



Landmarks Commission



Agenda Number: 6
Case No.: SI-2020-00434
Project # 2020-003955
July 8, 2020

Staff Report

Agent	Affordable Solar	Staff Recommendation APPROVAL of Case # SI-2020-00434 Project # PR-2020-003955, a request for a Certificate of Appropriateness for alterations, based on the Findings beginning on page 16 and subject to the conditions on page 17.
Applicant	Joyce Gentry	
Request	Certificate of Appropriateness for Alterations	
Legal Description	057n M T Add Original N 57ft X 4 1/2in of Lots 1 Thru 4	
Address/Location	1100 Tijeras Ave. NW	
Size	0.13 acres	
Zoning	MX-T	Leslie Naji Senior Planner
Historic Location	Fourth Ward Historic Protection Overlay Zone (HPO-3)	

Summary of Analysis

The application is for a Certificate of Appropriateness to install solar panels on an existing house in the Fourth Ward Historic Protection Overlay Zone (HPO-3).

The principal building on the site was constructed c.1906 as a two-story hipped box and is classified as a contributing building in the Fourth Ward. The house is located at the southwest corner of Tijeras and 11th St. and has a multi-planed roof. Its location on a corner, with street front exposure on two sides, makes the placement of solar panels problematic.

Staff has reviewed the project against the appropriate guidelines and finds that while solar panels are side street facades are not preferred, they are not prohibited. It would be unfair to disallow a property owner to have solar panels because they live on a corner lot. As long as the panels do not damage historic fabric and are reversible, the current energy concerns warrant approval.

PRIMARY REFERENCES: This request was reviewed against the relevant guidelines for the Fourth Ward Historic Protection Overlay Zone and the criteria for approval of a Certificate of Appropriateness in the Integrated Development Ordinance.

SUMMARY OF REQUEST

Request	<i>Certificate of Appropriateness for alterations (room addition)</i>
Historic Location	<i>Fourth Ward Historic Protection Overlay Zone</i>

I AREA HISTORY AND CHARACTER

Surrounding architectural styles, historic character and recent (re)development

	# of Stories	Roof Configuration, Architectural Style and Approximate Age of Construction	Historic Classification & Land Use
General Area	1-2	Flat and hipped roofs. Bungalow style largely around 1910	Contributing; residential
Site to the North	2	Hipped roof, simplified Prairie, c 1910	Contributing; residential
Sites to the South	1	Flat roofed stucco Acoma Court Apt., c.1920	Contributing; Apartments
Sites to the East	1	Single-story hipped-roof cottage, c, 1920	Contributing; residential
Sites to the West	1	Single-Story Hipped Box cottage, c. 1910	Contributing; residential

II INTRODUCTION

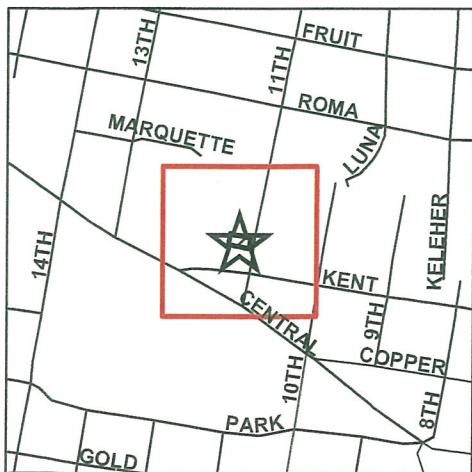
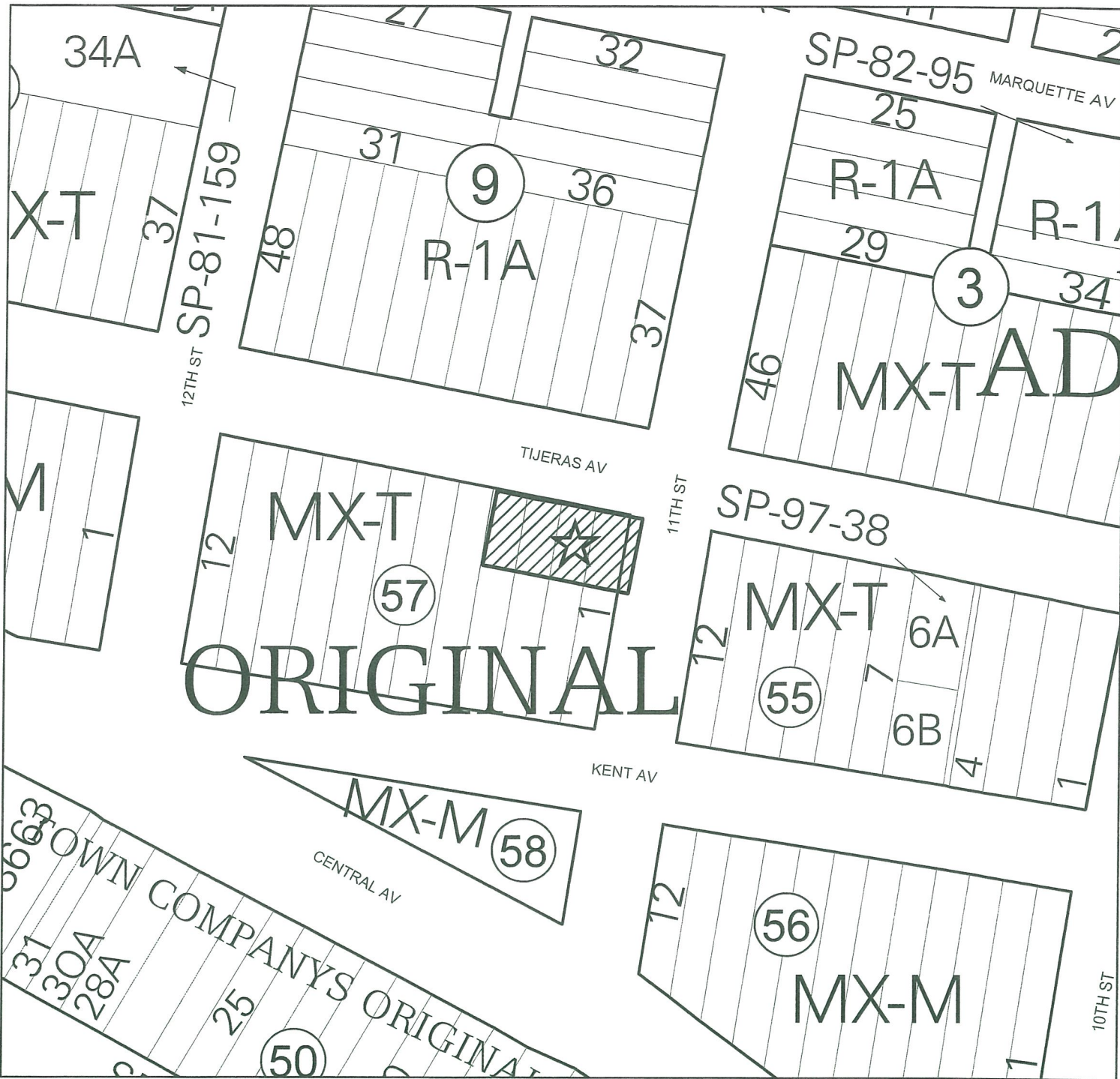
Proposal

