion	≤ 3		%
Power Factor Range	+/-0.2 to 1		
INPUT			
Maximum DC Power (Module STC) Inverter / Synergy Unit	64800 / 21600	75000 / 25000	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC+ to DC-	600		Vdc
Operating Voltage Range	370 - 600		Vdc
Maximum Input Current	3 x 40	3 x 46.5	Adc
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	167kΩ sensitivity per Synergy Unit[2]		
CEC Weighted Efficiency	97		%
Nighttime Power Consumption	< 12		W
ADDITIONAL FEATURES			
Supported Communication Interfaces[3]	2 x RS485, Ethernet, Wi-Fi (optional), Cellular (optional)		
Smart Energy Management	Export Limitation		
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection		
Arc Fault Protection	Built-in, User Configurable (According to UL1699B)		
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 and 2020, Built-in		
PID Rectifier	Nighttime, built-in		
RS485 Surge Protection (ports 1+2)	Type II, field replaceable, integrated		
AC, DC Surge Protection	Type II, field replaceable, integrated		
DC Fuses (Single Pole)	25A, integrated		
DC SAFETY SWITCH			
DC Disconnect	Built-in		
STANDARD COMPLIANCE			
Safety	UL1699B, CSA C22.2#107.1, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE 1547, Rule 21, Rule 14 (HI)		
Emissions	FCC part 15 class A		

(1) For other regional settings please contact SolarEdge support
(2) Where permitted by local regulations
(3) For specifications of the optional communication options, visit https://www.solaredge.com/products/communication or the Resource Library webpage: https://www.solaredge.com/downloads#, to download the relevant product datasheet

Power Optimizer
For North America
P1101

Power Optimizer Model (Typical Module Compatibility)	P1101 (for up to 2 x high power or bi-facial modules)		Units
INPUT			
Rated Input DC Power[1]		1100	W
Connection Method		Single input for series connected modules	
Absolute Maximum Input Voltage (Voc at lowest temperature)		125	Vdc
MPPT Operating Range		12.5 – 105	Vdc
Maximum Short Circuit Current (Isc)		14.1	Adc
Maximum Short Circuit Current per Input (Isc)		-	Adc
Maximum Efficiency		99.5	%
Weighted Efficiency		98.6	%
Overvoltage Category		II	
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)			
Maximum Output Current		18	Adc
Maximum Output Voltage		80	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			
Photovoltaic Rapid Shutdown System		Compliant with NEC 2014, 2017, 2020	
EMC		FCC Part 15 Class A, IEC61000-6-2, IEC61000-6-3	
Safety		IEC62109-1 (class II safety), UL1741, UL3741, CSA C22.2#107.1	
Material		UL94 V-0, UV resistant	
RoHS		Yes	
INSTALLATION SPECIFICATIONS			
Compatible SolarEdge Inverters		All commercial three phase inverters	
Maximum Allowed System Voltage		1000	Vdc
Dimensions (W x L x H)		129 x 162 x 59 / 5.1 x 6.4 x 2.32	mm / in
Weight		1064 / 2.34	gr / lb
Input Connector		MC4[2]	
Input Wire Length Options	1	1.6 / 5.2	m / ft
	2		
	3		
Output Wire Type / Connector		Double insulated; MC4	
Output Wire Length		2.4 / 7.8	m / ft
Operating Temperature Range[3]		-40 to +85 / -40 to +185	˚C / ˚F
Protection Rating		IP68 / NEMA6P	
Relative Humidity		0 – 100	%

(1) Rated power of the module at STC will not exceed the Power Optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
(2) For other connector types please refer to the Power Optimizer Input Connector Compatibility Technical Note.
(3) For ambient temperatures above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers De-Rating Application Note for more details.

PV System Design Using a SolarEdge Inverter[4][5]		208V Grid SE10K	208V Grid SE17.3K*	277/480V Grid SE30K	277/480V Grid SE40K*	
Compatible Power Optimizers		P1101				
Minimum String Length	Power Optimizers	8	10	14	14	
	PV Modules	15	19	27	27	
Maximum String Length	Power Optimizers	30	30	30	30	
	PV Modules	60	60	60	60	
Maximum Continuous Power per String		7200	8820	15300	15300	W
Maximum Allowed Connected Power per String[6]		1 string – 8400 2 strings or more – 9800	1 string – 10020 2 strings or more – 12020	1 string – 17550 2 strings or more – 20300	2 strings or less – 17550 3 strings or more – 20300	W
Parallel Strings of Different Lengths or Orientations		Yes				
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers				

* The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.
(4) For each string, a Power Optimizer may be connected to a single PV module if 1) each Power Optimizer is connected to a single PV module or 2) it is the only Power Optimizer connected to a single PV module in the string.
(5) Design with three phase 208V inverters is limited. Use the SolarEdge Designer for verification.
(6) To connect more STC power per string, design your project using SolarEdge Designer.

RoHS Intertek

solaredge | DESIGNER REPORT | Page 1 of 2 Site ID: 777302866580840

VICTORY TOWER, 7051 CARROLL AVENUE
Carroll Avenue 7051, Takoma Park, Maryland, 20912, United States | Nov 9, 2024

SYSTEM OVERVIEW 149 PV modules | 2 Inverters | 75 Optimizers

SIMULATION RESULTS

Installed DC Power	Max Achieved AC Power	Annual Solar Energy Production	Annual CO2 Emission Saved	Annual Equivalent Trees Planted
73.01 kWp	50.97 kW	90.37 MWh	63.89 t	2,935

PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
149	Hanwha Q.Cells GmbH, Q.PEAK DUO XL-G10.3 / BFG 490W (user-defined)	73 kWp			180°	0°
Total: 149		73 kWp				

BILL OF MATERIALS (BOM)

Items	Part Number	Quantity
SE50K Synergy Manager		1

APPROVED
Montgomery County
Historic Preservation Commission

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR
UNIVERSAL RENEWABLES
ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007
PHONE: 202.956.8565
LIC. NO.: 410519000079

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT
NEW PV SYSTEM: 72.520 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912
APN: 01072074

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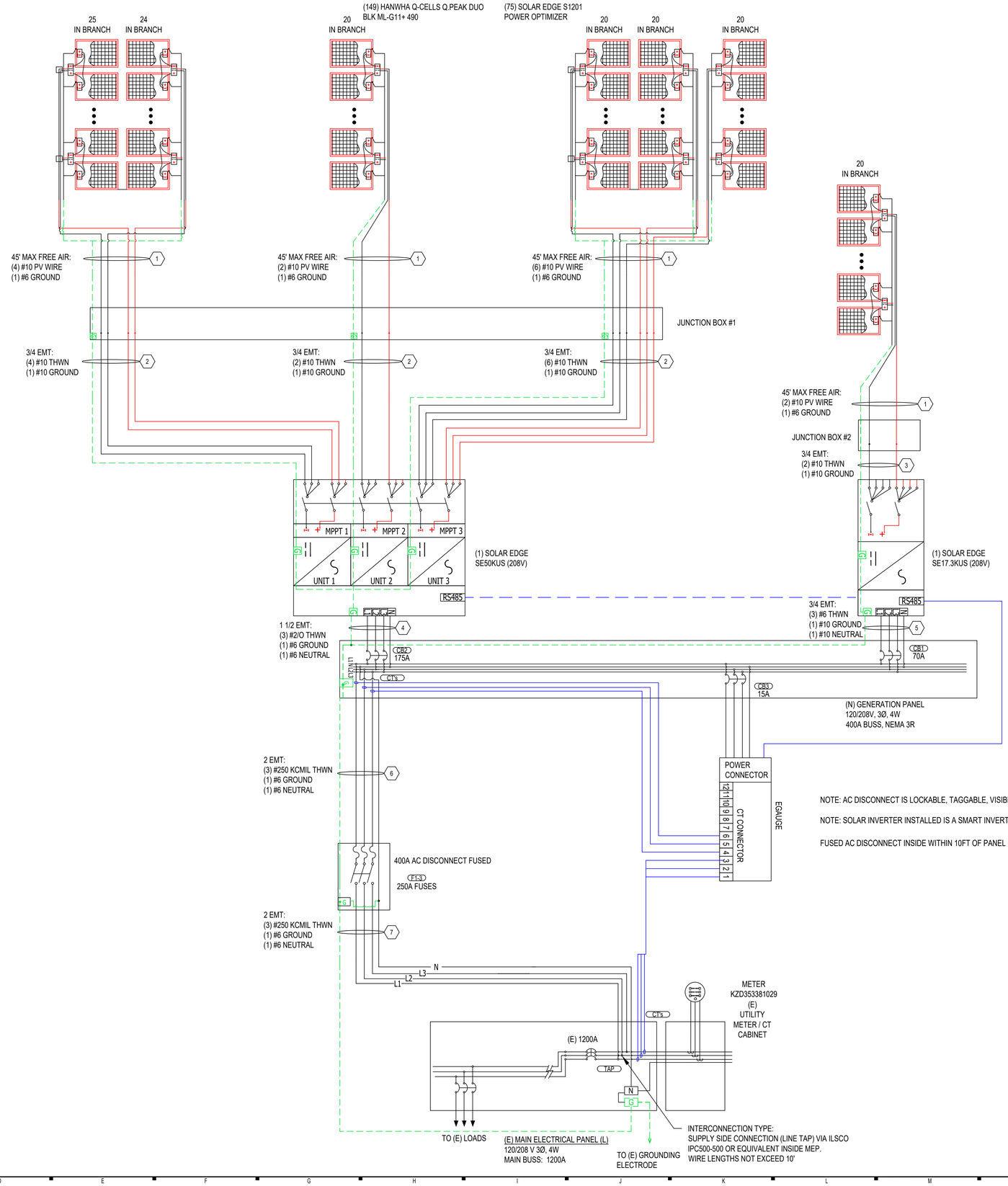

APPROVED
Montgomery County
Historic Preservation Commission

Kara Burdick

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR

UNIVERSAL RENEWABLES

ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007

PHONE: 202.966.8565

LIC. NO.: 410519000079

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 73.010 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

APN: 01072074

ENGINEER OF RECORD

STATE OF MARYLAND
METHODE MANIRAGUHA
PROFESSIONAL ENGINEER

Digitally signed by Methode Maniraguha
Date: 2024.12.10 01:31:41 +05'30'

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland:
License No. 52692
Expiration Date: 05/24/2026

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE: LINE DIAGRAM

DATE: 11.07.2024
DESIGN BY: V.G.
CHECKED BY: M.M.
SHEET NUMBER: E-601

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REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL
1	7	10 AWG PV WIRE, COPPER	FREE AIR	2	N/A	6 AWG BARE, COPPER	0.91 (35.2 °C)	1	18A	22.5A	55A	50.05A	75°C	35A
2	3	10 AWG THWN-2, COPPER	0.75" DIA EMT	3	N/A	10 AWG THWN-2, COPPER	0.91 (35.2 °C)	1	18A	22.5A	40A	36.4A	75°C	35A
3	1	10 AWG THWN-2, COPPER	0.75" DIA EMT	2	N/A	10 AWG THWN-2, COPPER	0.91 (35.2 °C)	1	18A	22.5A	40A	36.4A	75°C	35A
4	1	2/O AWG THWN-2, COPPER	1.5" DIA EMT	3+N	175A	6 AWG THWN-2, COPPER	0.91 (35.2 °C)	1	139.5A	174.38A	195A	177.45A	75°C	175A
5	1	6 AWG THWN-2, COPPER	0.75" DIA EMT	3+N	70A	10 AWG THWN-2, COPPER	0.91 (35.2 °C)	1	48.25A	60.31A	75A	68.25A	75°C	65A
6	1	250 kcmil THWN-2, COPPER	2" DIA EMT	3+N	250A	4 AWG THWN-2, COPPER	0.91 (35.2 °C)	1	187.75A	234.69A	290A	263.9A	75°C	255A
7	1	250 kcmil THWN-2, COPPER	2" DIA EMT	3+N	N/A	4 AWG THWN-2, COPPER	0.91 (35.2 °C)	1	187.75A	234.69A	290A	263.9A	75°C	255A

*FOR AMPACITIES ABOVE 100 A
TERMINALS TO BE RATED FOR 75°C

SYSTEM SUMMARY

	INVERTER #1			INVERTER #2
	STRING #1	STRING #2	STRING #3-6	STRING #1
POWERBOX MAX OUTPUT CURRENT	18A	18A	18A	18A
OPTIMIZERS IN SERIES	13	12	10	10
NOMINAL STRING VOLTAGE	400V	400V	400V	600V
ARRAY OPERATING CURRENT	30.63A	29.4A	24.5A	16.33A
ARRAY STC POWER	63,210W			9,800W
ARRAY PTC POWER	59,224W			9,182W
MAX AC CURRENT	139.5A			48.25A
MAX AC POWER	50,000W			17,300W
DERATED (CEC) AC POWER	50,000W			8,845W
TOTAL STC POWER	73,010W			
TOTAL PTC POWER	68,406W			
MAX AC CURRENT	187.75A			
MAX AC POWER	67,300W			
DERATED (CEC) AC POWER	58,845W			

MODULES

REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-149	149	HANWHA Q-CELLS Q.PEAK DUO BLK ML-G11+ 490	490W	459.1W	11..20A	10.67A	53.86V	45.93V	-0.145V/°C (-0.27%/°C)	20A

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 SE50KUS (208V)	208V	FLOATING	175A	50000W	139.5A	139.5A	600V	97.0%
I2	1	SOLAR EDGE SE17.3KUS (208V)	208V	FLOATING	70A	17300W	48.25A	55A	600V	97.5%

POWER OPTIMIZERS

REF.	QTY.	MODEL	RATED INPUT POWER	MAX OUTPUT CURRENT	MAX INPUT ISC	MAX DC VOLTAGE	WEIGHTED EFFICIENCY
PO1-75	75	SOLAR EDGE P1101	1100W	18A	15A	80V	98.6%

DISCONNECTS

REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE
SW1	1	SQUARE D D325NRB OR EQUIV.	400A	208VAC

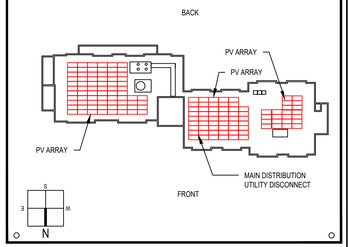
OCPDS

REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1	1	70A	208VAC
CB2	1	175A	208VAC
F1-3	3	250A	208VAC

ASHRAE EXTREME LOW	-15°C (5.0°F), SOURCE: WASHINGTON\NATIONAL (38.87°; -77.03°)
ASHRAE 2% HIGH	35.2°C (95.4°F), SOURCE: WASHINGTON\NATIONAL (38.87°; -77.03°)

!CAUTION!

MULTIPLE SOURCES OF POWER SAFETY DISCONNECTS AS SHOWN:



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

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 (5 3/4" X 1 1/8").
[NEC 690.56(B)]

WHERE THE PV SYSTEMS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE PROVIDED AT EACH PV SYSTEM DISCONNECTING MEANS.
PV SYSTEM EQUIPMENT AND DISCONNECTING MEANS SHALL NOT BE INSTALLED IN BATHROOMS
[NEC 690.4(D),(E)]

LABELING NOTES
1.1 LABELING REQUIREMENTS BASED ON THE 2017 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]
1.6 ALL SIGNAGE MUST BE PERMANENTLY ATTACHED AND BE WEATHER RESISTANT/SUNLIGHT RESISTANT AND CANNOT BE HAND-WRITTEN PER NEC 110.21(B)

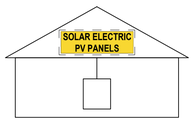
WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL 1
AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT (2" X 4").
[NEC 690.13].

WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL 2
AT POINT OF INTERCONNECTION OVERCURRENT DEVICE (2" X 4").
[NEC 705.12(B)(2)(3)(B)].

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN



TURN RAPID SHUTDOWN SWICH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY

LABEL 3
AT RAPID SHUTDOWN SYSTEM (3 3/4" X 5 1/4"). [NEC 690.56(C)(1)(A)].

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL 4
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 (5 3/4" X 1 1/8").
[NEC 690.31(G)]
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE
[IFC 605.11.1.1]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL 5
AT RAPID SHUTDOWN DISCONNECT SWITCH (5 1/4" X 2").
[NEC 690.56(C)(3)].

CAUTION
SOLAR ELECTRIC SYSTEM CONNECTED

LABEL 6
AT UTILITY METER (5 3/4" X 1 1/8")
[NEC 690.56(B)]

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

LABEL 7
AT POINT OF INTERCONNECTION (2 3/4" X 1 5/8").
[NEC 705.12(B)(3)]

WARNING
SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFED

LABEL 8
AT POINT OF INTERCONNECTION (2" X 1").
[NEC 705.12(B)(3)]

PHOTOVOLTAIC SOLAR DC DISCONNECT

LABEL 10
AT EACH DC DISCONNECTING MEANS (4" X 1").
[NEC 690.13(B)].

PHOTOVOLTAIC SOLAR AC DISCONNECT

LABEL 9
AT EACH AC DISCONNECTING MEANS (4" X 1").
[NEC 690.13(B)].