This request is for a Certificate of Appropriateness for installation of solar panels on the roof of a two-story contributing house. The property is located on the southwest corner of Tijeras and 11th St. Its placement on the corner means that in order to place sufficient solar panels, some would need to be placed on roof planes facing 11th St. Tijeras is considered the front of the property and no panels would be directly facing the front.

The principal building on the site is a stucco two story hipped box with moderations. Originally the house had a wrap-around porch that has long been converted to interior space. The placement of solar panels has often been a difficult issue with the last consensus being that they are permissible but not facing the front.

Context

The Fourth Ward Historic District is described in the State and National Register nomination written in 1980 as “primarily important for its architecture, for its great variety of fine homes built



IDO ZONING MAP

Note: Gray shading indicates County.



1 inch = 100 feet

Hearing Date:
7/8/2020

Project Number:
PR-2020-003955

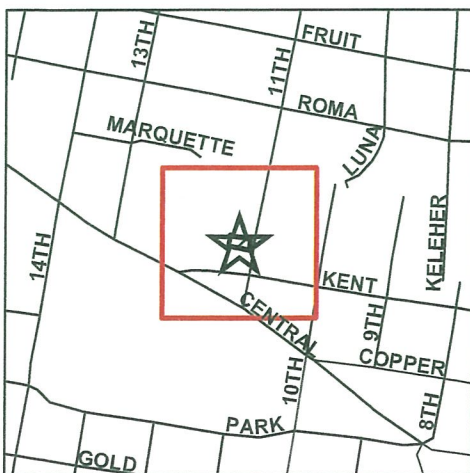
Case Numbers:
SI-2020-00434

Zone Map Page:
J-13



HISTORY MAP

Note: Gray shading indicates County.



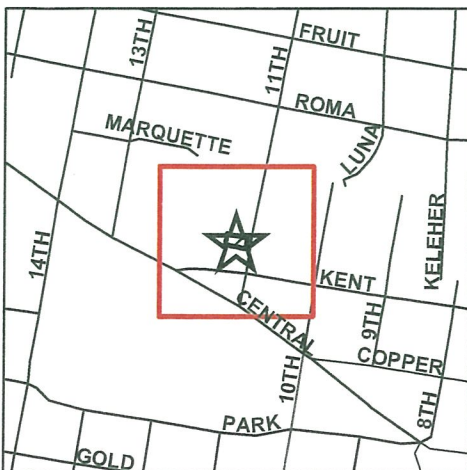
1 inch = 100 feet

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LAND USE MAP

Note: Gray shading indicates County.

Key to Land Use Abbreviations	
LDRES Low-density Residential	APRT Airport
MULT Multi-family	TRANS Transportation
COMM Commercial Retail	AGRI Agriculture
CMSV Commercial Services	PARK Parks and Open Space
OFC Office	DRNG Drainage
IND Industrial	VAC Vacant
INSMED Institutional / Medical	UTIL Utilities
ED Educational	CMTY Community
	KAFB Kirtland Air Force Base