PHOTOVOLTAIC SYSTEM AC DISCONNECT

RATED AC OUTPUT CURRENT 187.75 A
NOMINAL OPERATING AC VOLTAGE 208 V

LABEL 11
AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS (4" X 2").
[NEC 690.54]

PHOTOVOLTAIC SYSTEM DC DISCONNECT

OPERATING VOLTAGE	400	VDC
OPERATING CURRENT	109.3	ADC
MAX SYSTEM VOLTAGE	600	VDC
SHORT CIRCUIT CURRENT	108	ADC

WARNING
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITON

LABEL 12
AT EACH DC DISCONNECTING MEANS (4" X 5"). [NEC 690.14 (C)(2), 690.17 (4), 690.53]

PHOTOVOLTAIC SYSTEM DC DISCONNECT

OPERATING VOLTAGE	600	VDC
OPERATING CURRENT	16.33	ADC
MAX SYSTEM VOLTAGE	600	VDC
SHORT CIRCUIT CURRENT	18	ADC

WARNING
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES IN THE

LABEL 13
AT EACH DC (4" X 5"). [NE

APPROVED
Montgomery County
Historic Preservation Commission

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR
UNIVERSAL RENEWABLES
ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007
PHONE: 202.966.6565
LIC. NO.: 410519000079

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT
NEW PV SYSTEM: 73.010 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

APN: 01072074

ENGINEER OF RECORD

STATE OF MARYLAND — METHODE MANIRAGUHA — PROFESSIONAL ENGINEER — ELECTRICAL

Digitally signed by Methode Maniraguha
Date: 2024.12.10 01:31:41 +05'30'

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland:
License No. 52692
Expiration Date: 05/24/2026

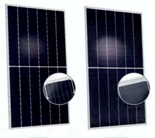
PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE: PLACARDS

DATE: 11.07.2024
DESIGN BY: V.G.
CHECKED BY: M.M.
.\signature.png

SHEET NUMBER: E-602

REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025



powered by Q.ANTUM DUO Z

Q.PEAK DUO XL-G10.3 / BFG
475-490

BIFACIAL DOUBLE GLASS MODULE
WITH EXCELLENT RELIABILITY
AND ADDITIONAL YIELD

BIFACIAL ENERGY YIELD GAIN OF UP TO 20%
Bifacial Q.ANTUM solar cells with zero gap cell layout make efficient use of light shining on the module rear-side for radically improved LCOE.

LOW ELECTRICITY GENERATION COSTS
Q.ANTUM DUO Z combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology for higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 21.4%.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID and Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

FRAME FOR VERSATILE MOUNTING OPTIONS
High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (5400 Pa) and wind loads (2400 Pa).

A RELIABLE INVESTMENT
Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty[2].

[1] APT test conditions according to IEC / TS 62804-1:2015 method B (−1500V, 168h) including post treatment according to IEC 61215-1-1 Ed. 2.0 (CD).
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:
Ground-mounted solar power plants

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	87.2 in × 41.1 in × 1.38 in (including frame) (2216 mm × 1045 mm × 35 mm)
Weight	64.2 lbs (29.1 kg)
Front Cover	0.08 in (2.0 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	0.08 in (2.0 mm) semi-tempered glass
Frame	Anodized aluminum
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥27.6 in (700 mm), (−) ≥13.8 in (350 mm)
Connector	Stäubli MC4, Stäubli MC4-Evo2, Hanwha Q CELLS HQC4, IP68

ELECTRICAL CHARACTERISTICS

POWER CLASS			475		480		485		490	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] AND BSTC[1] (POWER TOLERANCE +5 W / −0 W)										
				BSTC*		BSTC*		BSTC*		BSTC*
Minimum: Power at MPP[1]	P_{MPP}	[W]	475	519.6	480	525.0	485	530.5	490	536.0
Short Circuit Current[1]	I_{SC}	[A]	11.08	12.12	11.12	12.17	11.16	12.21	11.20	12.26
Open Circuit Voltage[1]	V_{OC}	[V]	53.15	53.34	53.39	53.58	53.63	53.82	53.86	54.06
Current at MPP	I_{MPP}	[A]	10.55	11.54	10.59	11.58	10.63	11.63	10.67	11.67
Voltage at MPP	V_{MPP}	[V]	45.03	45.02	45.33	45.32	45.63	45.62	45.93	45.92
Efficiency[1]	η	[%]	≥20.5	≥22.4	≥20.7	≥22.7	≥20.9	≥22.9	≥21.2	≥23.1

Bifaciality of P_{MPP} and I_{SC} 70% ±5% • Bifaciality given for rear side irradiation on top of STC (front side) • According to IEC 60904-1-2

[1] Measurement tolerances P_{MPP} ±3%; I_{SC}, V_{OC} ±5% at STC: 1000 W/m²; *at BSTC: 1000 W/m² + φ × 135 W/m², φ = 70% ±5%, 25±2 °C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]			475	480	485	490
Minimum: Power at MPP	P_{MPP}	[W]	357.6	361.4	365.1	368.9
Short Circuit Current	I_{SC}	[A]	8.92	8.96	8.99	9.02
Open Circuit Voltage	V_{OC}	[V]	50.27	50.49	50.72	50.95
Current at MPP	I_{MPP}	[A]	8.30	8.34	8.37	8.40
Voltage at MPP	V_{MPP}	[V]	43.06	43.35	43.63	43.92

[2] 800 W/m², NMOT, spectrum AM 1.5

Q CELLS PERFORMANCE WARRANTY

At least 98% of nominal power during first year. Thereafter max. 0.45% degradation per year. At least 93.95% of nominal power up to 10 years. At least 84.95% of nominal power up to 30 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE

Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²)

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°F]	108±5.4 (42±3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1500	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 29[4]
Max. Design Load, Push / Pull[3]	[lbs/ft²]	75 (3600 Pa) / 33 (1600 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]	[lbs/ft²]	113 (5400 Pa) / 50 (2400 Pa)		

[3] See Installation Manual
[4] New Type is similar to Type 3 but with metallic frame

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland;
UL 61730, CE-compliant;
IEC 61215:2016;
IEC 61730:2016;
U.S. Patent No. 9,893,215
(solar cells)

PACKAGING INFORMATION

Horizontal packaging	89.4 in 2270 mm	43.1 in 1095 mm	47.6 in 1210 mm	1975 lbs 896 kg	20 pallets	20 pallets	29 modules
Vertical packaging	90.8 in 2306 mm	45.3 in 1150 mm	47.4 in 1205 mm	2013 lbs 913 kg	20 pallets	20 pallets	30 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

Specifications subject to technical changes © Q CELLS Q.PEAK DUO XL-G10.3/BFG_475-490_2021-12_Rev04_NA

Three Phase Inverter for the 120/208V Grid
For North America

SE17.3KUS

INVERTERS

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for superior efficiency (97.5%) and longer strings
- Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- Built-in module-level monitoring with Ethernet, wireless or cellular communication for full system visibility
- Integrated Safety Switch
- UL1741 SA certified, for CPUC Rule 21 grid compliance

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Three Phase Inverter for the 120/208V Grid(1)
For North America

SE17.3KUS

MODEL NUMBER APPLICABLE TO INVERTERS WITH PART NUMBER	SE17.3KUS SEXXK-USX2IXXXX	UNITS
OUTPUT		
Rated AC Power Output	17300	W
Maximum apparent AC output power	17300	VA
AC Output Line Connections	3W + PE, 4W + PE	
AC Output Voltage Minimum-Nominal-Maximum(2) (L-N)	105-120-132.5	Vac
AC Output Voltage Minimum-Nominal-Maximum(2) (L-L)	183-208-229	Vac
AC Frequency Min-Nom-Max(2)	59.3 - 60 - 60.5	Hz
Continuous Output Current (per Phase)	48.25	Aac
GFDI Threshold	1	A
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes	
THD	≤ 3	%
Power Factor Range	+/- 0.85 to 1	
INPUT		
Maximum DC Power (Module STC)	30275	W
Transformer-less, Ungrounded	Yes	
Maximum Input Voltage DC+ to DC-	600	Vdc
Operating Voltage Range	370 - 600	Vdc
Maximum Input Current	48.25	Adc
Maximum Input Short Circuit Current	55	Adc
Reverse-Polarity Protection	Yes	
Ground-Fault Isolation Detection	167kΩ Sensitivity(3)	
CEC Weighted Efficiency	97.5	%
Night-time Power Consumption	< 4	W
ADDITIONAL FEATURES		
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)	
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection	
Rapid Shutdown	NEC2014, NEC2017 and NEC2020 compliant/certified	
RS485 Surge Protection Plug-in	Supplied with the inverter, Built-in	
AC, DC Surge Protection	Type II, field replaceable, Built-in	
DC Fuses (Single Pole)	25A, Built-in	
Smart Energy Management	Export Limitation	
DC SAFETY SWTICH		
DC Disconnect	Integrated	
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 part15 class A	
INSTALLATION SPECIFICATIONS		
AC output conduit size /AWG range	¾" or 1" / 6 - 10 AWG	
DC input conduit size / AWG range	¾" or 1" / 6 - 12 AWG	
Number of DC inputs pairs	4	
Dimensions with Safety Switch (H x W x D)	31.8 x 12.5 x 11.8 / 808 x 317 x 300	in / mm
Weight with Safety Switch	78.2 / 35.5	lb / kg
Cooling	Fans (user replaceable)	
Noise	< 62	dBA
Operating Temperature Range	-40 to +140 / -40 to +60(4)	˚F / ˚C
Protection Rating	NEMA 3R	
Mounting	Bracket provided	

(1) For 277/480V inverters refer to: https://www.solaredge.com/sites/default/files/se-three-phase-us-inverter-277-480V-setapp-datasheet.pdf
(2) For other regional settings please contact SolarEdge support
(3) Where permitted by local regulations
(4) For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

CE

solaredge | DESIGNER REPORT | Page 2 of 2 Site ID: 777302866580840

VICTORY TOWER, 7051 CARROLL AVENUE
Carroll Avenue 7051, Takoma Park, Maryland, 20912, United States | Nov 9, 2024

BILL OF MATERIALS (BOM) (CONTINUED)

Items	Part Number	Quantity
SE17.3K-US		1
P1101 (For rooftops)		75
Q.PEAK DUO XL-G10.3 / BFG 490W		149

ELECTRICAL DESIGN

Inverters & Storage		Strings per inverter	Optimizers per string	PV modules per string
1 x SE50K Synergy Manager 62kW | 124% Oversizing	Center Unit	1 x string	12 x P1101 (For rooftops) (2:1), 1 x P1101 (For rooftops) (1:1)	25
		1 x string	12 x P1101 (For rooftops) (2:1)	24
	Left Unit	1 x string	10 x P1101 (For rooftops) (2:1)	20
	Right Unit	3 x strings	10 x P1101 (For rooftops) (2:1)	20
1 x SE17.3K-US 9.61kW | 56% Oversizing		1 x string	10 x P1101 (For rooftops) (2:1)	20

Three Phase Inverter with Synergy Technology
For the 208V Grid for North America

SE43.2KUS / SE50KUS

INVERTERS

Powered by unique pre-commissioning process for rapid system installation

- Pre-commissioning feature for automated validation of system components and wiring during the site installation process and prior to grid connection
- Easy 2-person installation with lightweight, modular design (each inverter consists of 3 Synergy units and one Synergy Manager)
- Independent operation of each Synergy unit enables higher uptime and easy serviceability
- Built-in thermal sensors detect faulty wiring ensuring enhanced protection and safety
- Built-in arc fault protection and rapid shutdown
- Built-in PID mitigation for maximized system performance
- Monitored* and field-replaceable surge protection devices, to better withstand surges caused by lightning or other events
- Built-in module-level monitoring with Ethernet or cellular communication for full system visibility

*Applicable only for DC and AC SPDs

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Three Phase Inverter with Synergy Technology
For the 208V Grid for North America

SE43.2KUS / SE50KUS

Applicable to inverter with Part Numbers	SExxK-USx2Ixxxx		
	SE43.2KUS	SE50KUS	
OUTPUT			
Rated AC Active Output Power	43200	50000	W
Maximum AC Apparent Output Power	43200	50000	VA
AC Output Line Connections	3W + PE, 4W + PE		
Supported Grids	WYE: TN-C, TN-S, TN-C-S, TT, IT; Delta: IT		
AC Output Voltage Minimum-Nominal-Maximum(1) (L-N)	105-120-132.5		Vac
AC Output Voltage Minimum-Nominal-Maximum(1) (L-L)	183-208-229		Vac
AC Frequency Min-Nom-Max(1)	59.5 - 60 - 60.5		Hz
Maximum Continuous Output Current (per Phase, PF=1)	120	119.5	Aac
GFDI Threshold	1		A
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes		
Total Harmonic Distortion	≤ 3		%
Power Factor Range	+/-0.2 to 1		
INPUT			
Maximum DC Power (Module STC) Inverter / Synergy Unit	64800 / 21600	75000 / 25000	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC+ to DC-	600		Vdc
Operating Voltage Range	370 - 600		Vdc
Maximum Input Current	3 x 40	3 x 46.5	Adc
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	167kΩ sensitivity per Synergy Unit(2)		
CEC Weighted Efficiency	97		%
Nighttime Power Consumption	< 12		W
ADDITIONAL FEATURES			
Supported Communication Interfaces(3)	2 x RS485, Ethernet, Wi-Fi (optional), Cellular (optional)		
Smart Energy Management	Export Limitation		
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection		
Arc Fault Protection	Built-in, User Configurable (According to UL1699B)		
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 and 2020, Built-in		
PID Rectifier	Nighttime, built-in		
RS485 Surge Protection (ports 1+2)	Type II, field replaceable, integrated		
AC, DC Surge Protection	Type II, field replaceable, integrated		
DC Fuses (Single Pole)	25A, integrated		
DC SAFETY SWITCH			
DC Disconnect	Built-in		
STANDARD COMPLIANCE			
Safety	UL1699B, CSA C22.2#107.1, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE 1547, Rule 21, Rule 14 (HI)		
Emissions	FCC part 15 class A		

(1) For other regional settings please contact SolarEdge support
(2) Where permitted by local regulations
(3) For specifications of the optional communication options, visit https://www.solaredge.com/products/communication or the Resource Library webpage: https://www.solaredge.com/downloads#, to download the relevant product datasheet

Power Optimizer
For North America

P1101

Power Optimizer Model (Typical Module Compatibility)		P1101 (for up to 2 x high power or bi-facial modules)	Units
INPUT			
Rated Input DC Power(1)		1100	W
Connection Method		Single input for series connected modules	
Absolute Maximum Input Voltage (Voc at lowest temperature)		125	Vdc
MPPT Operating Range		12.5 – 105	Vdc
Maximum Short Circuit Current (Isc)		14.1	Adc
Maximum Short Circuit Current per Input (Isc)		-	Adc
Maximum Efficiency		99.5	%
Weighted Efficiency		98.6	%
Overvoltage Category		II	
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)			
Maximum Output Current		18	Adc
Maximum Output Voltage		80	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			
Photovoltaic Rapid Shutdown System		Compliant with NEC 2014, 2017, 2020	
EMC		FCC Part 15 Class A, IEC61000-6-2, IEC61000-6-3	
Safety		IEC62109-1 (class II safety), UL1741, UL3741, CSA C22.2#107.1	
Material		UL94 V-0, UV resistant	
RoHS		Yes	
INSTALLATION SPECIFICATIONS			
Compatible SolarEdge Inverters		All commercial three phase inverters	
Maximum Allowed System Voltage		1000	Vdc
Dimensions (W x L x H)		129 x 162 x 59 / 5.1 x 6.4 x 2.32	mm / in
Weight		1064 / 2.34	gr / lb
Input Connector		MC4(2)	
Input Wire Length Options	1	1.6 / 5.2	m / ft
	2		
	3		
Output Wire Type / Connector		Double insulated; MC4	
Output Wire Length		2.4 / 7.8	m / ft
Operating Temperature Range(3)		-40 to +85 / -40 to +185	˚C / ˚F
Protection Rating		IP68 / NEMA6P	
Relative Humidity		0 – 100	%

(1) Rated power of the module at STC will not exceed the Power Optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
(2) For other connector types please refer to the Power Optimizer Input Connector Compatibility Technical Note.
(3) For ambient temperatures above +70˚C / +158˚F power de-rating is applied. Refer to Power Optimizers De-Rating Application Note for more details.

PV System Design Using a SolarEdge Inverter(4)(5)		208V Grid SE10K	208V Grid SE17.3K*	277/480V Grid SE30K	277/480V Grid SE40K*	
Compatible Power Optimizers		P1101				
Minimum String Length	Power Optimizers	8	10	14	14	
	PV Modules	15	19	27	27	
Maximum String Length	Power Optimizers	30	30	30	30	
	PV Modules	60	60	60	60	
Maximum Continuous Power per String		7200	8820	15300	15300	W
Maximum Allowed Connected Power per String(6)		1 string – 8400 2 strings or more – 9800	1 string – 10020 2 strings or more – 12020	1 string – 17550 2 strings or more – 20300	2 strings or less – 17550 3 strings or more – 20300	W
Parallel Strings of Different Lengths or Orientations		Yes				
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers				

* The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.
(4) For each string, a Power Optimizer may be connected to a single PV module if 1) each Power Optimizer is connected to a single PV module or 2) it is the only Power Optimizer connected to a single PV module in the string.
(5) Design with three phase 208V inverters is limited. Use the SolarEdge Designer for verification.
(6) To connect more STC power per string, design your project using SolarEdge Designer.