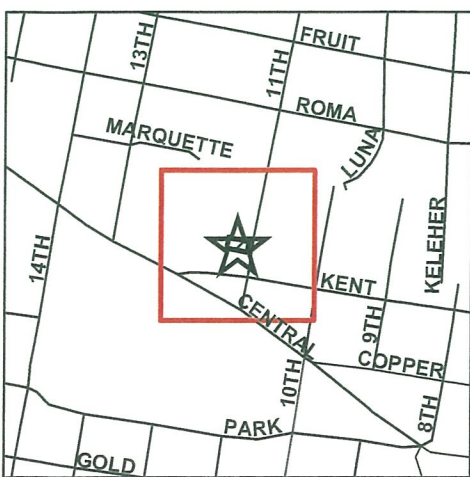
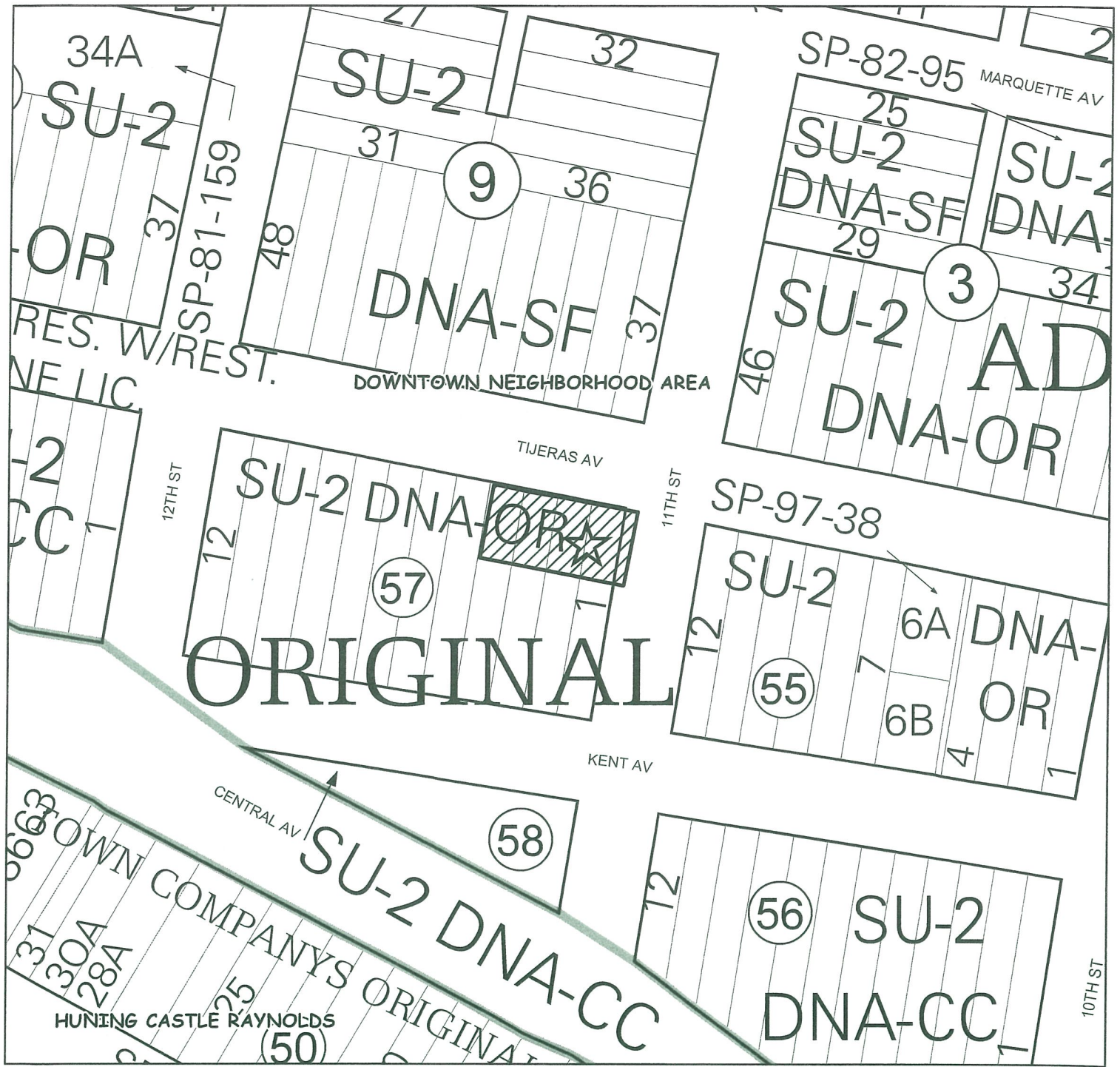
1 inch = 100 feet

Hearing Date:
7/8/2020

Project Number:
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Zone Map Page:
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OLD ZONING MAP

Note: Gray shading indicates County.



1 inch = 100 feet

Hearing Date:
7/8/2020
Project Number:
PR-2020-003955
Case Numbers:
SI-2020-00434

Zone Map Page:
J-13

STAFF REPORT

SUMMARY OF REQUEST

<i>Request</i>	<i>Certificate of Appropriateness for alterations (room addition)</i>
<i>Historic Location</i>	<i>Fourth Ward Historic Protection Overlay Zone</i>

I AREA HISTORY AND CHARACTER

Surrounding architectural styles, historic character and recent (re)development

	<i># of Stories</i>	<i>Roof Configuration, Architectural Style and Approximate Age of Construction</i>	<i>Historic Classification & Land Use</i>
<i>General Area</i>	1-2	Flat and hipped roofs. Bungalow style largely around 1910	Contributing; residential
<i>Site to the North</i>	2	Hipped roof, simplified Prairie, c 1910	Contributing; residential
<i>Sites to the South</i>	1	Flat roofed stucco Acoma Court Apt., c.1920	Contributing; Apartments
<i>Sites to the East</i>	1	Single-story hipped-roof cottage, c, 1920	Contributing; residential
<i>Sites to the West</i>	1	Single-Story Hipped Box cottage, c. 1910	Contributing; residential

II INTRODUCTION

Proposal

This request is for a Certificate of Appropriateness for installation of solar panels on the roof of a two-story contributing house. The property is located on the southwest corner of Tijeras and 11th St. Its placement on the corner means that in order to place sufficient solar panels, some would need to be placed on roof planes facing 11th St. Tijeras is considered the front of the property and no panels would be directly facing the front.

The principal building on the site is a stucco two story hipped box with moderations. Originally the house had a wrap-around porch that has long been converted to interior space. The placement of solar panels has often been a difficult issue with the last consensus being that they are permissible but not facing the front.

Context

The Fourth Ward Historic District is described in the State and National Register nomination written in 1980 as “primarily important for its architecture, for its great variety of fine homes built

between 1880 and 1930. As Albuquerque’s finest residential area between about 1905 and 1923, it also has cultural significance as the home of many of the city’s most influential citizens. Currently Fourth Ward is valuable as a stable, well-preserved neighborhood on the fringes of the downtown business district.”

The original Fourth Ward comprised a much larger area than it does now. The city had been divided into 4 quadrants demarcated by the railroad running North and South and Central Avenue, then called Railroad Avenue, running East and West. The current Fourth Ward district represents an area located between Villa de Albuquerque or Old Town and the New Town built around the railroad itself.

The area of the current Fourth Ward Historic District, although available for development after being sold by the Perea estate after his death in 1887 to the Albuquerque Townsite Company, did not begin to flourish until after 1900. By 1908, a number of large homes had been making it the more fashionable neighborhood of town. Although it was never exclusively upper-middle class it was exclusively residential, contrary to other city neighborhoods. The area prospered until after the Second World War when resources went into building up new neighborhoods to the east of the city.

The National Registry nomination goes on to say that, “The architectural character and interest of the Fourth Ward District comes from the leisurely pace with which it developed and the high quality of houses built there over the years, so that the neighborhood boasts a great variety of styles and forms, finely executed. While only one or two houses can claim to be mansions, most are substantial; the well-designed homes of well-to-do people. Styles range from Italianate to Period Revival and Prairie School to Bungalow to Pueblo Revival, with building dates for significant and contributing buildings from 1882-1941.”

III APPLICABLE PLANS, ORDINANCES, DESIGN GUIDELINES & POLICIES

ANALYSIS

Policies are written in regular text and staff analysis and comment in bold italic print.

Albuquerque-Bernalillo County Comprehensive Plan of 2017

This site is a Historic Asset in terms used in the *Comprehensive Plan*. The plan sets out goals and policies concerning land use, environmental protection and heritage conservation. Chapter 11, Section 2, Historic Assets (pp. 11-25 – 11-26) states:

“Preserve and enhance significant historic districts and buildings to reflect our past as we move into the future and to strengthen our sense of identity.”

Applicable Historic Assets policies include:

Policy 11.2.3 Distinct Built Environments: Preserve and enhance the social, cultural, and historical features that contribute to the identities of distinct communities, neighborhoods, and districts.

The project directly addresses the ABC Comprehensive Plan by continuing to improve the quality of life in the historic Fourth Ward HPO through the renovation and upgrading of an historically contributing property. The proposed installation will have no lasting effect on the historical structure. All installations would be removable.

Integrated Development Ordinance (IDO)

In May 2018, the Integrated Development Ordinance (IDO) replaced the City's Zoning Code and the property was zoned R-1A.

The property is located within the Fourth Ward Historic Preservation Overlay Zone. The Integrated Development Ordinance Part 14-16-3-5 establishes controls and procedures for Historic Protection Overlay Zones (HPO). Part 14-16-3-5 (H) identifies standards and guidelines for HPO 3 Fourth Ward.

6-6(D)(3) Review and Decision Criteria

An application for a Historic Certificate of Appropriateness – Major shall be approved if it complies with all of the following criteria:

6-6(D)(3)(a) The change is consistent with Section 14-16-3-5 (Historic Protection Overlay Zones), the ordinance designating the specific HPO zone where the property is located, and any specific development guidelines for the landmark or the specific HPO zone where the property is located.

The addition to the building is of simple, traditional architectural style, with a pitched, hipped and gabled roof to complement the original portion of the dwelling. It sits to the rear of the site and successfully blends in with the original portion of the house. The addition remains subordinate to the contributing building and only adds an additional 444 square feet plus decks. The proposed addition to the south utilized a lower pitch to the gabled roof allowing it to remain a low profile as seen from the street.

6-6(D)(3)(b) The architectural character, historical value, or archaeological value of the structure or site itself or of any HPO zone in which it is located will not be significantly impaired or diminished.

The proposal will be adding six feet to the south which will be visible from the street but compatible with the original building. The addition to the east is larger but not visible from the street and carries the existing roof line to its end. The relocation of the front door is more problematic and will be discussed later. The architectural character of the site and the neighborhood will not be diminished by this proposal.

6-6(D)(3)(c) The change qualifies as a "certified rehabilitation" pursuant to the Tax Reform Act of 1976, if applicable.

Not applicable

6-6(D)(3)(d) The structure or site's distinguished original qualities or character will not be altered. For the purposes of Section 14-16-3-5 (Historic Protection Overlay Zones) and this Subsection 14-16-6-6(D), "original" shall mean as it was at the time of initial construction or as it has developed over the course of the history of the structure.

The proposal will not cause harm to the original, distinguishing qualities of the contributing building.

6-6(D)(3)(e) Deteriorated architectural features shall be repaired rather than replaced, if possible. If replacement is necessary, the new material shall match the original as closely as possible in material and design.

Not Applicable

6-6(D)(3)(f) Additions to existing structures and new construction may be of contemporary design if such design is compatible with its landmark status (if any) or the HPO zone.

Not Applicable.

Resolution –046-1991 Designating the Fourth Ward and Eighth and Forrester Historic Overlay Zones (1991)

This resolution designated, mapped, and provided general guidelines for the establishment of the Fourth Ward and Eighth and Forrester Historic Overlay Zones. For this case, this resolution will be referred to only as it applies to the Fourth Ward Historic Overlay Zone and the subject property contained therein, excluding references to the Eighth and Forrester Historic Overlay Zone. Contained within this resolution are general guidelines, of which the specific Fourth Ward Historic Overlay Zone Design Guidelines are derived.

Fourth Ward Historic Overlay Zone Design Guidelines

The Landmarks and Urban Conservation Commission approved specific development Guidelines as delegated by *Resolution –046-1991*. These guidelines were revised in 2002. The Guidelines for Accessory Buildings are applicable to this case. The policy states, "Historic accessory buildings should be preserved when feasible. This may include preserving the structure in its present condition, rehabilitating it or adapting it to a new use." The Guidelines for Site Features and Streetscapes are also applicable to this case. The policy states that, "Historic site features should be retained. New site features should be compatible with the architectural character of the historic district."

New Town Neighborhoods Development Guidelines for the Huning Highland, Fourth Ward and Eighth & Forrester Historic Overlay Zones

The development guidelines were revised and adopted by the LUCC (LC) in October 2010. The development guidelines to protect neighborhood character, specifically those relating to accessory buildings and site features, are applicable to this request. The proposal is analyzed with regard to relevant sections:

An analysis of the proposal's conformance with the adopted specific development guidelines is provided below.

The guidelines for Site Features and Streetscapes are applicable to this request.

POLICY

Historic site features should be retained. New site features should be compatible with the architectural character of the historic district.

Solar Panels and Equipment

22. The use of ground based solar arrays is encouraged. Consider solutions that respect the building's historic setting yet provide solar access in the present and over time. Arrays should be located in an inconspicuous location such as a rear or side yard, be low to the ground, and screened to limit visibility. Care should be taken to respect historic landscape, including materials and grading.

Proposed solar panels are roof mounted

23. Place solar panels in areas that minimize their visibility from the public right-of-way such as below a parapet, behind a dormer or on a rear facing roof. The primary façade of a historic building is generally the most distinctive and thus most important elevation. To the greatest extent possible, avoid placing panels on street-facing facades and roofs, including front and side street elevations.

Placement of the panels has been set to the rear and behind gables as much as possible. The location of the house on a corner lot results in a number of panels being visible from 11th St, the side street of the property.

24. Installations should not result in the permanent loss of significant character-defining

features on historic buildings. Solar panels should not be located in areas that require alteration to character-defining features, such as changing an existing roof line or dormer. Also avoid solutions that obstruct views of significant features, such as windows and decorative detailing, or views of neighboring historic properties in a historic district.

The placement of the panels would not result in destruction of any architectural fabric or historic details, nor would they block any architectural details.