RoHS Intertek

solaredge | DESIGNER REPORT | Page 1 of 2 Site ID: 777302866580840

VICTORY TOWER, 7051 CARROLL AVENUE
Carroll Avenue 7051, Takoma Park, Maryland, 20912, United States | Nov 9, 2024

SYSTEM OVERVIEW: 149 PV modules | 2 Inverters | 75 Optimizers

SIMULATION RESULTS

Installed DC Power	Max Achieved AC Power	Annual Solar Energy Production	Annual CO2 Emission Saved	Annual Equivalent Trees Planted
73.01 kWp	50.97 kW	90.37 MWh	63.89 t	2,935

PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
149	Hanwha Q.Cells GmbH, Q.PEAK DUO XL-G10.3 / BFG 490W (user-defined)	73 kWp			180°	0°
Total: 149		73 kWp				

BILL OF MATERIALS (BOM)

Items	Part Number	Quantity
SE50K Synergy Manager		1

APPROVED
Montgomery County
Historic Preservation Commission

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR
UNIVERSAL RENEWABLES
ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007
PHONE: 202.956.8565
LIC. NO.: 410519000079

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT
NEW PV SYSTEM: 73.010 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912
APN: 01072074

ENGINEER OF RECORD

PAPER SIZE: 36" x 24" (ARCH D)

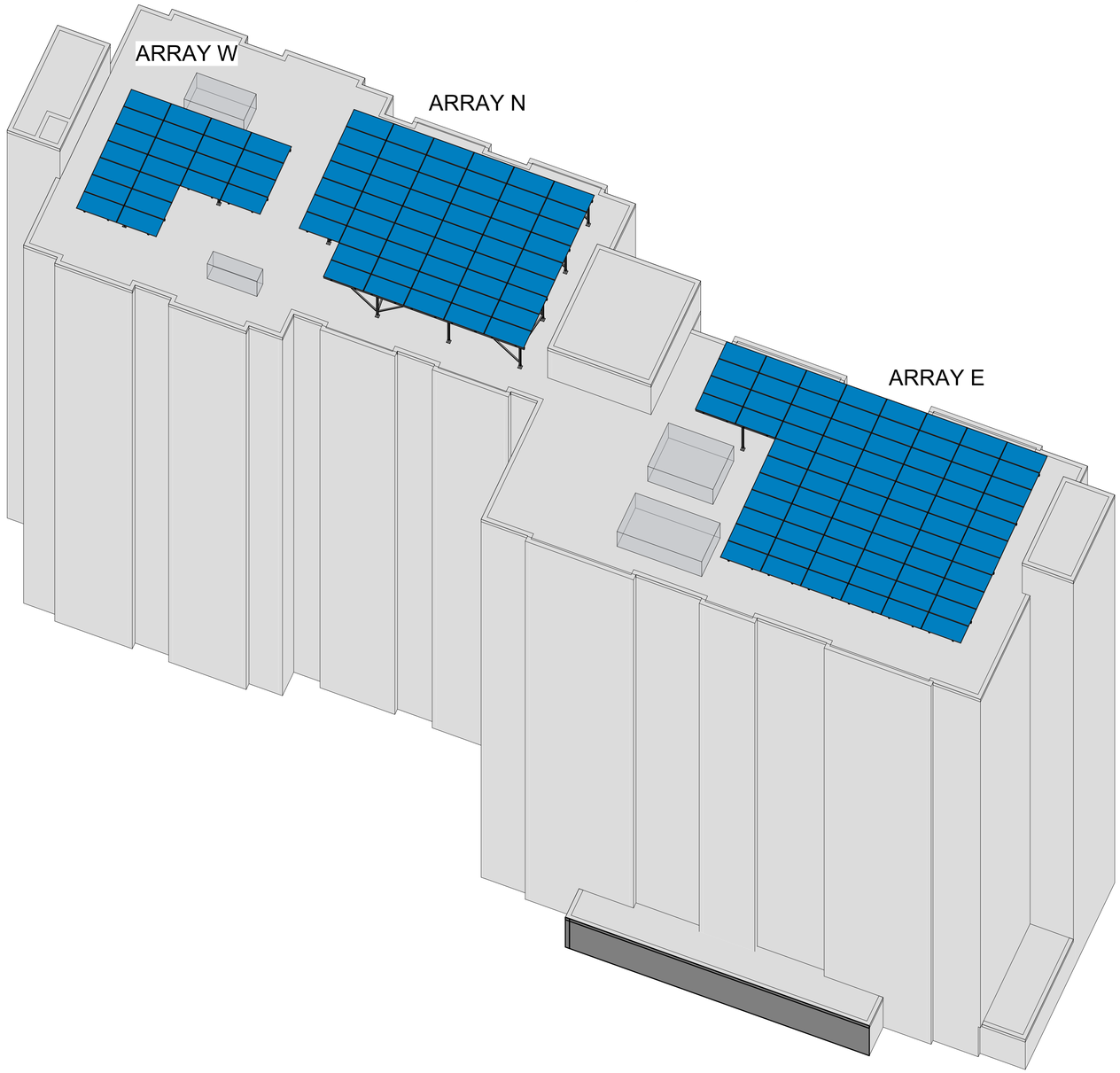
SHEET TITLE: RESOURCE DOCUMENT

DATE: 11.07.2024
DESIGN BY: V.G. .\signature.png
CHECKED BY: M.M.
SHEET NUMBER: R-001

REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

NEW SOLAR CANOPY STRUCTURAL SUPPORT DESIGN AT

7051 CARROLL AVE.
TAKOMA PARK, MD



SHEET NO.	SHEET NAME
S-01	COVER SHEET
S-02	GENERAL NOTES
S-11	PANEL LAY
S-12	POST LAYO
S-13	BEAM FRAI
S-14	BRACE FRA
S-15	SUPPORT I
S-21	DETAILS
S-22	DETAILS
S-31	ELEVATION

TOTAL: 10

APPROVED
Montgomery County
Historic Preservation Commission

REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
3516 MASSACHUSSETTS AVE NW
WASHINGTON, DC 20007

UNIVERSAL RENEWABLES
ELEVATING SOLAR

LICENSE# 410519000079

ENGINEER OF RECORD
KSB STRUCTURAL ENGINEERING

KSB ENGINEERS
www.ksb-engineers.com

ISSUE/REVISION		
NO.	DESCRIPTION	DATE
1	PERMIT	2/19/2025

NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

COVER SHEET

S-01

PROJECT DESCRIPTION

ROOF MOUNTED SOLAR PANELS AND RACKING SYSTEM TO EXISTING STRUCTURE:

PROJECT CONSISTS OF INSTALLING NEW SOLAR PANEL AND SUPPORTING RACKING SYSTEM TO AN EXISTING STRUCTURE. THE PROJECT IS LOCATED AT 7051 CARROLL AVE, TAKOMA PARK, MD. THE EXISTING STRUCTURE IS A MULTI-FAMILY SENIOR RESIDENTIAL BUILDING FRAMED OUT OF CONCRETE. THE SOLAR PANELS INSTALLED ON THE ROOF ARE TO BE SUPPORTED BY A PROPRIETARY RACKING SYSTEM SUPPLIED BY UNIVERSAL ALUMINUM PRODUCTS. THE RACKING SYSTEM IS ALUMINUM AND CONSISTS OF STRINGERS THAT SUPPORT THE SOLAR PANELS. THE STRINGERS ARE SUPPORTED BY BEAM FRAME LINES, WHICH ARE THEN SUPPORTED BY VERTICAL POSTS. THE ENTIRE SYSTEM CONTAINS BRACES TO RESIST LATERAL WIND AND SEISMIC LOADS WHILE PROVIDING STRUCTURE STABILITY. THE SOLAR RACKING SYSTEM IS TO BE PERMANENTLY ATTACHED TO EXISTING ROOF FRAMING. THE PROJECT CONSISTS OF (3) SOLAR PANEL ARRAYS WITH APPROXIMATELY 148 +/-SOLAR PANELS TOTAL.

GENERAL PROJECT SPECIFICATIONS

CONTRACTOR REQUIREMENTS

DIGITAL FILES: PDF STRUCTURAL DRAWINGS SUPERCEDE ANY AND ALL DIGITAL FILES (I.E. DWG, DXF, RVT, ETC). ANY DISCREPANCIES SHALL BE BROUGHT TO ATTENTION OF DESIGN TEAM. DRAWINGS SHALL NOT BE SCALED.

DRAWING SCALE: DO NOT SCALE DRAWINGS FOR DIMENSIONS. IF ANY DIMENSIONS ARE MISSING SUBMIT AN RFI FOR DESIGN TEAM REVIEW.

COORDINATION: CONTRACTOR SHALL NOTIFY DESIGN TEAM OF ANY AND ALL COORDINATION ISSUES BETWEEN ARCHITECTURAL, STRUCTURAL, MECHANICAL, CIVIL, ELECTRICAL, PLUMBING, INTERIOR DESIGN AND ANY OTHER DESIGN CONSULTANTS.

EXISTING CONDITIONS: FOR EXISTING CONDITIONS OR STRUCTURES, CONTRACTOR SHALL NOTIFY DESIGN TEAM OF ANY AND ALL DISCOVERED ITEMS THAT ARE EITHER DISCREPANCIES OR CONFLICT WITH DESIGN DRAWINGS.

CONSTRUCTION STANDARDS: ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH 2021 IBC BUILDING CODE. CONSTRUCTION SHALL CONFORM TO MATERIAL INSTALLATION REQUIREMENTS AS OUTLINED IN EACH MATERIAL SECTION. CONTRACTOR SHALL MAINTAIN, ON SITE, A PRINTED VERSION OF EACH CONSTRUCTION BUILDING STANDARD AS APPLICABLE TO PROJECT.

PRODUCT SUBSTITUTIONS: ALTERNATIVE PRODUCTS MAY BE REQUESTED BY THE CONTRACTOR AS A RFI OR SUBMITTAL. SUBSTATIONS SHALL BE EQUIVALENT IN NATURE, STRENGTH AND APPROVALS.

MEANS AND METHODS: CONTRACTOR IS FULLY RESPONSIBLE FOR MEANS AND METHODS. NOTHING IN THE DESIGN DRAWINGS, SUBMITTAL REVIEW OR RFI RESPONSE SHALL CONSTRUE DESIGNER LEAD INSTRUCTIONS ON MEANS AND METHODS. THIS REQUIREMENT SHALL BE EXTEND TO INCLUDE SAFETY.

TEMPORARY CONSTRUCTION LOADS: CONSTRUCTION LOADS SHALL NOT BE GREATER THAN LIVE LOADS LISTED IN GENERAL NOTES. FOR TEMPORARY CONSTRUCTION LOADING EXCEEDING LIVE LOAD CAPACITIES, CONTRACTOR SHALL DEVELOP A TEMPORARY SHORING PLAN OR RECEIVE EOR WRITTEN APPROVAL.

TEMPORARY BRACING: CONTRACTOR IS FULLY RESPONSIBLE FOR ANY TEMPORARY BRACING, SHORING, SUPPORTS, LIFE SAFETY AND CONSTRUCTION ENGINEERING DESIGN UNTIL THE STRUCTURAL SYSTEM IS FULLY INSTALLED AND IN A COMPLETE STATE.

AS-BUILT DRAWINGS: CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAIN AN AS-BUILT SET OF DOCUMENTS THAT INCLUDES DESIGN CHANGES THROUGH ASI'S, RFI'S, SSK'S AND SUBMITTALS. CONTRACTOR SHALL PROVIDE A COPY OF AS-BUILT DRAWINGS TO DESIGN TEAM AT COMPLETION OF PROJECT.

SUBMITTALS & RFI'S

SUBMITTALS

SUBMITTAL REVIEW: CONTRACTOR SHALL FULLY REVIEW AND COMMENT ON ALL SUBMITTED SHOP DRAWINGS OR OTHER SUBMITTALS. "RUBBER STAMPED" REVIEWS WILL BE REJECTED BY DESIGN TEAM. DESIGN TEAM REVIEW OF DRAWINGS IS TO ENSURE DESIGN INTENT AND DOES NOT INCLUDE REVIEW OF QUANTITIES OR DIMENSIONS. ERRORS AND OMISSIONS IN APPROVED SHOP DRAWINGS DOES NOT RELIEVE CONTRACTOR OF DUTIES PER STRUCTURAL DRAWINGS. REVIEW COMMENTS SHALL INCLUDE INITIALS AND COMPANY NAME IN EACH COMMENT.

SUBMITTAL REVIEW TIME: SUBMITTALS SHALL BE REVIEWED BY DESIGN TEAM WITH IN 10 BUSINESS DAYS. DESIGN TEAM IS NOT RESPONSIBLE FOR CONSTRUCTION DELAYS ASSOCIATED WITH REVIEW OF SUBMITTALS.

REQUIRED SUBMITTALS: CONTRACTOR SHALL SUBMIT ON ANY AND ALL BUILDING MATERIALS AND SHOP DRAWINGS REQUIRED. AT A MINIMUM, CONTRACTOR SHALL PROVIDE THE FOLLOWING STRUCTURAL SUBMITTALS:

- CONSTRUCTION INSTALLATION QUALITY CONTROL PLAN
- CONSTRUCTION INSTALLATION QUALITY CONTROL PLAN RESULTS AND CONTRACTOR COMPLIANCE STATEMENT LETTER
- PRODUCT DATA FOR ANCHOR RODS & HOLDOWNS OUTSIDE OF THOSE SPECIFIED IN CONTRACT DOCUMENTS

DELEGATED DESIGN: CONTRACTOR SHALL PROVIDED ENGINEERED DRAWINGS AND CALCULATIONS FOR REVIEW OF ANY SUBMITTALS THAT ARE MARKED AS DELEGATED DESIGN. DELEGATED DESIGN SUBMITTALS SHALL INCLUDE A PROFESSIONAL ENGINEERING SEAL FOR THAT STATE THE PROJECT IS LOCATED.

- NO DELEGATED DESIGN REQUIREMENTS

REQUEST FOR INFORMATION (RFI'S)

RFI'S: RFI SHALL INCLUDE A THOROUGH DESCRIPTION OF THE ISSUE WITH A PROPOSED SOLUTION. RFI'S SHALL INCLUDE REFERENCE TO DRAWING NUMBERS, LOCATIONS FROM GRID, DETAIL REFERENCES, PHOTOS AND ANY OTHER PERTINENT INFORMATION. INCOMPLETE OR MINIMALLY DESCRIBED RFI'S WILL BE REJECTED.

RFI REVIEW TIME: . RFI RESPONSES SHALL BE REVIEWED AND RESPONDED WITH IN 5 BUSINESS DAYS. DESIGN TEAM IS NOT RESPONSIBLE FOR CONSTRUCTION DELAYS ASSOCIATED WITH RFI RESPONSES.

ABBREVIATIONS

A.B.	ANCHOR BOLT	LVL	LAMINATED VENEER LUMBER
ADDL	ADDITIONAL	LW	LIGHT WEIGHT
AFF	ABOVE FINISHED FLOOR	MAX.	MAXIMUM
ALT.	ALTERNATE	MECH.	MECHANICAL
ARCH.	ARCHITECT	MFR	MANUFACTURER
BM	BEAM	MID.	MIDDLE
BOT.	BOTTOM	MIN.	MINIMUM
BRG	BEARING	MISC.	MISCELLANEOUS
BTWN	BETWEEN	MTL	METAL
CANT.	CANTILEVER	N/A	NOT APPLICABLE
CIP	CAST IN PLACE	NOM.	NOMINAL
C.J.	CONSTRUCTION JOINT	NTS	NOT TO SCALE
C.L.	CENTERLINE	O.C.	ON CENTER
CLR	CLEAR	O.D.	OUTSIDE DIAMETER
CMU	CONCRETE MASONRY UNIT	PRLL	PARALLEL
CONC.	CONCRETE	P/C	PRECAST
CNX	CONNECTION	PCF	POUNDS PER CUBIC FOOT
CONST.	CONSTRUCTION	PERIM.	PERIMETER
CONT.	CONTINUOUS	PRP	PERPENDICULAR
CNTR	CENTER	PL.	PLATE
DBL	DOUBLE	PLY.	PLYWOOD
DTL.	DETAIL	PSF	POUNDS PER SQUARE FOOT
DF	DOUGLAS FIR	PSI	POUNDS PER SQUARE INCH
DIA.	DIAMETER	PT	PRESSURE TREATED
DIAG.	DIAGONAL	R	RADIUS
DWGS	DRAWINGS	REF.	REFER TO
DWL(S)	DOWEL(S)	REINF.	REINFORCEMENT
EA.	EACH	REQD	REQUIRED
E.F.	EACH FACE	RTU	ROOF TOP UNIT
E.J.	EXPANSION JOINT	SCHED.	SCHEDULE
ELV	ELEVATION	SHT	SHEET
EOR	ENGINEER OF RECORD	SIM.	SIMILAR
EQ.	EQUAL	S.O.G.	SLAB-ON-GRADE
E.W.	EACH WAY	SPEC.	SPECIFICATION
EXP.	EXPANSION	SS	STAINLESS STEEL
EXT.	EXTERIOR	STD	STANDARD
FDN	FOUNDATION	STIFF.	STIFFENER
F.F.	FINISHED FLOOR	T&B	TOP AND BOTTOM
FTG	FOOTING	TEMP.	TEMPERATURE
GA.	GAGE	TEN.	TENSION
GALV.	GALVANIZE	TERM.	TERMINATE
GL	GLULAM	THK	THICKNESS
FT	FOOT	T.O.B.	TOP OF BEAM
HAS	HEADED ANCHOR STUD	T.O.C.	TOP OF CONCRETE
HORZ	HORIZONTAL	T.O.F.	TOP OF FOOTING
HSS	HOLLOW STRUCTURAL SECTION	T.O.P.	TOP OF PIER
HT	HEIGHT	T.O.S.	TOP OF SLAB
I.D.	INSIDE DIAMETER	TYP.	TYPICAL
I.F.	INSIDE FACE	U.N.O.	UNLESS NOTED OTHERWISE
IN	INCH	VAR.	VARIES
INFO.	INFORMATION	VERT.	VERTICAL
INT.	INTERIOR	W/	WITH
LBS	POUNDS	W/O	WITHOUT
LLH	LONG LEG HORIZONTAL	WP	WORK POINT
LLV	LONG LEG VERTICAL	WT.	WEIGHT
		WWM	WELDED WIRE MESH

STRUCTURAL DESIGN CRITERIA

GOVERNING DESIGN CODES:

MUNICIPALITY: MARYLAND BUILDING PERFORMANCE STANDARDS

GOVERNING CODE: 2021 IBC INTERNATIONAL BUILDING CODE

EXISTING BUILDING CODE: 2021 IEBC INTERNATIONAL EXISTING BUILDING CODE

BUILDING LOADS: ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES

STRUCTURAL STEEL: AISC 360 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS

STEEL SEISMIC: AISC 341 SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS

CONCRETE: ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

MASONRY: TMS 402 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES /TMS 402-16)

WOOD: AWC NDS NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS-05)

WOOD SEISMIC & WIND: SDPWS SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC

COLD-FORMED STEEL: AISI S100 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS

COLD-FORMED STEEL SEISMIC: AISI S400 NORTH AMERICAN STANDARD FOR SEISMIC DESIGN OF COLD FORMED STEEL STRUCTURAL SYSTEMS

ALUMINUM: ADM 2020 ALUMINUM DESIGN MANUAL

GRAVITY DESIGN LOADS AND CRITERIA

SOLAR PANELS & RACK STRUCTURE
- SOLAR PANELS: 2.5 PSF
- RACKING FRAME: SELF-WEIGHT (APPROXIMATELY 1.5 PSF AVERAGE)

SNOW
- GROUND SNOW LOADING: 25 PSF (ASCE 7)
- ROOF SNOW LOADING: 20 PSF MIN

SEISMIC LOADS AND CRITERIA

CRITERIA
- RISK CATEGORY: II
- IMPORTANCE FACTOR: 1.0
- SITE CLASS: D
- 0.2 SEC MCE$_R$ GROUND MOTION : S_S=0.133
- 1.0 SEC MCE$_R$ GROUND MOTION: S_1=0.043
- 0.2 SEC SEISMIC DESIGN VALUE: S_{DS}=0.142
- 1.0 SEC SEISMIC DESIGN VALUE: S_{D1}=0.069
- SEISMIC DESIGN CATEGORY: B
- LATERAL FORCE RESISTING SYSTEM:
  - MECHANICAL AND ELECTRICAL COMPONENTS (BOTH DIRECTIONS)
  - ROOF MOUNTED STACKS LATERALLY BRACED BELOW CENTER OF MASS
- R FACTOR: R=3.0 (BOTH DIRECTIONS)

LOADS
- ANALYSIS PROCEDURE: ASCE 7 CHAPTER 13 - SEISMIC DESIGN ON NON-STRUCTURAL COMPONENTS (BOTH DIRECTIONS)
- BASE SHEAR: N/A - NOT REQUIRED POUNDS/SQUARE-FOOT OF SOLAR PANEL ARRAY (BOTH DIRECTIONS)

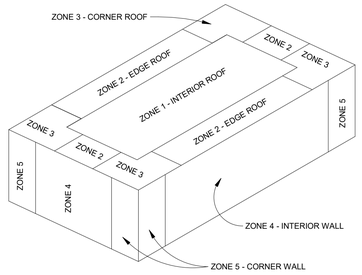
WIND LOADS AND CRITERIA

CRITERIA
- BASIC WIND SPEED: 115 MPH
- RISK CATEGORY: II
- EXPOSURE CATEGORY: B

RACKING SYSTEM WIND FORCE RESISTING SYSTEM LOADS:
- BRACED FRAMES

WIND PRESSURES ON SOLAR PANEL ARRAYS:

- ANALYSIS APPROACH: ASCE 7 SECTION 29.4.3 ROOFTOP SOLAR PANELS ON FLAT ROOFS OR COMPONENT AND CLADDING PRESSURES, WHICHEVER IS MOST CONSERVATIVE AND/OR APPLICABLE
- SOLAR PANEL EXPOSURE TYPE: CONSERVATIVELY USE EXPOSED DEFINITION FOR ALL PANELS
- SOLAR PANEL ARRAY PRESSURE AND SUCTIONS ARE PRESENTED IN BELOW DIAGRAM AND TABLE.



COMPONENT AND CLADDING PRESSURES TABLE

EFFECTIVE WIND AREA ON BUILDING COMPONENT			
ZONE # - ACTION	**<10 SF [PSF]**	**100 SF [PSF]**	**500+ SF [PSF]**
ZONE 1 - SUCTION	-23.5	-16.0	-16
ZONE 2 - SUCTION	-31.2	-16.0	-16
ZONE 3 - SUCTION	-35.7	-16.0	-16
ZONE 4 - SUCTION	N/A	N/A	N/A
ZONE 5 - SUCTION	N/A	N/A	N/A
ROOF - PRESSURE	23.5	16.0	16.0
WALL - PRESSURE	N/A	N/A	N/A
ZONE 4 - PARAPET	N/A	N/A	N/A
ZONE 5 - PARAPET	N/A	N/A	N/A

NOTES:
- COMPONENT AND CLADDING WIND FORCES ARE PRESENTED AS ULTIMATE WIND PRESSURES. ALLOWABLE WIND PRESSURES MAY BE ASSUMED BY MULTIPLYING THE TABULATED VALUES BY 0.6
- TABULATED VALUES MAY BE LINEARLY INTERPOLATED FOR SF VALUES BETWEEN THOSE PRESENTED. ALTERNATIVELY & CONSERVATIVELY, FORCES MAY BE ROUNDED UP TO A HIGHER VALUE ASSOCIATED WITH THE LOWER SF TABULATED SF AREA.
- (-) NEGATIVE VALUES REPRESENT SUCTION FORCES WHICH IS EQUIVALENT TO A COMPONENT OR CLADDING BEING PULLED AWAY FROM THE ATTACHMENT POINTS.
- (+) VALUES REPRESENT PRESSURE FORCES WHICH IS EQUIVALENT TO A COMPONENT OR CLADDING BEING PUSHED TOWARDS THE ATTACHMENT POINTS.
- VALUES ARE COMBINATION OF CODE PRESCRIBED SOLAR PANEL LOADING AND COMPONENT AND CLADDING BASED UPON ENGINEERING JUDGMENT OF MOST CONSERVATIVE AND/OR APPLICABLE.

EXISTING STRUCTURE

EXISTING STRUCTURE INFORMATION PROVIDED:

PDF DRAWINGS: KSB STRUCTURAL ENGINEERING RECEIVED PHOTOS OF EXISITING DRAWINGS REGARDING A RENNOVATION TO THE ORGININAL STRUCTURE.

BUILDING PHOTOGRAPHS: KSB RECEIVED BUILDING PHOTOGRAPHS FROM UNIVERSAL AL. IN Q4 OF 2024.

LIMITED INFORMATION: COMBINATION OF DRAWINGS AND PHOTOS PROVIDED ENOUGH INFORMATION TO DETERMINE FRAMING SCHEME OF STRUCTURE BUT DO NOT PROVIDE EXACT EXISTING BUILDING FRAMING SIZES AND SPACING. ALL EXISTING STRUCTURE FRAMING SHALL BE FIELD VERIFIED PRIOR TO START OF CONSTRUCTION. DISCREPANCIES SHALL BE NOTIFIED TO KSB PRIOR TO INSTALLATION OF SOLAR RACKING SYSTEM.

EXISTING STRUCTURE FRAMING

ROOF FRAMING
- CAST-IN-PLACE CONCRETE SLAB
- NOTIFIED OF 10" SLAB THICKNESS

VERTICAL FRAMING
- RECTANGULAR CONCRETE COLUMNS - CAST-IN-PLACE

EXISTING STRUCTURE CAPACITY REGARDING ADDED SOLAR PANELS

TOTAL ADDED LOAD: TOTAL INCREASE OF DEAD LOAD IS LESS THAN 5% OF EXISTING TOTAL GRAVITY DEMAND. THEREFORE PER INTERNATIONAL EXISTING BUILDING CODE, ADDED SOLAR PANEL FRAMING IS STRUCTURALLY ACCEPTABLE.

REDISTRIBUTION OF LOAD: SLAB WAS ANALYZED TO DISTRIBUTE POST LOADS TO RIBS AND BEAM. DISTRIBUTION OF MULTIPLE RIBS RESULTS IN GREATER DISTRIBUTION OF LOADING POINTS TO MORE CLOSELY MIMIC UNIFORM DISTRIBUTED LOAD OF EXISTING CONDITION TO A STRUCTURALLY ACCEPTABLE DEGREE.

ALUMINUM FRAMING

GENERAL ALUMINUM NOTES:

ALUMINUM FRAMING STANDARDS: ALUMINUM DESIGN MANUAL 2020

STANDARD PRACTICE FOR FABRICATING AND ERECTING: FOLLOW ALUMINUM DESIGN MANUAL 2020 PART IX CODE OF STANDARD PRACTICE FOR FABRICATING AND ERECTING STRUCTURAL ALUMINUM

ALUMINUM MATERIAL GRADE: 6061-T6

ALUMINUM FRAMING MATERIAL SUPPLIER: UNIVERSAL ALUMINUM PRODUCTS (UAP)

UAP PROPRIETARY EXTRUDED ALUMINUM SHAPES
- 3x2 STRINGER
- 4x3 STRINGER OR POST
- 6x3 BEAM
- 9x3 BEAM
- W8x10.7 BEAM
- SEE CALCULATIONS FOR SECTION PROPERTIES OF ALL UAP EXTRUDED SHAPES

QUALITY CONTROL:
- INSTALLER SHALL MAINTAIN WRITTEN INSTALLATION QUALITY CONTROL PROGRAM.
- INSTALLER SHALL INSPECT EVERY MEMBER SIZE AND SPLICE LOCATION.
- INSTALLER SHALL INSPECT EVERY BOLTED OR SCREWED CONNECTION.
- INSTALLER SHALL PROVIDE KSB STRUCTURAL ENGINEERING A SIGNED LETTER STATING IN-HOUSE INSPECTION WAS COMPLETED AND ALL DEVIATIONS CORRECTED.

SPECIAL INSPECTIONS:
- KSB STRUCTURAL ENGINEERING SHALL REQUEST FIELD PHOTOS OF VARIOUS LOCATIONS FOR REVIEW.
- NO 3rd PARTY SPECIAL INSPECTIONS REQUIRED IF INSTALLER PROVIDES WRITTEN QUALITY CONTROL PLAN AND SIGNED LETTER

SPLICE LOCATIONS:
- SEE DETAILS FOR ALLOWABLE SPLICE LOCATIONS

STEEL FRAMING

STEEL STANDARDS:

ALL STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL FOLLOW THE BELOW LISTED STANDARDS.

DESIGN & ENGINEERING: AISC 360 - SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS

STANDARD PRACTICES: AISC 303 - CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES

BOLTED CONNECTIONS: RCSC - SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS

WELDED CONNECTIONS: AWS D1.1 - STRUCTURAL WELDING CODE - STEEL

STEEL MATERIAL GRADES

ALL STRUCTURAL STEEL SHALL FOLLOW THE BELOW ASTM DESIGNATIONS UNLESS NOTED OTHERWISE ON DRAWINGS.

A992: WF-SHAPES, WT-SHAPES & HP-SHAPES

A36: ANGLES, PLATES, BARS, C-SHAPES, MC-SHAPES, M-SHAPES, S-SHAPES & MISC. STEEL.

A500 GR.B FY=46: HSS SQUARE OR RECTANGULAR

A500 GR.B FY=42: HSS ROUND

A53 GR.B: STEEL PIPE

A325: STEEL BOLTS, UNLESS NOTED OTHERWISE. EXTERIOR PERMANENTLY EXPOSED BOLT ASSEMBLIES SHALL BE TYPE 3.

F1554 GR.55: ANCHOR RODS, UNLESS NOTED OTHERWISE

SHOP PAINTING OR GALVANIZATION

INTERIOR STEEL
ALL STEEL THAT IS WITHIN BUILDING WEATHERPROOFING ENVELOPE NEED NOT BE SHOP PRIMED OR PAINTED. ERECTOR SHALL GIVE CONSIDERATION TO SHOP PRIME FOR ANY STEEL THAT MAY BE TEMPORALLY EXPOSED TO AMBIENT CONDITION FOR A DURATION THAT WOULD ENABLE NOTABLE SURFACE RUST BASED ON LOCAL CONDITIONS. FABRICATOR AND ERECTOR SHALL FOLLOW INDUSTRY STANDARDS FOR GEOGRAPHIC REGION OF PROJECT.

EXTERIOR STEEL
ALL STEEL THAT IS EXTERIOR EXPOSED SHALL BE SHOP PRIMED AND RECEIVE A FINAL RUST INHIBITING COAT OF PAINT.

GALVANIZED STEEL
ONLY GALVANIZE STEEL AS CALLED OUT IN PLAN DETAILS OR NOTES. FOLLOW ASTM; A123, A153 & A385. UNLESS NOTED OTHERWISE, NEVER IMPLEMENT GALVANIZED BOLT ASSEMBLIES.

BASE PLATE GROUTING
PROVIDE HIGH-STRENGTH NON-SHRINK GROUT BELOW ALL POST AND COLUMN BASE PLATES. DRY-PACK GROUT AND PROVIDE QUALITY CONTROL PROGRAM TO ENSURE FULL COVERAGE, STRENGTH AND PROPER CURING.

ADDITIONAL NOTES

STATEMENT OF CODE COMPLIANCE:

OFFICIAL STATEMENT: IT SHALL BE STATED, TO THE BEST OF KSB ENGINEERING'S KNOWLEDGE AND GOOD FAITH EFFORTS, THAT THE STRUCTURAL ENGINEERING DESIGN OF THIS ROOF MOUNTED SOLAR RACKING SYSTEM MEETS MARYLAND BUILDING PERFORMANCE STANDARDS REQUIREMENTS IN ADDITION TO THE 2021 INTERNATIONAL BUILDING CODE REQUIREMENTS.

FASTENER TORQUE SCHEDULE

MECHANICAL CONNECTION	BOLT	TORQUE
5/16-18 SS Hex Bolt	3/4"	100-150 In-Lbs.
5/16-18 SS Hex Bolt	1"	100-150 In-Lbs.
5/16-18 SS Hex Bolt - Piercing	1.25"	100-150 In-Lbs.
5/16-18 SS Hex Bolt - Piercing	Ilsco GBL-1/0 [Grounding Lug]	150-200 in-Lbs.
5/16-18 SS Hex Bolt	Waffle & "C" Clip	100-150 In-Lbs.
5/16-18 SS Flathead Machine Screw	3/4" Trox	150-200 in-Lbs.
5/16-18 SS Hex Bolt	5"	100-150 In-Lbs.
1/2-13 Hex Bolt	1"	20-30 Ft-Lbs.
1/2-13 Hex Bolt	2"	20-30 Ft-Lbs.
1/2-13 Hex Bolt	4.5"	15-20 Ft-Lbs.
3/4 SS Hex Bolt	5"	40 Ft-Lbs.

NOTE: ALWAYS USE ALUMINUM NUTS AND SPECIFIED WASHER COMBINATIONS.

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NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

GENERAL NOTES

S-02

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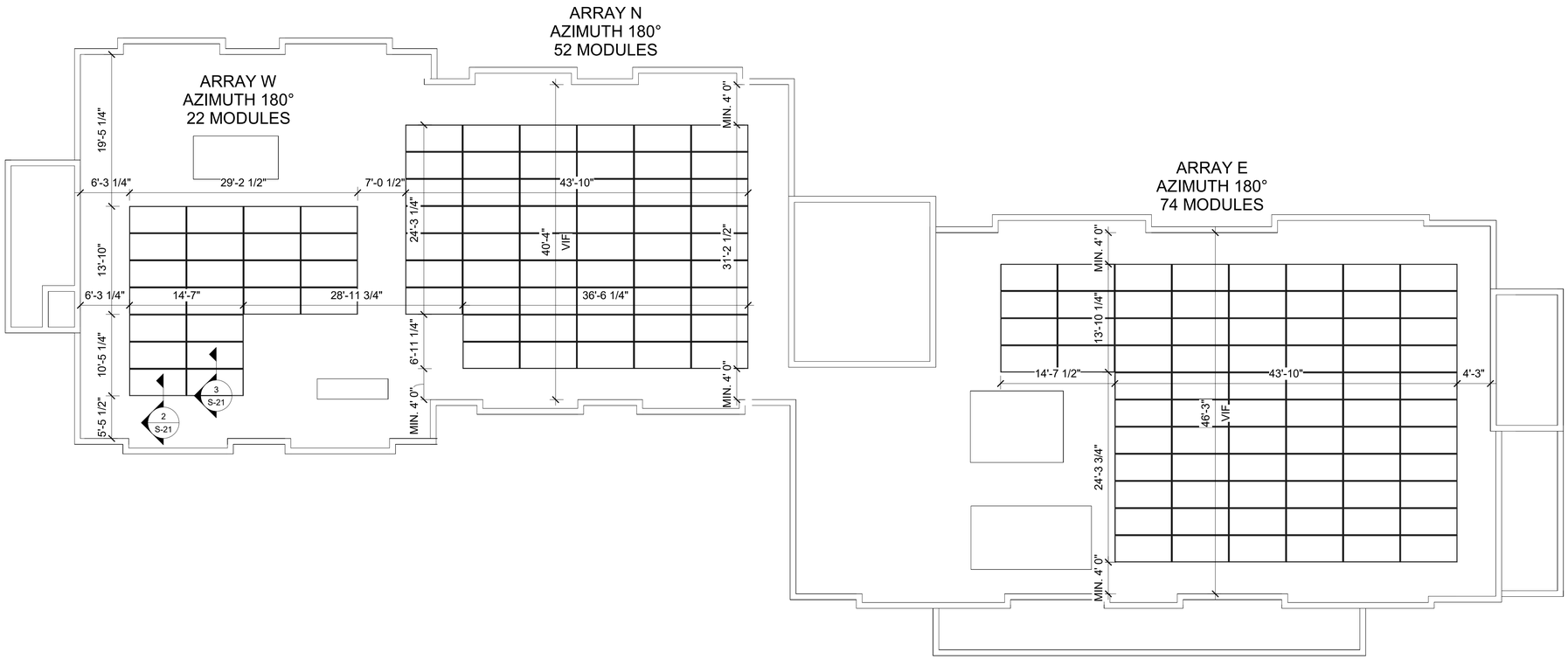
Montgomery County
Historic Preservation Commission

REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025



1 PANEL LAYOUT
1/8" = 1'-0"

TOTAL 148 MODULES
QCELLS, Q.PEAK DUO XL-10.3 / BFG
87.2 IN × 41.1 IN × 1.38 IN (INCLUDING FRAME)
(2216 MM × 1045 MM × 35 MM)

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STATE OF MARYLAND · KYLE S. BOYD · 56215 · PROFESSIONAL ENGINEER
2/19/2025