25. Installations should not require or result in the permanent alteration of historic fabric. Solar panel installations should be reversible. Use of solar roof tiles, laminates, glazing and other technologies that require the removal of historic fabric or would permanently damage such fabric should be avoided. Consider the type and or condition of the material upon which installation is proposed as well as the method of installation and removal later on. It may also be possible, through the use of brackets, to minimize the points of attachment to a structure.

The solar panels to be used would be reversible.

26. Low profile panels are encouraged. Solar panels should be flush or mounted no higher than a few inches above the roofing surface and should not be visible above the roof line of a primary facade.

Low profile panels are specified.

27. Flat roofs provide an ideal surface for solar arrays. To minimize visibility, set the panels back from the edge and adjust the angle and height of the panels as necessary.

Not Applicable

28. Disjointed and multi -roof solutions are not appropriate. Panels should be set at angles consistent with the slope of the supporting roof. For example, avoid solutions that would set panels at 70-degree angles when the roof slopes at a 45-degree angle.

Panels shown are in a pattern that correlates, to the extent possible with the roof.

29. Panels should be located on a single roof and arranged in a pattern that matches the configuration of the roof upon which they are mounted.

The roof configuration and multiple small roof planes results in a number os smaller panel configurations. The largest single combination of panels would be on the roof plane facing 11th St.

30. Ensure that panels, support structures and conduits blend into the resource. The visibility of solar panels and support structures can be substantially reduced if the color matches the historic building and reflectivity is minimized.

If a bronze or gold color panel is available, it would blend into the brown roof shingles.

Neighborhood Notification and other Considerations

The Neighborhood Association and neighboring properties within 100 ft. excluding public rights of way were notified of this application and re-notified of the Zoom Meeting details. The requisite sign was posted at the property giving notification of this application. No comments on this application have been received to date.

Conclusion

This request for a Certificate of Appropriateness for installation of solar panels on a side street facing roof plane has its challenges. Effort has been made to minimize panel appearance from the front street. The side street is more difficult. The guidelines state to avoid placing panels on street-facing façade. While the front façade is free of panels, side panels are used. Most houses where solar panels have been installed are still visible from the street, even though they are not on a front façade. It would be unfair to disallow a property owner to have solar panels because they live on a corner lot. As long as the panels do not damage historic fabric and are reversible, the current energy concerns warrant approval.

FINDINGS for APPROVAL subject to condition, of a request for a Certificate of Appropriateness for alterations - Case # SI-2020-00434/ Project # PR-2020-003955, July 8, 2020

1. This application is a request for a Certificate of Appropriateness for construction of an addition at 1100 Tijeras Ave. NW, described as 057n M T Add Original N 57ft X 4 1/2in of Lots 1 Thru 4 and a contributing property in the Fourth Ward Historic Preservation Overlay Zone, zoned MX-T.
2. The two-storey building is wood framed hipped box style with additions. The exterior is stucco with tall wooden shutters and an asphalt shingle roof. It was constructed in 1908 and is classified as a contributing building in the Fourth Ward HPO.
3. The proposed alteration is for roof mounted solar panels.
4. The location of the house results in the panel layout placing some panels on roof planes facing the side street of 11th St.
5. The IDO Section 14-16-6-6(D)(3)(a) states that a Certificate of Appropriateness shall be approved if “The change is consistent with Section 14-16-3-5 (Historic Protection Overlay Zones), the ordinance designating the specific HPO zone where the property is located, and any specific development guidelines for the landmark or the specific HPO zone where the property is located.”
6. The proposed solar panel installation would not damage any architectural fabric of the house and would be completely removable. Designating ordinance is silent on solar panels.
7. The IDO Section 14-16-6-6(D)(3)(b) states that a Certificate of Appropriateness shall be approved if “The architectural character, historical value, or archaeological value of the structure or site itself or of any historic zone or urban conservation overlay zone in which it is located will not be significantly impaired or diminished”.
8. The request will not diminish the historic integrity of the building nor impair the character
9. The proposed installation is substantially in compliance with guidelines for solar panel placement.

RECOMMENDATION - Case # SI-2020-00434/ Project # PR-2020-003955, July 8, 2020

APPROVAL subject to conditions, of Case # SI-2020-00434/ Project # PR-2019-003955, an application for a Certificate of Appropriateness for installation of solar panels at 1100 Tijeras St. NW., based on the above 9 findings and subject to the following conditions:

Conditions of Approval

1. Applicant is responsible to acquire, and approval is contingent upon, approval of all applicable permits and related approvals.
 2. Solar panels should use the lowest profile available.
 3. If available, panel color should be in the gold range to better blend with the existing roof color.
-



Leslie Naji
Senior Planner
Urban Design and Development Division



Please check the appropriate box and refer to supplemental forms for submittal requirements. All fees must be paid at the time of application.

Administrative Decisions	<input checked="" type="checkbox"/> Historic Certificate of Appropriateness – Major (Form L)	<input type="checkbox"/> Wireless Telecommunications Facility Waiver (Form W2)
<input type="checkbox"/> Archaeological Certificate (Form P3)	<input type="checkbox"/> Historic Design Standards and Guidelines (Form L)	Policy Decisions
<input type="checkbox"/> Historic Certificate of Appropriateness – Minor (Form L)	<input type="checkbox"/> Master Development Plan (Form P1)	<input type="checkbox"/> Adoption or Amendment of Comprehensive Plan or Facility Plan (Form Z)
<input type="checkbox"/> Alternative Signage Plan (Form P3)	<input type="checkbox"/> Site Plan – EPC including any Variances – EPC (Form P1)	<input type="checkbox"/> Adoption or Amendment of Historic Designation (Form L)
<input type="checkbox"/> WTF Approval (Form W1)	<input type="checkbox"/> Site Plan – DRB (Form P2)	<input type="checkbox"/> Amendment of IDO Text (Form Z)
<input type="checkbox"/> Minor Amendment to Site Plan (Form P3)	<input type="checkbox"/> Subdivision of Land – Minor (Form S2)	<input type="checkbox"/> Annexation of Land (Form Z)
Decisions Requiring a Public Meeting or Hearing	<input type="checkbox"/> Subdivision of Land – Major (Form S1)	<input type="checkbox"/> Amendment to Zoning Map – EPC (Form Z)
<input type="checkbox"/> Conditional Use Approval (Form ZHE)	<input type="checkbox"/> Vacation of Easement or Right-of-way (Form V)	<input type="checkbox"/> Amendment to Zoning Map – Council (Form Z)
<input type="checkbox"/> Demolition Outside of HPO (Form L)	<input type="checkbox"/> Variance – DRB (Form V)	Appeals
<input type="checkbox"/> Expansion of Nonconforming Use or Structure (Form ZHE)	<input type="checkbox"/> Variance – ZHE (Form ZHE)	<input type="checkbox"/> Decision by EPC, LC, DRB, ZHE, or City Staff (Form A)