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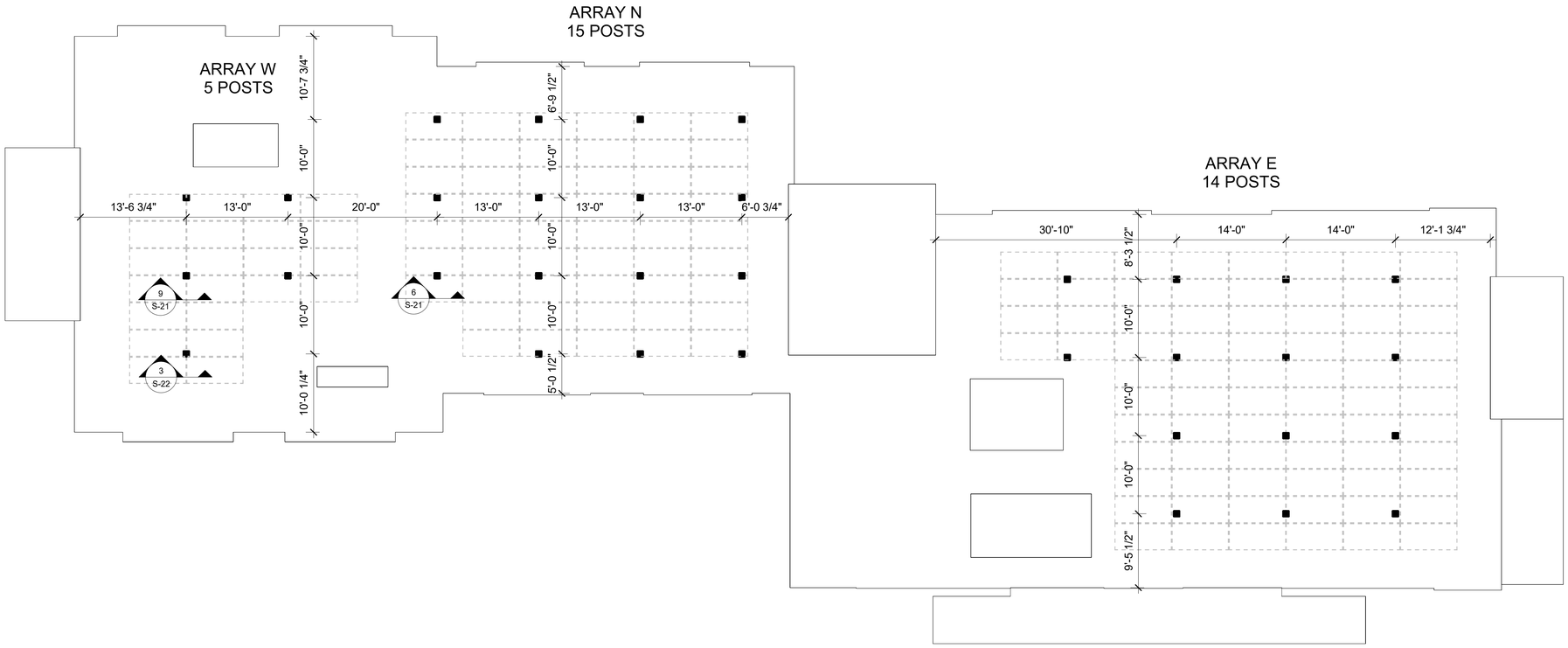
NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

PANEL LAYOUT

S-11



1 POST LAYOUT
1/8" = 1'-0"

TOTAL 34 POSTS ST4X3

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Montgomery County
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E

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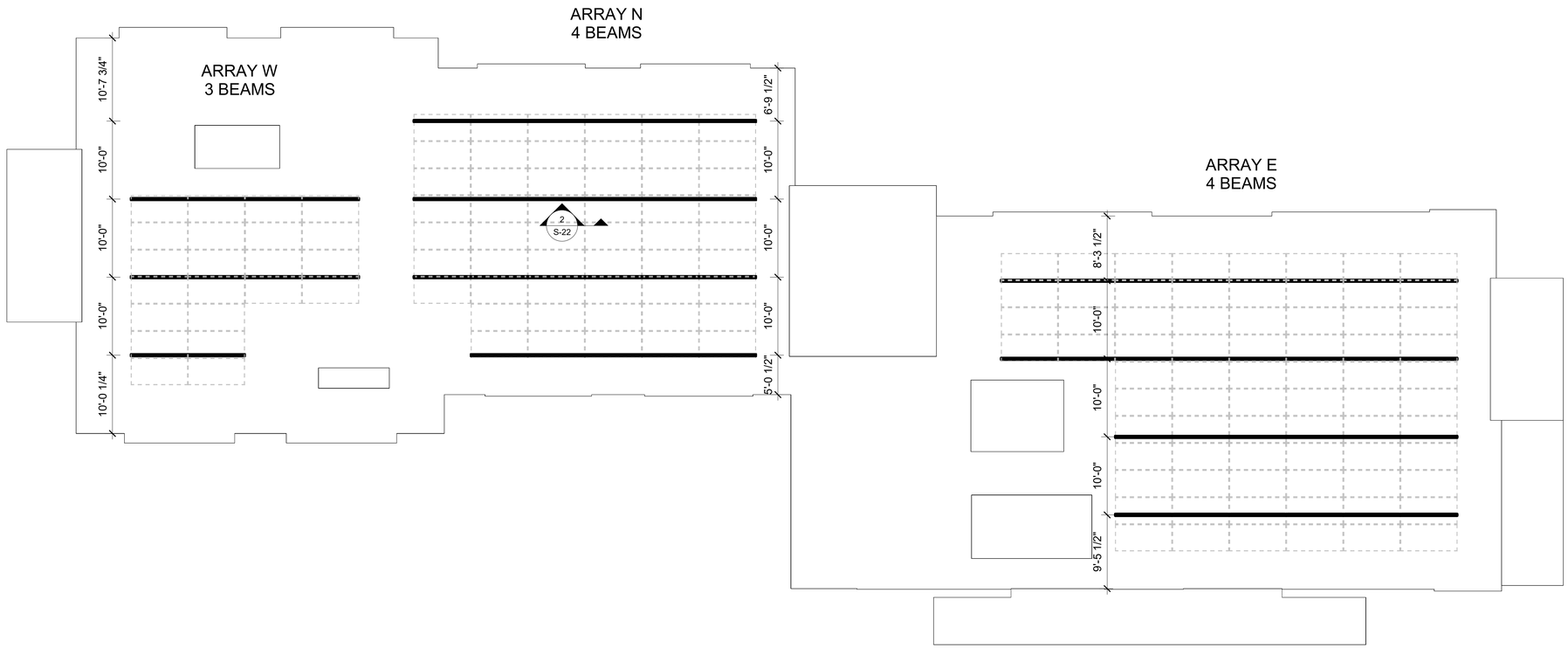
NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

POST LAYOUT

S-12



1 BEAM LAYOUT
1/8" = 1'-0"

TOTAL 11 BEAMS ST6X3

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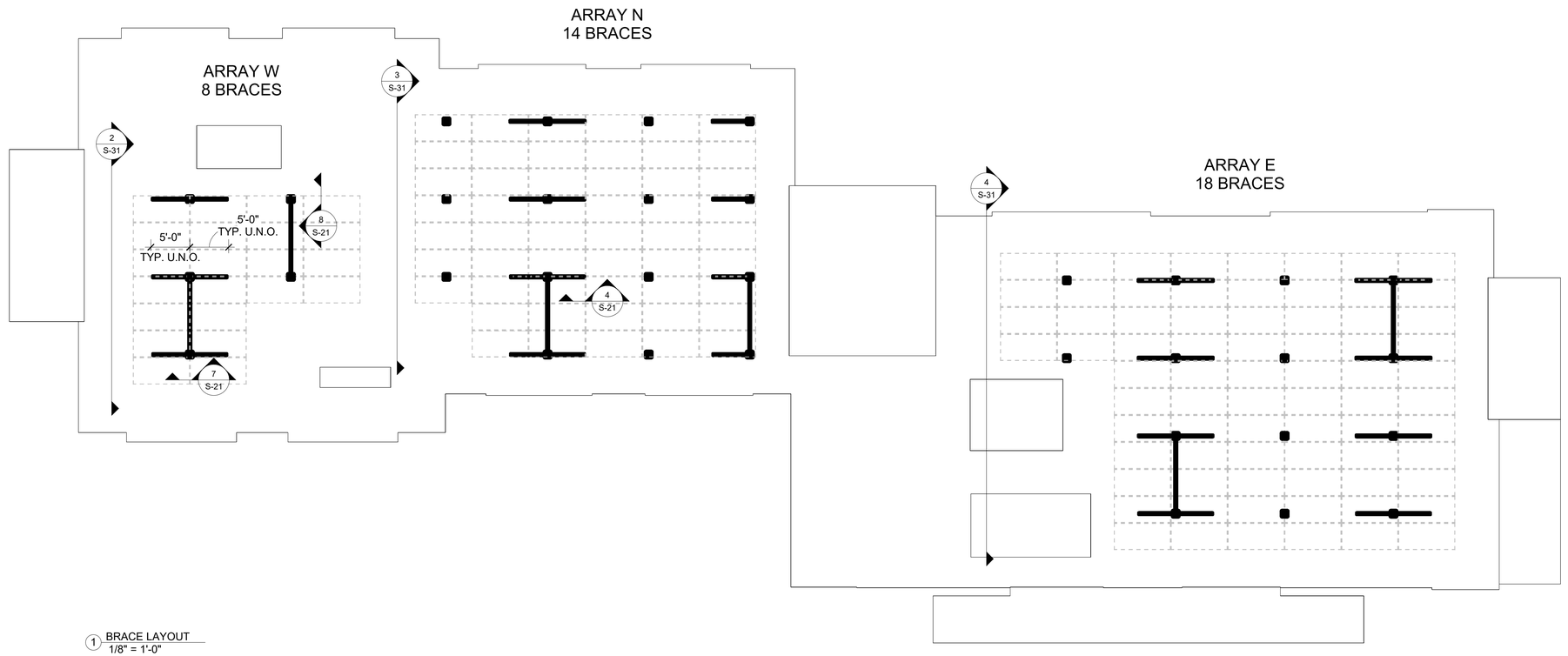
NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

BEAM FRAMING

S-13



1 BRACE LAYOUT
1/8" = 1'-0"

TOTAL 36 BRACES ST3X2

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NEW PV SYSTEM
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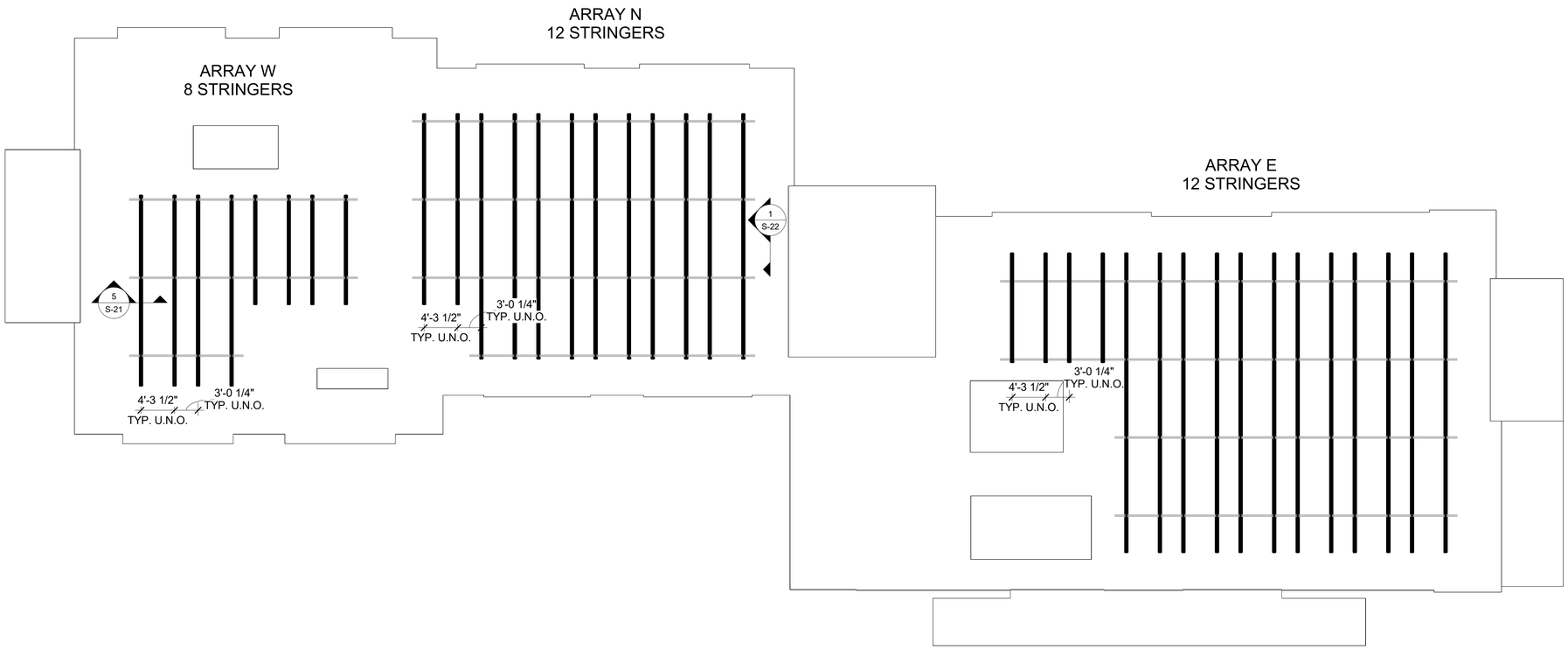
TAKOMA PARK, MD

BRACE FRAMING

S-14



1 STRINGER LAYOUT
1/8" = 1'-0"

TOTAL 32 STRINGERS ST4X3

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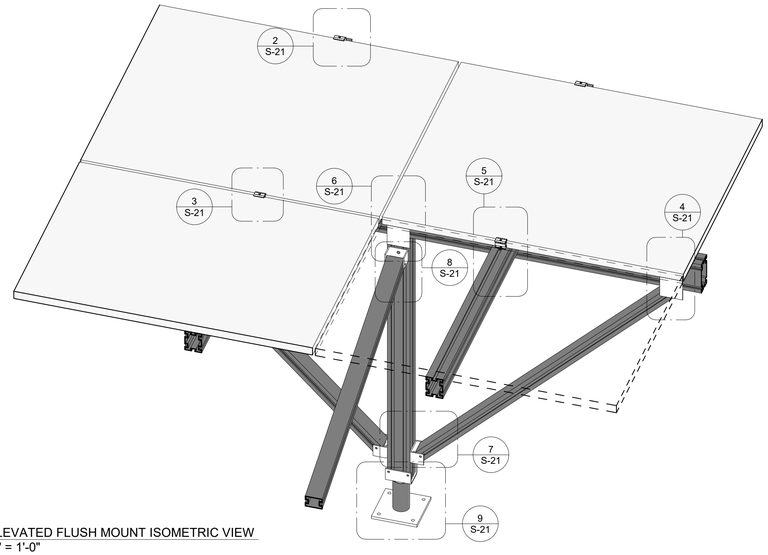
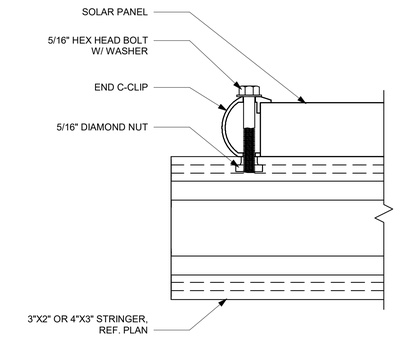
NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

STRINGER
FRAMING

S-15

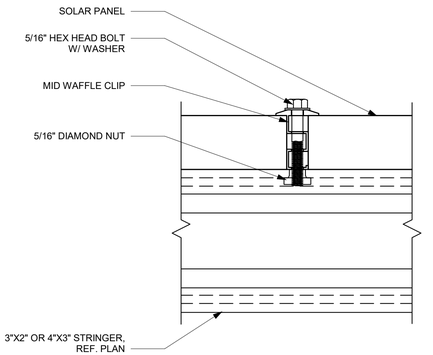


1 ELEVATED FLUSH MOUNT ISOMETRIC VIEW
1" = 1'-0"



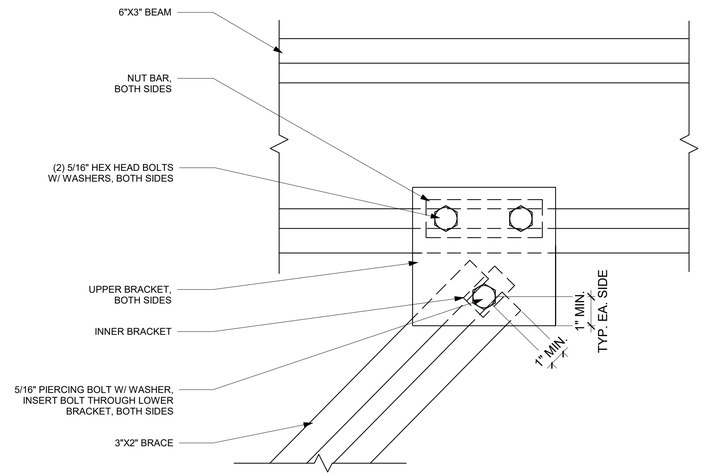
NOTE:
HEX HEAD BOLT AND END C-CLIP SIZED TO MODULE FRAME THICKNESS.