APPLICATION INFORMATION

Applicant: Affordable Solar obo Joyce Gentry		Phone: 505-508-7242
Address: 1100 Tijeras Ave NW		Email: jonas.terwilliger@affordable-solar.com
City: Albuquerque	State: NM	Zip: 87102
Professional/Agent (if any): Affordable Solar		Phone: 505-944-4220
Address: 4840 Pan American, E FWY NE		Email: jonas.terwilliger@affordable-solar.com
City: Albuquerque	State: NM	Zip: 87109
Proprietary Interest in Site:	List <u>all</u> owners:	

BRIEF DESCRIPTION OF REQUEST

Installation of roof mounted 7.035kW Solar PV. Tri-Black panels. Located in historic district.

SITE INFORMATION (Accuracy of the existing legal description is crucial! Attach a separate sheet if necessary.)

Lot or Tract No.: Fourth Ward - HPO -3 / MX-T / SP-97-38	Block: 57	Unit: 1
Subdivision/Addition:	MRGCD Map No.:	UPC Code:
Zone Atlas Page(s): J-13-Z	Existing Zoning:	Proposed Zoning:
# of Existing Lots:	# of Proposed Lots:	Total Area of Site (acres):

LOCATION OF PROPERTY BY STREETS

Site Address/Street:	Between:	and:
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CASE HISTORY (List any current or prior project and case number(s) that may be relevant to your request.)

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Signature: Jonas Terwilliger	Date: 6/3/20
Printed Name: Jonas Terwilliger	<input type="checkbox"/> Applicant or <input type="checkbox"/> Agent

FOR OFFICIAL USE ONLY

Case Numbers	Action	Fees
S1-2020 00434		
-		
-		
Meeting/Hearing Date:	Fee Total:	
Staff Signature:	Date:	Project # 2020-003955

Form L: Historic Preservation and Landmarks Commission (LC)

Please refer to the LC hearing schedule for public hearing dates and deadlines. Your attendance is required.

A single PDF file of the complete application including all plans and documents being submitted must be emailed to PLNDRS@cabq.gov prior to making a submittal. Zipped files or those over 9 MB cannot be delivered via email, in which case the PDF must be provided on a CD.

Type of Request		Historic Zone or Designation	
<input checked="" type="checkbox"/> Alteration	<input type="checkbox"/> Sign (see note below)	<input type="checkbox"/> East Downtown – HPO-1	<input checked="" type="checkbox"/> Downtown Area
<input type="checkbox"/> Demolition	<input type="checkbox"/> City Landmark Designation	<input type="checkbox"/> Eighth & Forrester – HPO-2	<input type="checkbox"/> Downtown Neighborhood Area – CPO-3
<input type="checkbox"/> New Construction	<input type="checkbox"/> City Overlay Designation	<input type="checkbox"/> Fourth Ward – HPO-3	<input type="checkbox"/> East Downtown – CPO-4
Number and Classification of Structures on Property		<input type="checkbox"/> Huning Highland – HPO-4	<input type="checkbox"/> Nob Hill/Highland – CPO-8
Contributing Structures:		<input type="checkbox"/> Old Town – HPO-5	<input type="checkbox"/> City Landmark
Noncontributing Structures:		<input type="checkbox"/> Silver Hill – HPO-6	
Unclassified Structures:		Residential Property?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

***PLEASE NOTE:** Approval of signs in the overlay zones may also require a sign permit from Zoning in addition to LC approval.

HISTORIC CERTIFICATE OF APPROPRIATENESS – MINOR Administrative Decision

- All materials indicated on the project drawing checklist and required by the Historic Preservation Planner
- Letter detailing the scope of the proposal and justifying the request per the criteria in IDO Section 14-16-6-5(D)(3)
- Zone Atlas map with the entire site clearly outlined and labeled
- Letter of authorization from the property owner if application is submitted by an agent
- Required notices with content per IDO Section 14-16-6-4(K)(6)
- Office of Neighborhood Coordination notice inquiry response and proof of emailed notice to affected Neighborhood Association representatives
- Sign Posting Agreement

INFORMATION REQUIRED FOR ALL LANDMARKS COMMISSION PUBLIC HEARING APPLICATIONS

- Interpreter Needed for Hearing? if yes, indicate language: _____
- Proof of Pre-Application Meeting with City staff per IDO Section 14-16-6-4(B)
- Zone Atlas map with the entire site clearly outlined and labeled
- Letter of authorization from the property owner if application is submitted by an agent
- Required notices with content per IDO Section 14-16-6-4(K)(6)
- Office of Neighborhood Coordination notice inquiry response, notifying letter, and proof of first class mailing
- Proof of emailed notice to affected Neighborhood Association representatives
- Buffer map and list of property owners within 100 feet (excluding public rights-of-way), notifying letter, and proof of first class mailing
- Sign Posting Agreement

DEMOLITION OUTSIDE OF HPO Requires Public Hearing

- Proof of Neighborhood Meeting per IDO Section 14-16-6-4(C)
- Letter describing, explaining, and justifying the request per the criteria in IDO Section 14-16-6-6(B)(3)

HISTORIC CERTIFICATE OF APPROPRIATENESS – MAJOR Requires Public Hearing

- All materials indicated on the project drawing checklist (8 packets for residential projects or 9 for non-residential or mixed-use)
- Letter detailing the scope of the proposal and justifying the request per the criteria in IDO Section 14-16-6-(D)(3)


HISTORIC DESIGN STANDARDS AND GUIDELINES Requires Public Hearing


- Proof of Neighborhood Meeting per IDO Section 14-16-6-4(C)
- Proposed Design Standards and Guidelines
- Letter describing, explaining, and justifying the request per the criteria in IDO Section 14-16-6-6(E)(3)