2 PANEL TO STRINGER CONNECTION W/ END C-CLIP
6" = 1'-0"

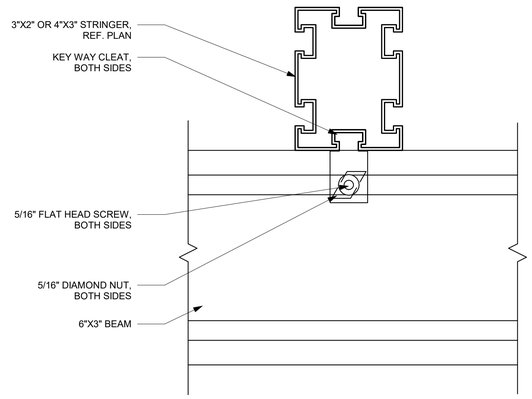


NOTE:
HEX HEAD BOLT AND MID WAFFLE CLIP SIZED TO MODULE FRAME THICKNESS.

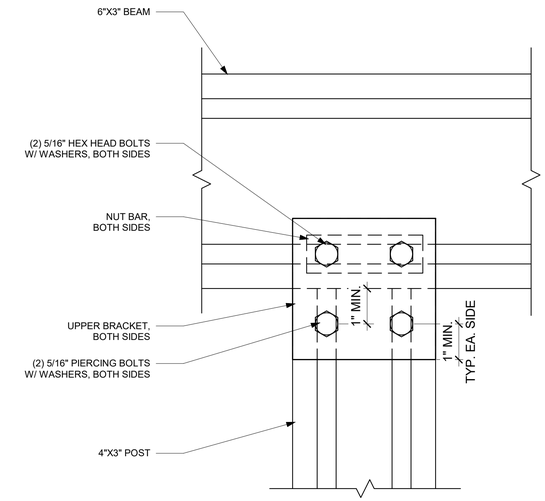
3 PANEL TO STRINGER CONNECTION W/ MID WAFFLE CLIP
6" = 1'-0"



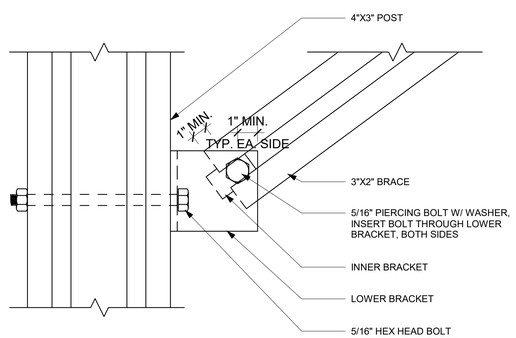
4 IN-LINE BRACE TO BEAM CONNECTION
6" = 1'-0"



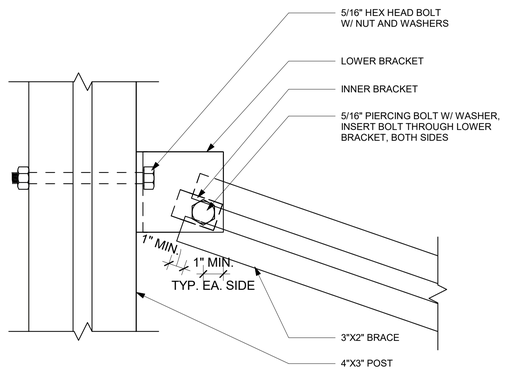
5 STRINGER TO BEAM CONNECTION
6" = 1'-0"



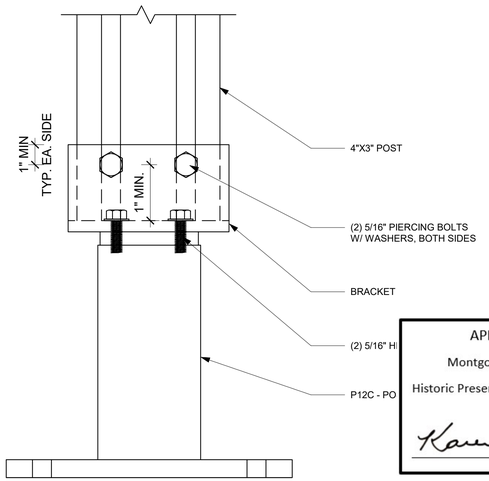
6 POST TO BEAM CONNECTION
6" = 1'-0"



7 IN-LINE BRACE TO POST CONNECTION
6" = 1'-0"



8 PERPENDICULAR BRACE TO POST CONNECTION
6" = 1'-0"



9 POST TO BASE ASSEMBLY CONNECTION
6" = 1'-0"

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By Devon.Murtha at 12:50 pm, Jun 02, 2025

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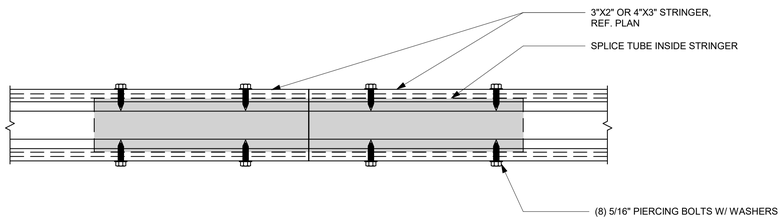
NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

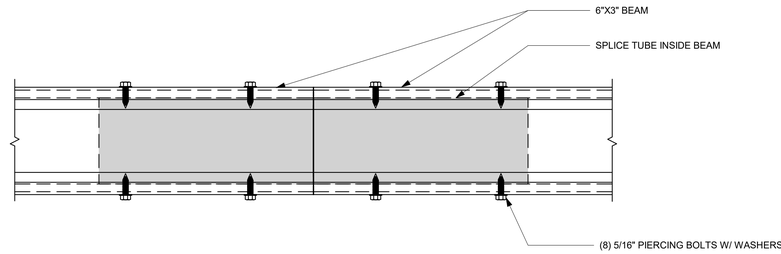
DETAILS

S-21



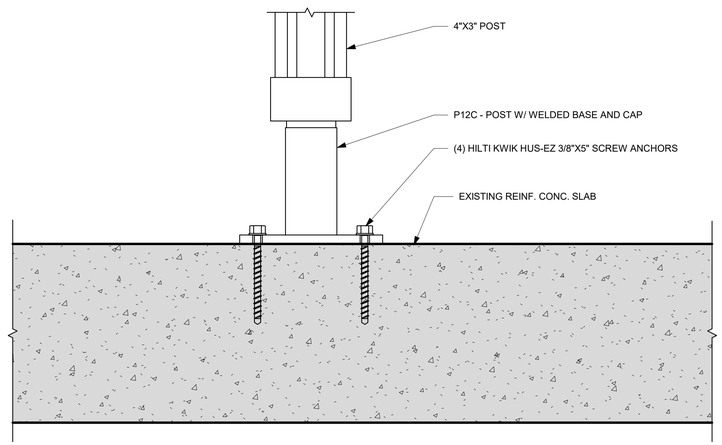
NOTE:
ALL SPLICES SHALL OCCUR AT 2FT (+/- 6" INCHES) FROM THE SUPPORT BEAM.
SPLICES SHALL NOT OCCUR AT CANTILEVERS OR ANY OTHER LOCATION WITHOUT EOR APPROVAL.

1 STRINGER SPLICE
3" = 1'-0"



NOTE:
ALL SPLICES SHALL OCCUR AT 2FT (+/- 1 FT) FROM THE SUPPORT POST LOCATIONS.
SPLICES SHALL NOT OCCUR AT CANTILEVERS OR ANY OTHER LOCATION WITHOUT EOR APPROVAL.

2 BEAM SPLICE
3" = 1'-0"



3 BASE ASSEMBLY TO ROOF CONNECTION
3" = 1'-0"

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NEW PV SYSTEM
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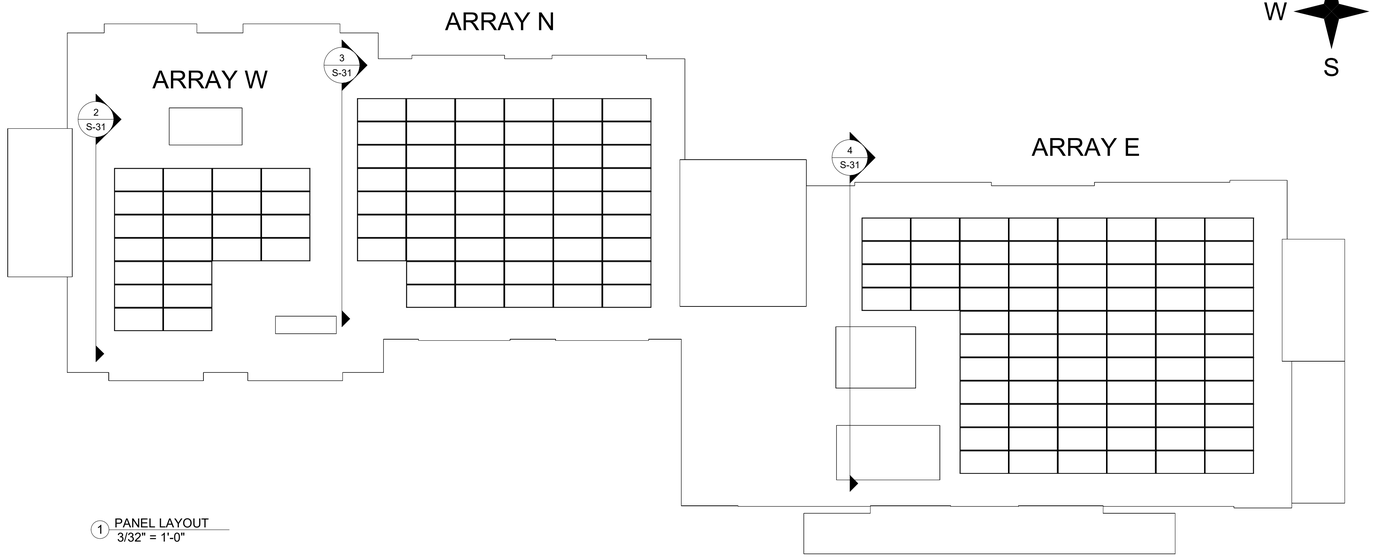
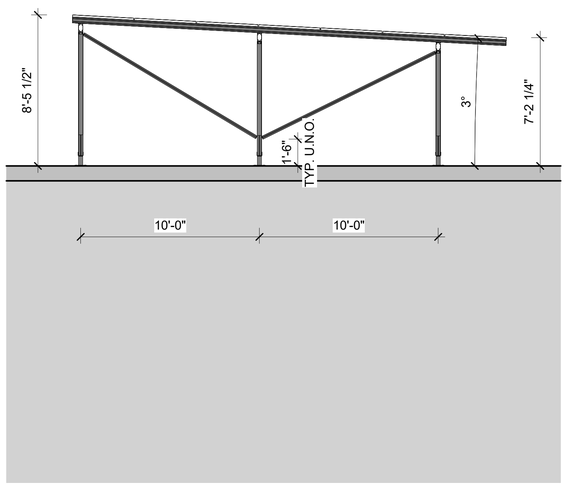
DETAILS

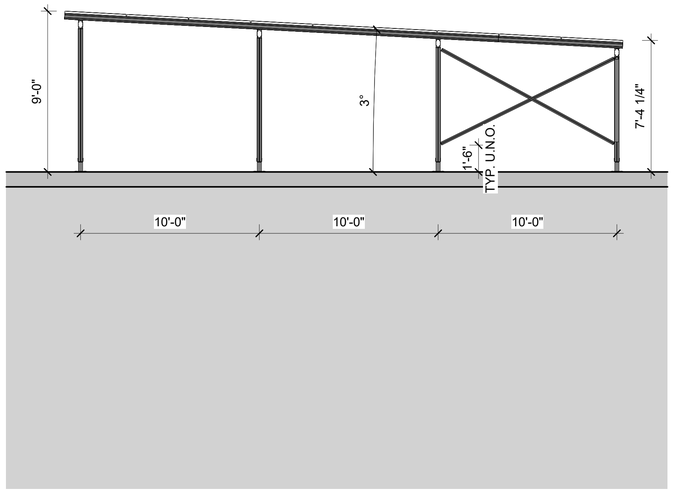
S-22



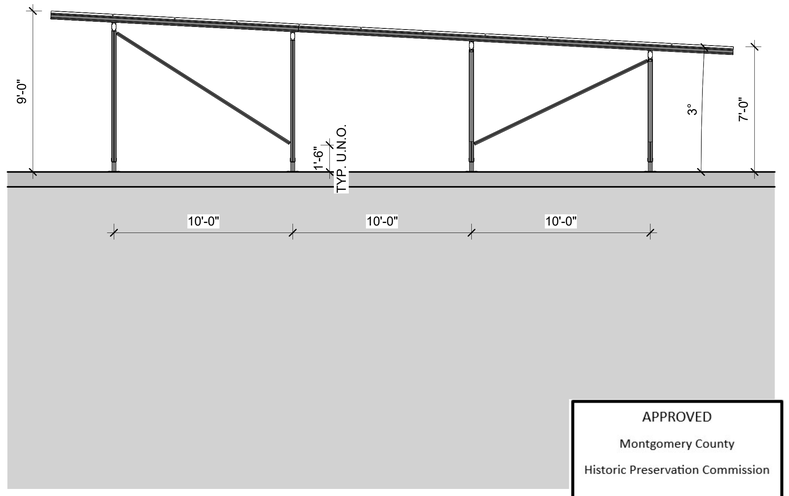
1 PANEL LAYOUT
3/32" = 1'-0"



2 ELEVATION - ARRAY W
1/4" = 1'-0"



3 ELEVATION - ARRAY N
1/4" = 1'-0"



4 ELEVATION - ARRAY E
1/4" = 1'-0"

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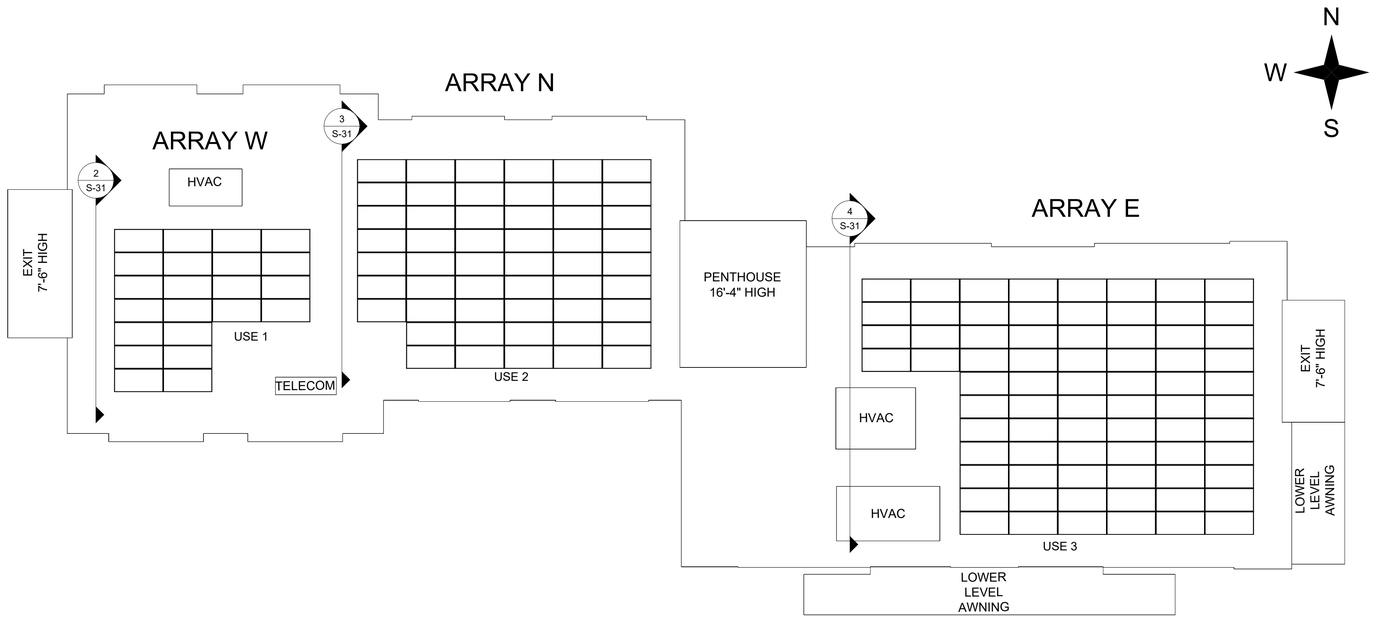
NEW PV SYSTEM
7051 CARROLL AVE.
TAKOMA PARK, MD

ELEVATIONS

S-31



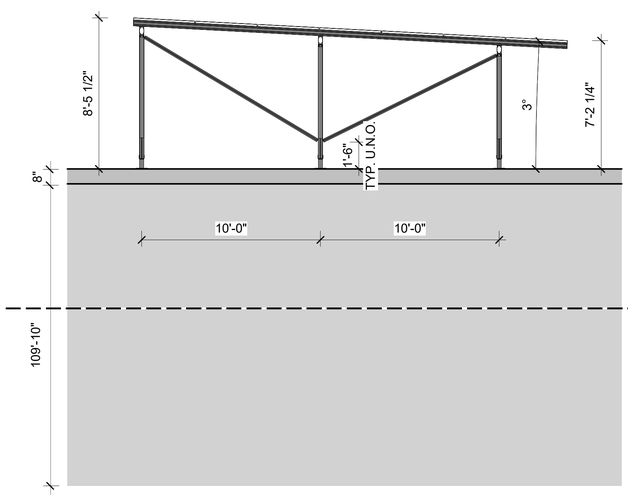
01 ELEVATIONS

1/8" = 1'-0"

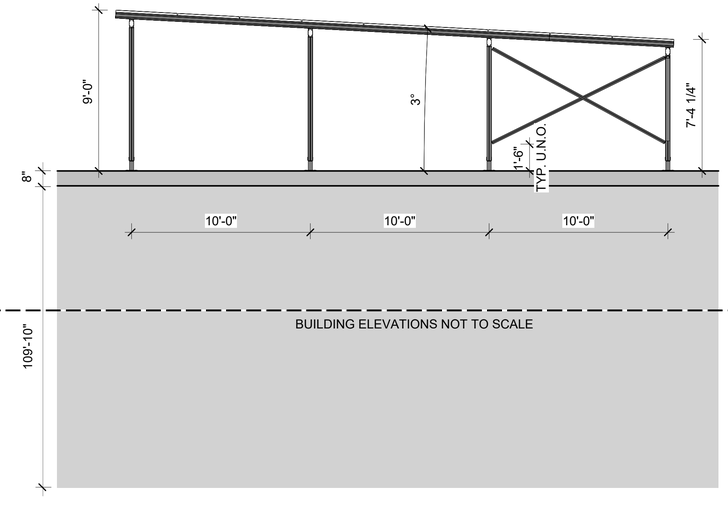
0 4" 8"

Height & Area Calculations

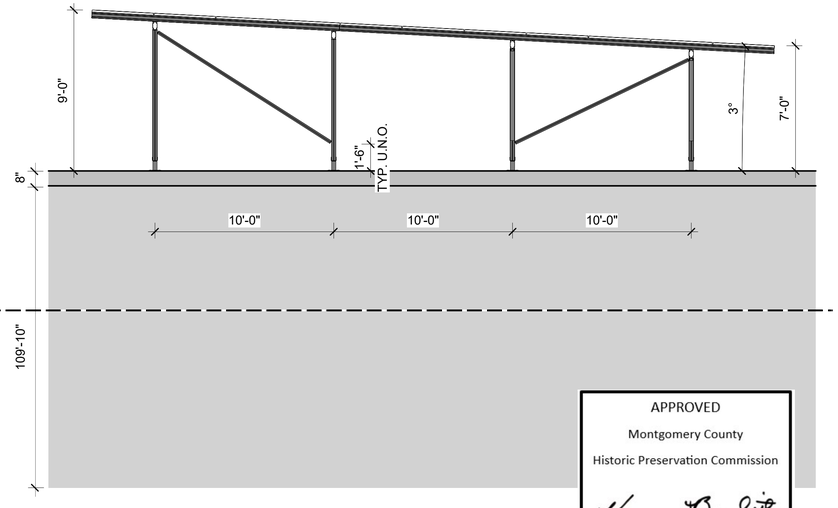
HEIGHT & AREA		Use 1	Use 2	Use 3	Use 4
Height	Tabular				
	Sprinkler Increase				
	Total Allowed	16'-4"	16'-4"	16'-4"	
	Actual	8'-5 1/2"	9'-0"	9'-0"	
Area	Tabular				
	Sprinkler Increase				
	Frontage Increase				
	Total Allowed	30,694SQFT	30,694SQFT	30,694SQFT	
	Actual	550SQFT	1300SQFT	1850SQFT	



2 ELEVATION - ARRAY W
1/4" = 1'-0"



3 ELEVATION - ARRAY N
1/4" = 1'-0"



4 ELEVATION - ARRAY E
1/4" = 1'-0"

BUILDING ELEVATIONS NOT TO SCALE

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REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

HANWHA Q-CELLS
Q.PEAK DUO BLK ML-G11+ 490
490 WATTS

CONTRACTOR

UNIVERSAL RENEWABLES
ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007
PHONE: 202.966.6565
LIC. NO.:

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 72.520 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

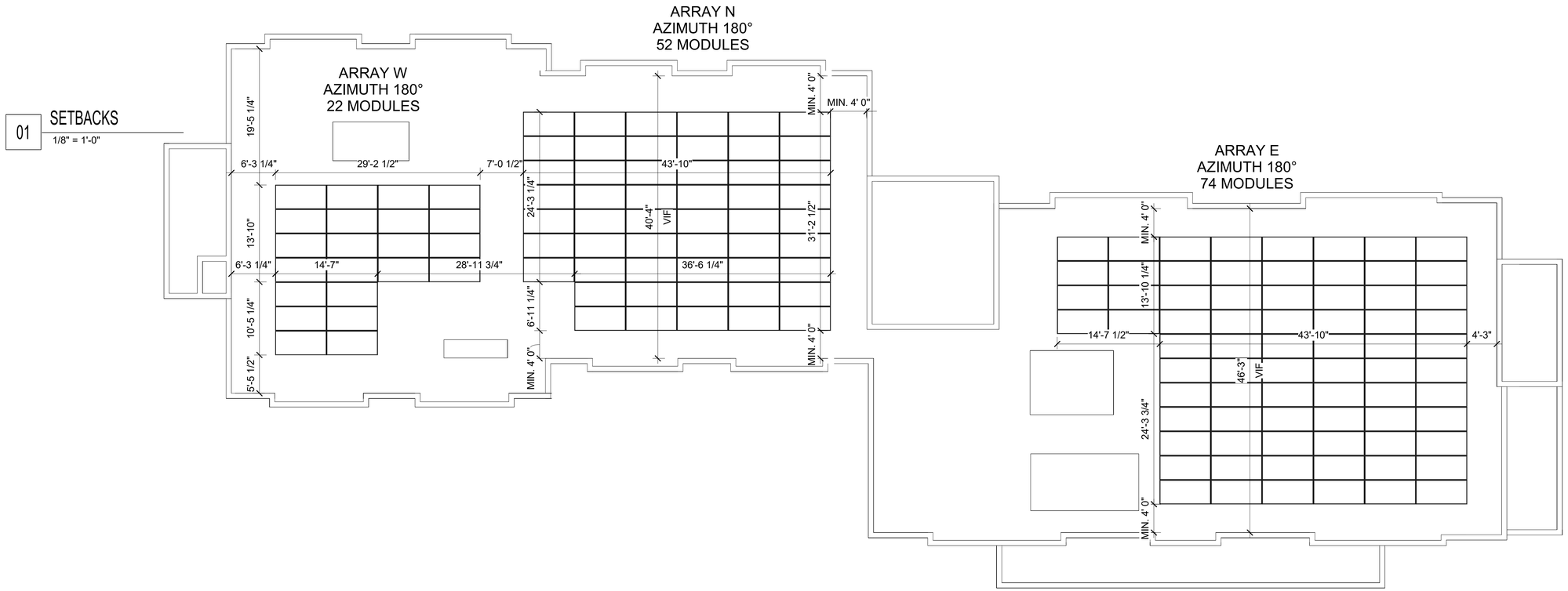
APN: 01072074

ENGINEER OF RECORD

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE: ELEVATIONS

DATE: 11.07.2024
DESIGN BY: V.G.
.\signature.png
CHECKED BY: M.M.
SHEET NUMBER: Z-001



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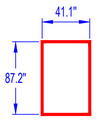
REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025



MODULE:
HANWHA Q-CELLS
Q.PEAK DUO BLK ML-G11+ 490
490 WATTS

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR

UNIVERSAL RENEWABLES
ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007
PHONE: 202.966.6565
LIC. NO.:

REVISION / RELEASE

NO.	DESCRIPTION	DATE

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VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

APN: 01072074

ENGINEER OF RECORD

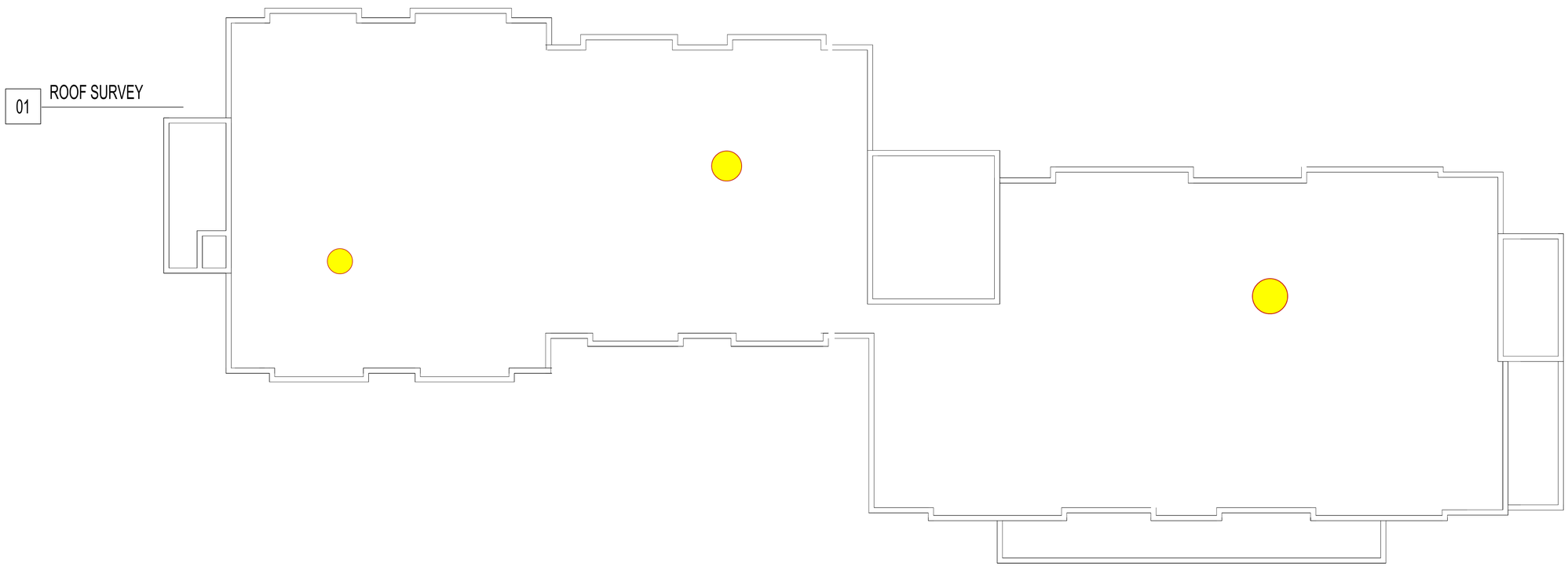
PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE:
SETBACKS

DATE: 11.07.2024
DESIGN BY: V.G.
.\signature.png
CHECKED BY: M.M.

SHEET NUMBER:
Z-002

01 ROOF SURVEY



SURVEYED 3 LOCATIONS
ALL UNIFORM DEPTH TO WITHIN -1" OF DETAIL
NOT TO SCALE

Note: All array elevations measured from surface concrete deck.

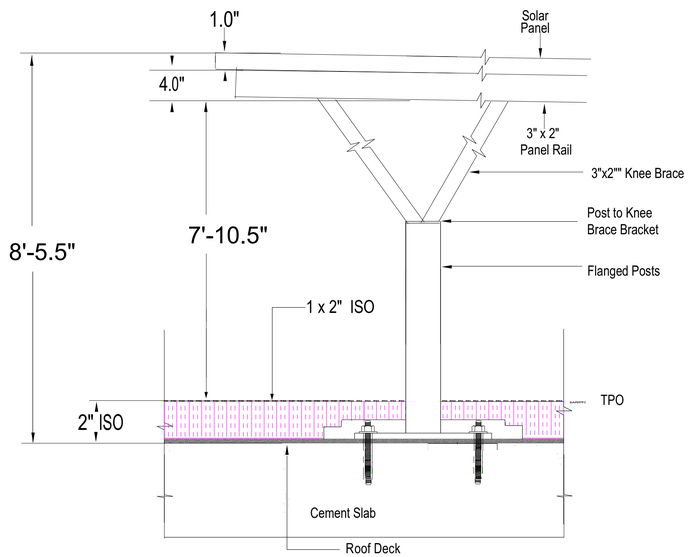


Illustration Array W

See elevations Sheet Z-001

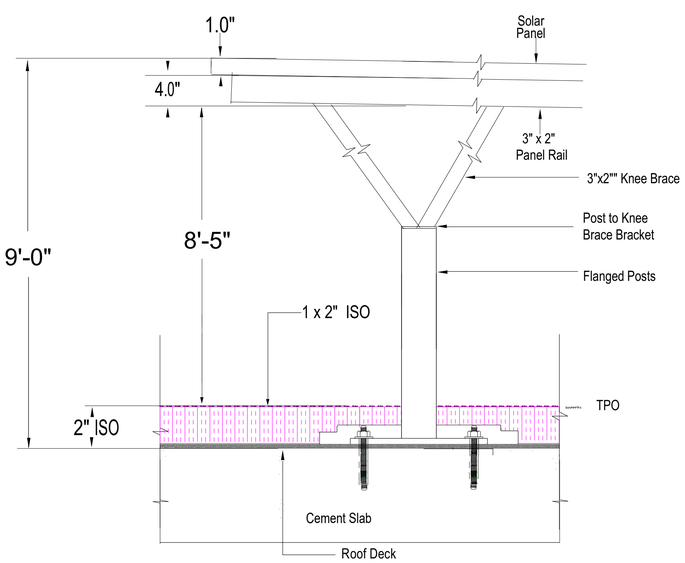


Illustration Array N & E

See elevations Sheet Z-001

UNIVERSAL RENEWABLES
ELEVATING SOLAR

CONTRACTOR

UNIVERSAL RENEWABLES

ADDRESS: 3516 MASSACHUSSETTS AVE NW WASHINGTON, DC 20007

PHONE: 202.966.6565

LIC. NO.:

REVISION / RELEASE

NO.	DESCRIPTION	DATE

PROJECT

NEW PV SYSTEM: 72.520 kWp

VICTORY TOWER

7051 CARROLL AVENUE, TAKOMA PARK, MD 20912

APN: 01072074

ENGINEER OF RECORD

APPROVED
Montgomery County
Historic Preservation Commission

REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

PAPER SIZE: 36" x 24" (ARCH D)

SHEET TITLE: ROOF SURVEY

DATE: 11.07.2024
DESIGN BY: V.G.
.\signature.png
CHECKED BY: M.M.