ADOPTION OR AMENDMENT OF HISTORIC DESIGNATION Requires Public Hearing

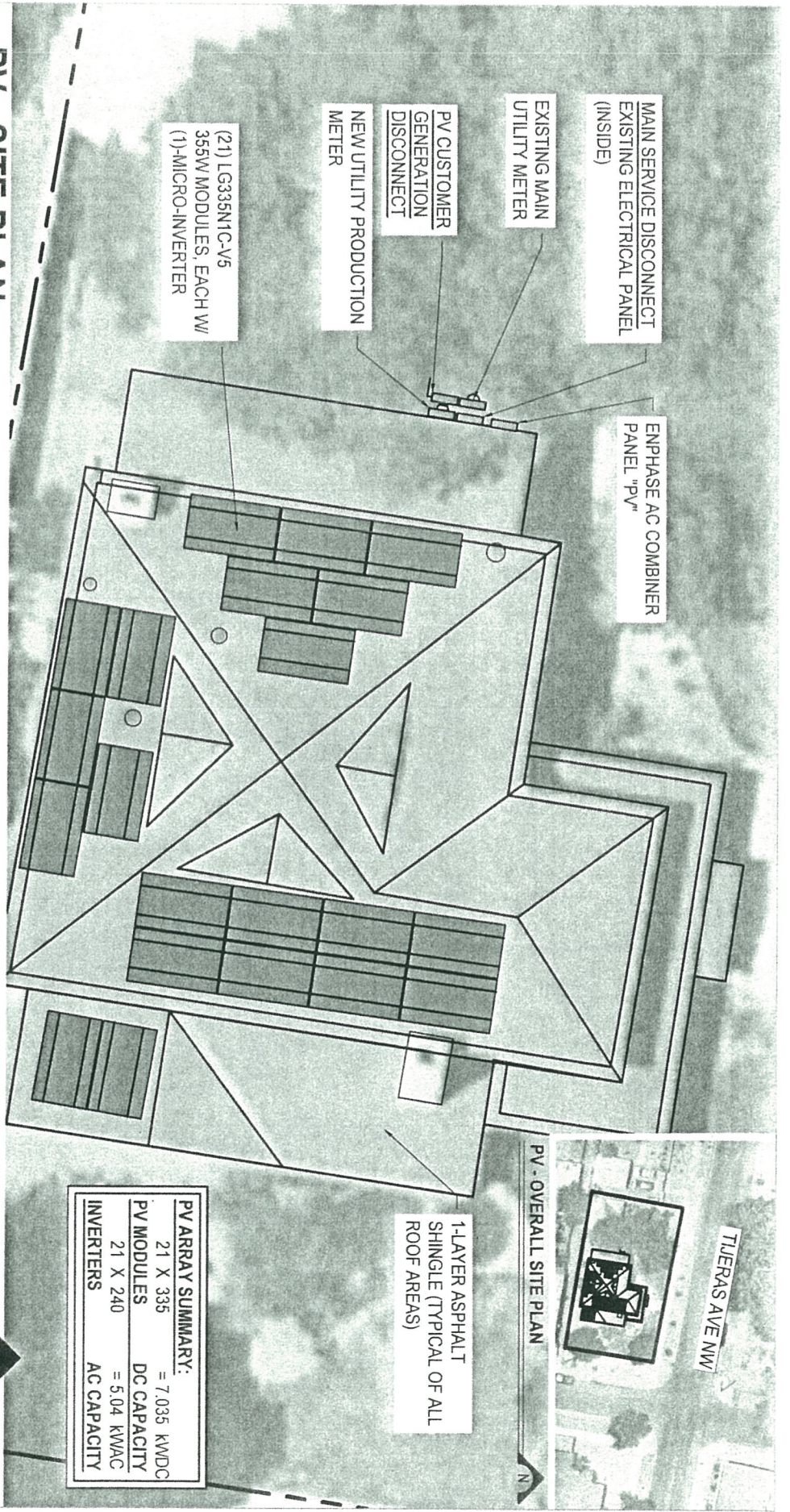
- Proof of Neighborhood Meeting per IDO Section 14-16-6-4(C)
- Letter describing, explaining, and justifying the request per the criteria in IDO Section 14-16-6-7(C)(3)

I, the applicant or agent, acknowledge that if any required information is not submitted with this application, the application will not be scheduled for a public meeting or hearing, if required, or otherwise processed until it is complete.

Signature: 	Date: 6-3-20
Printed Name: Jonas Terwilliger	<input type="checkbox"/> Applicant or <input type="checkbox"/> Agent

FOR OFFICIAL USE ONLY	
Project Number:	Case Numbers
DL-2020-003955	51-2020-00434
Staff Signature:	
Date:	

APPLICATION



PV - SITE PLAN

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE ALL MARKINGS AND LABELING IN ACCORDANCE WITH NEC ARTICLE 690 IV.
2. PV ARRAY SHALL BE MOUNTED ON EXISTING STRUCTURE AND WILL NOT EXCEED 26'-0".
3. PRODUCTION METER & CUSTOMER GENERATION DISCONNECT, ACCESSIBLE AT ALL TIMES WITHOUT ESCORT.

affordable solar
 4840 Pan American East Fwy NE
 Albuquerque, New Mexico 87109-2220
 (505) 244-1154 - www.affordable-solar.com