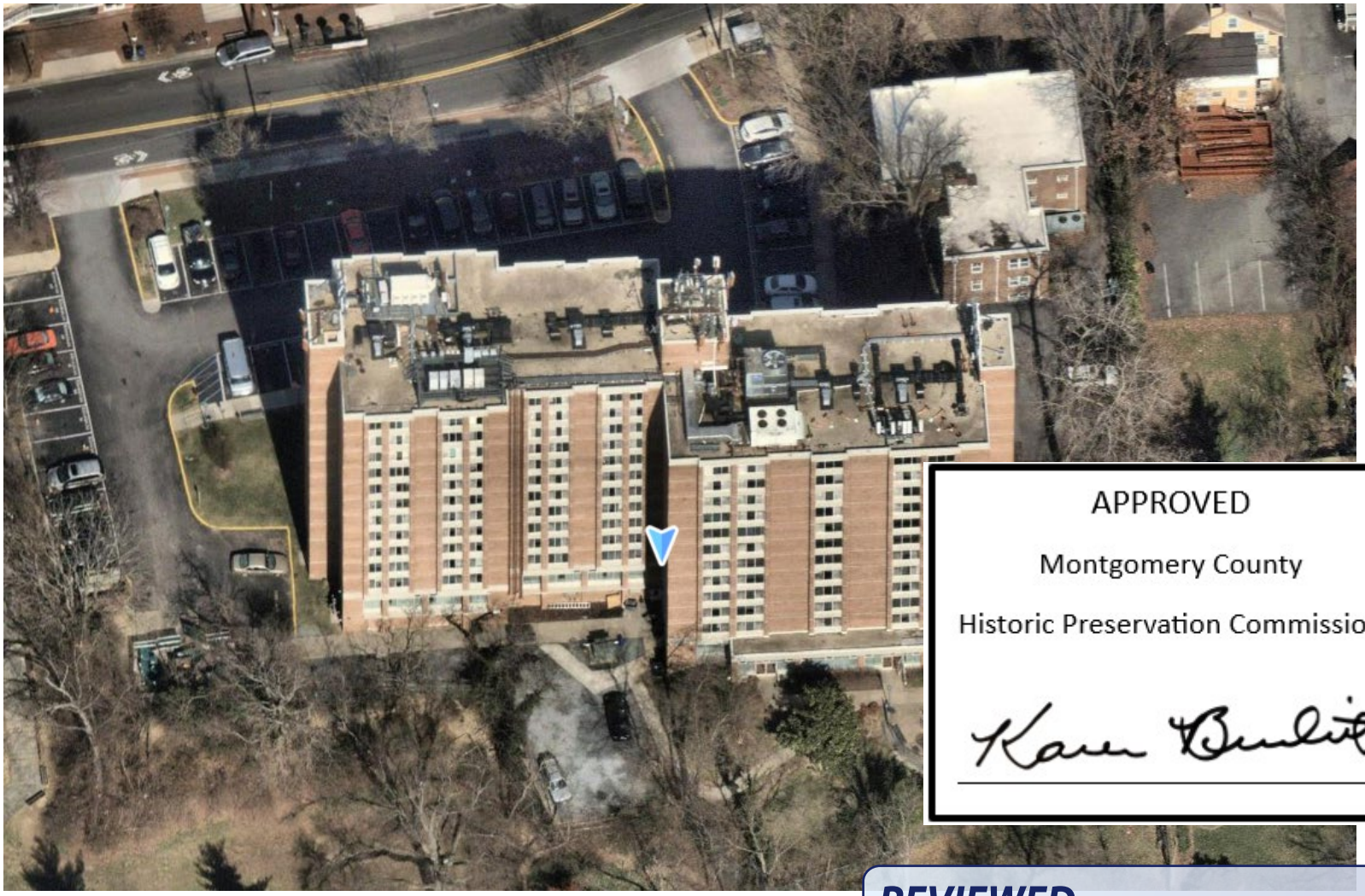
SHEET NUMBER: Z-003

UNIVERSAL RENEWABLES
ELEVATING SOLAR

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

7051 Carrol Ave, Takoma Park
Northerly Oblique View

Building designated as a non-contributing resource



APPROVED

Montgomery County

Historic Preservation Commission

Karen Burdett

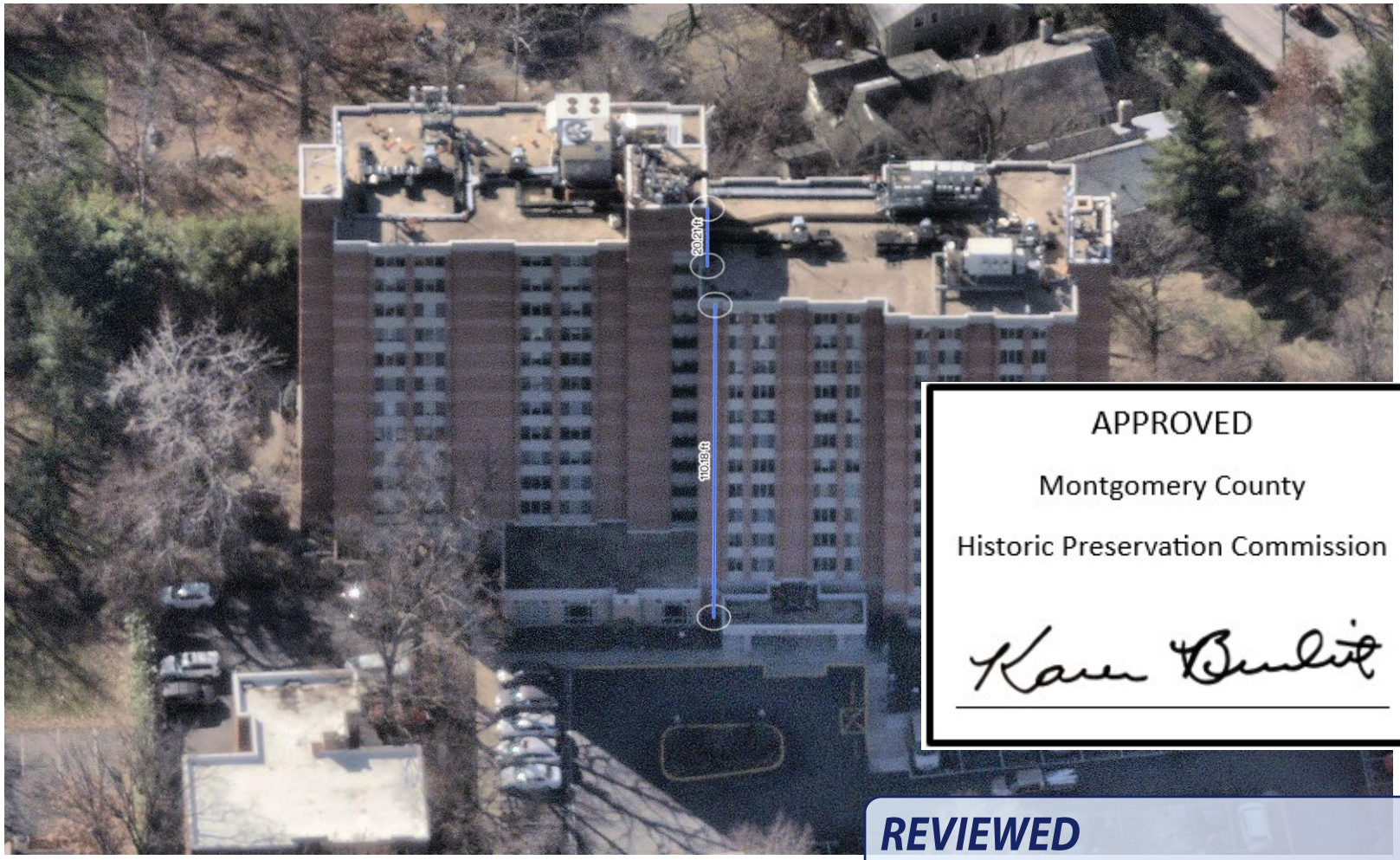
REVIEWED

By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

7051 Carrol Ave, Takoma Park
Southerly Oblique View



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Montgomery County

Historic Preservation Commission

REVIEWED

By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

Arial View – Proposed Solar Arrays
Victory Towers
7051 Carroll Ave

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

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By Devon.Murtha at 12:50 pm, Jun 02, 2025

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ELEVATING SOLAR

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

Easterly Street View
Carrol Ave
PV system not visible all year

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By Devon.Murtha at 12:50 pm, Jun 02, 2025

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ELEVATING SOLAR

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

Southeasterly Street View
Carrol Ave
PV System Not Visible All Year

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Historic Preservation Commission

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By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

Southerly Street View
Carrol Ave
PV System Not Visible All Year

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By Devon.Murtha at 12:50 pm, Jun 02, 2025

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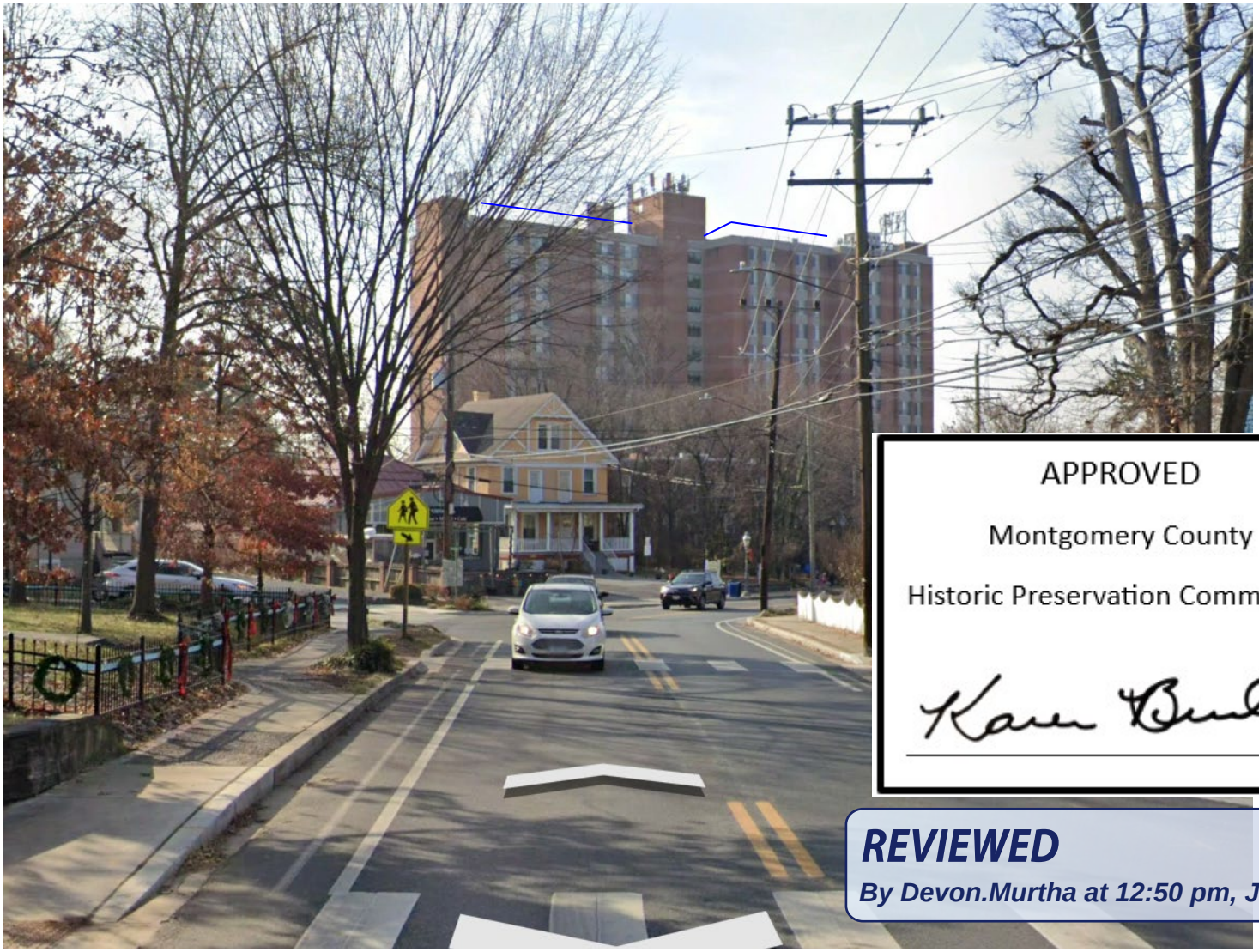
ELEVATING SOLAR

Southerly Street View
Carrol Ave & Park Ave
PV System Slightly Visible in Winter

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md



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By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

Southerly Street View
Carrol Ave & Columbia Ave
PV System Slightly Visible All Year

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

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By Devon.Murtha at 12:50 pm, Jun 02, 2025

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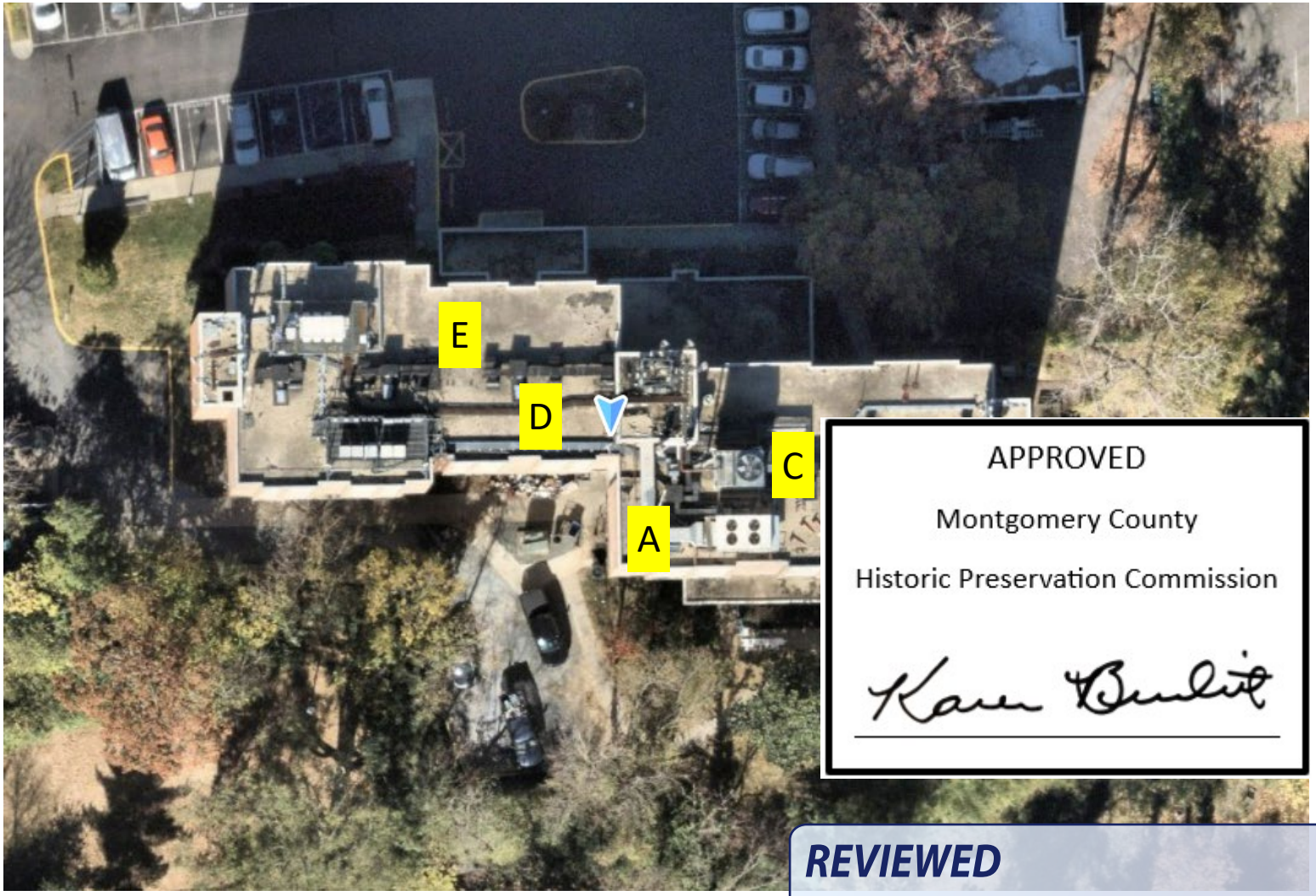
ELEVATING SOLAR

PHOTOGRAPHS BY LOCATION

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

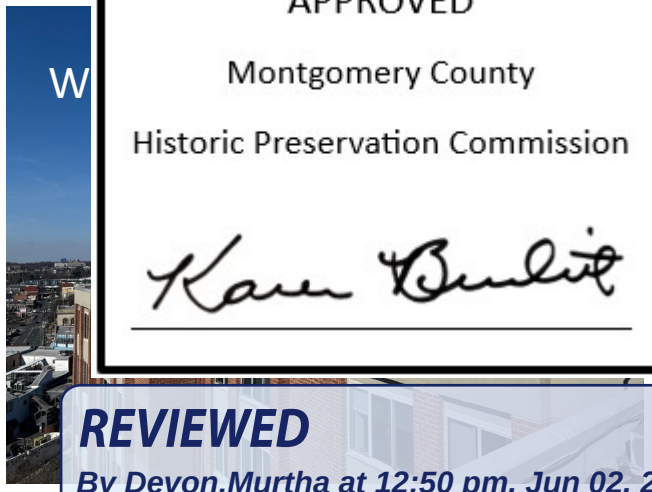


REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
SERIES A

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md



APPROVED

Montgomery County

Historic Preservation Commission

Karen Burdett

REVIEWED

By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
B & C SERIES

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

WESTERLY

NORTHWEST

SOUTHERLY

NORTH

APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
D & E SERIES

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

APPROVED

Montgomery County

Historic Preservation Commission

Karen Burdett

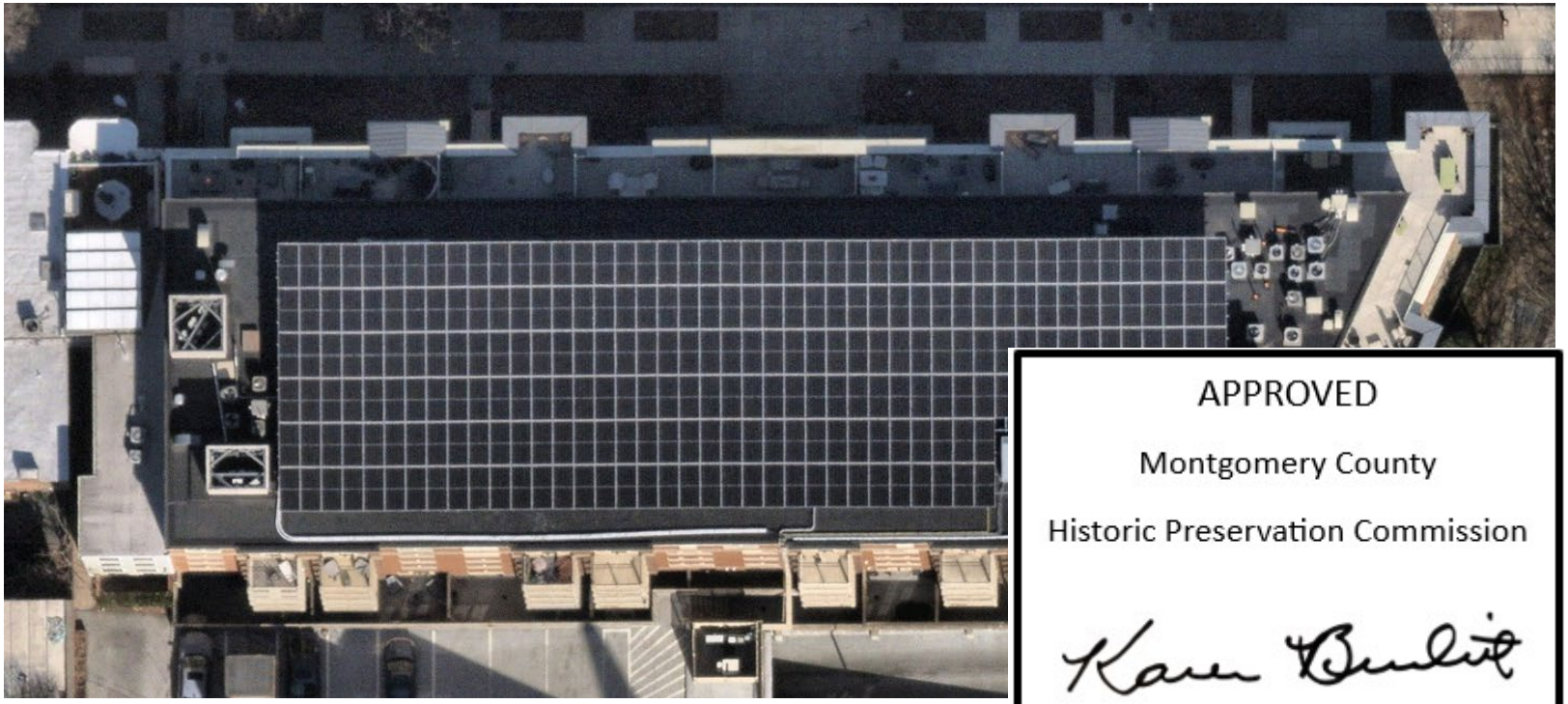
REVIEWED

By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
TYPICAL ELEVATED PV SYSTEM
1202 R STREET NW

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md



APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED

By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
TYPICAL ELEVATED PV SYSTEM
1202 R STREET NW

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED
By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
TYPICAL ELEVATED PV SYSTEM
3902 14TH Street NW
[approved by Fine Arts Commission]

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

APPROVED

Montgomery County

Historic Preservation Commission

Karen Burdett

REVIEWED

By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
TYPICAL ELEVATED PV SYSTEM
3801 CONNECTICUT AVENUE NW
VIEW ACROSS ROCKCREEK PARK

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md

APPROVED

Montgomery County

Historic Preservation Commission

Karen Burditt

REVIEWED

By Devon.Murtha at 12:50 pm, Jun 02, 2025

UNIVERSAL RENEWABLES
ELEVATING SOLAR

PHOTOGRAPHS
TYPICAL ELEVATED PV SYSTEM
3902 14TH STREET NW
VIEW FROM 14TH STREET

Historic Review
Solar Installation
7051 Carrol Ave
Takoma Park, md