PROJECT NAME	JOYCE GENTRY 1100 TIJERAS AVE NW ALBUQUERQUE, NM 87102
PROJECT NO.	314-C-5363
DATE	6 NOVEMBER 2019

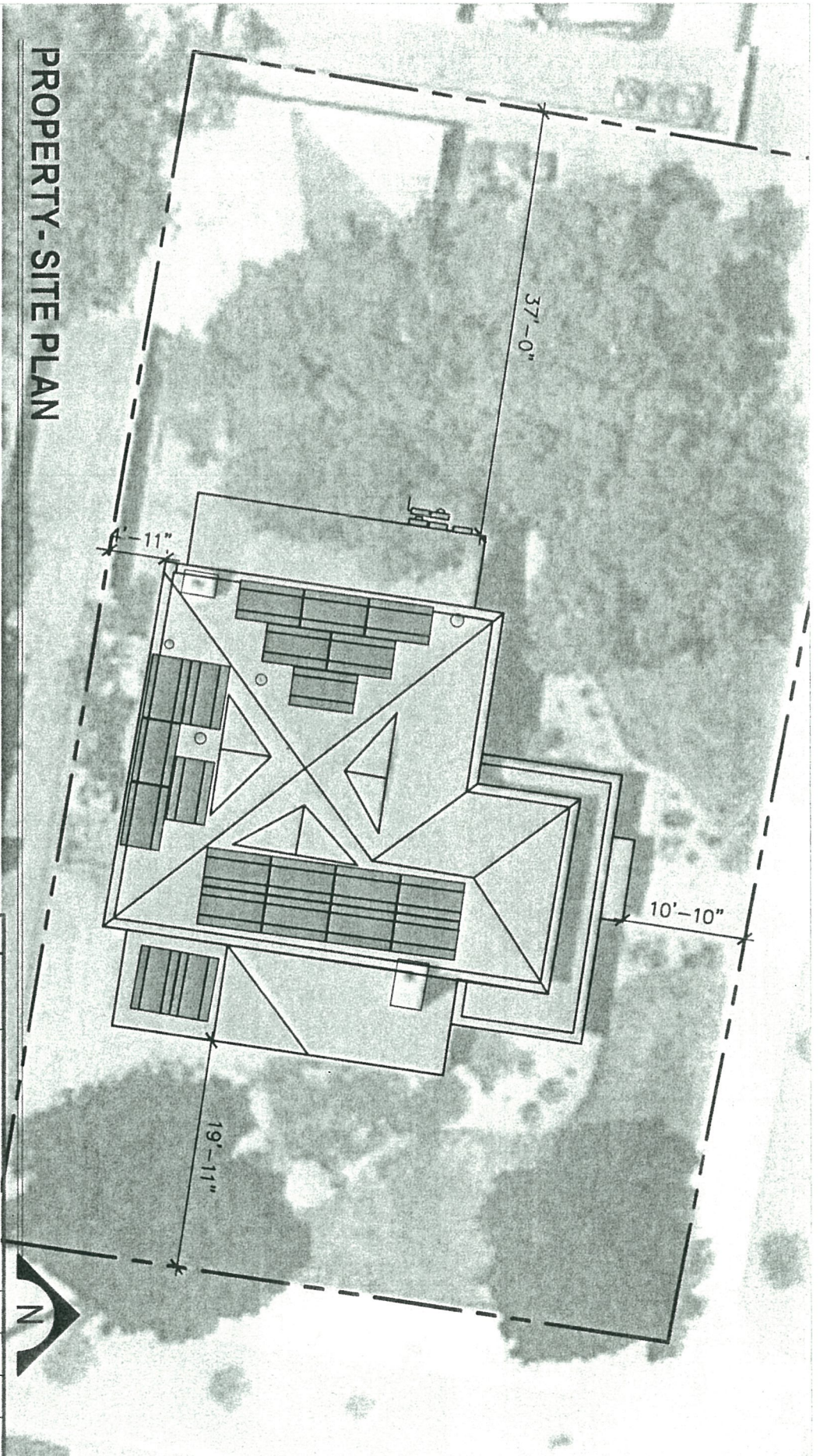
SUPPLEMENTAL DRAWING NO.	PV-1
--------------------------	-------------

PV ARRAY SUMMARY:	
21 X 335	= 7,035 KWDC
PV MODULES	DC CAPACITY
21 X 240	= 5.04 KWAC
INVERTERS	AC CAPACITY

SYSTEM SPECIFICATIONS

- RACKING - UNIRAC RM
- (21) - ENPHASE (IQ7) 240W MICRO-INVERTERS
- (504) - KW-TOTAL INVERTER CAPACITY
- (21) - LG ELECTRONICS SOLAR (LG335N1C-V5) 335W MODULES
- AZIMUTH ANGLE - 99°, 189° & 279°
- MODULE TILT - 33° PITCHED ROOF - FLUSH

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PROPERTY - SITE PLAN

- GENERAL NOTES:**
1. PV ARRAY SHALL BE MOUNTED ON EXISTING STRUCTURE AND WILL NOT EXCEED 26'-0".
 2. CONTRACTOR SHALL PROVIDE ALL MARKINGS AND LABELING IN ACCORDANCE WITH NEC ARTICLE 690 IV.

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PROJECT NAME	JOYCE GENTRY 1100 TIJERAS AVE NW ALBUQUERQUE, NM 87102	
PROJECT NO.	314-C-5363	DATE
		6 NOVEMBER 2019

SUPPLEMENTAL DRAWING NO.	PV-3
--------------------------	-------------

REV	DATE	DESCRIPTION	BY	CHK	APR	APR
1	-	-	-	-	-	-
0	11-6-19	PNM INTERCONNECTION DOCS	RAM	RM	DN	RM

- SYSTEM SPECIFICATIONS**
- RACKING - UNIRAC RM
 - (21) - ENPHASE (107) 240W MICRO-INVERTERS
 - (504) - KW-TOTAL INVERTER CAPACITY
 - (21) - LG ELECTRONICS SOLAR (LG335N1C-V5) 335W MODULES
 - AZIMUTH ANGLE - 99°, 189° & 279°
 - MODULE TILT - 33° PITCHED ROOF - FLUSH

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ZOOM NOTIFICATION



4840 Pan American Fwy NE
Albuquerque, NM 87109-2220

Direct: 505-944-4220 / Toll Free: 800-810-9939

June 15, 2020

NOTICE OF APPLICATION FOR CERTIFICATE OF APPROPRIATENESS

In that Affordable Solar Installations, Inc., is applying for a Certificate of Appropriateness major with the Landmarks Commission for Gentry Law Office, 1100 Tijeras Ave NW, Albuquerque, NM 87102.

This case is going before the Landmarks Commission on July 08, 2020 at 3:05PM so that we may request permission to have panels facing the side street (11th St.) on this corner lot.

The meeting may be attended via Zoom using the connection information that follows:

Subject: Landmarks Commission

When: Wednesday, July 8, 2020 3:05 PM-7:05 PM (UTC-07:00) Mountain Time (US & Canada).

Where: <https://cabq.zoom.us/j/94926632852>

Landmarks Commission

Join Zoom Meeting

<https://cabq.zoom.us/j/94926632852>

Meeting ID: 949 2663 2852

One tap mobile

+13462487799,,94926632852# US (Houston)

+16699006833,,94926632852# US (San Jose)

Dial by your location

+1 346 248 7799 US (Houston)

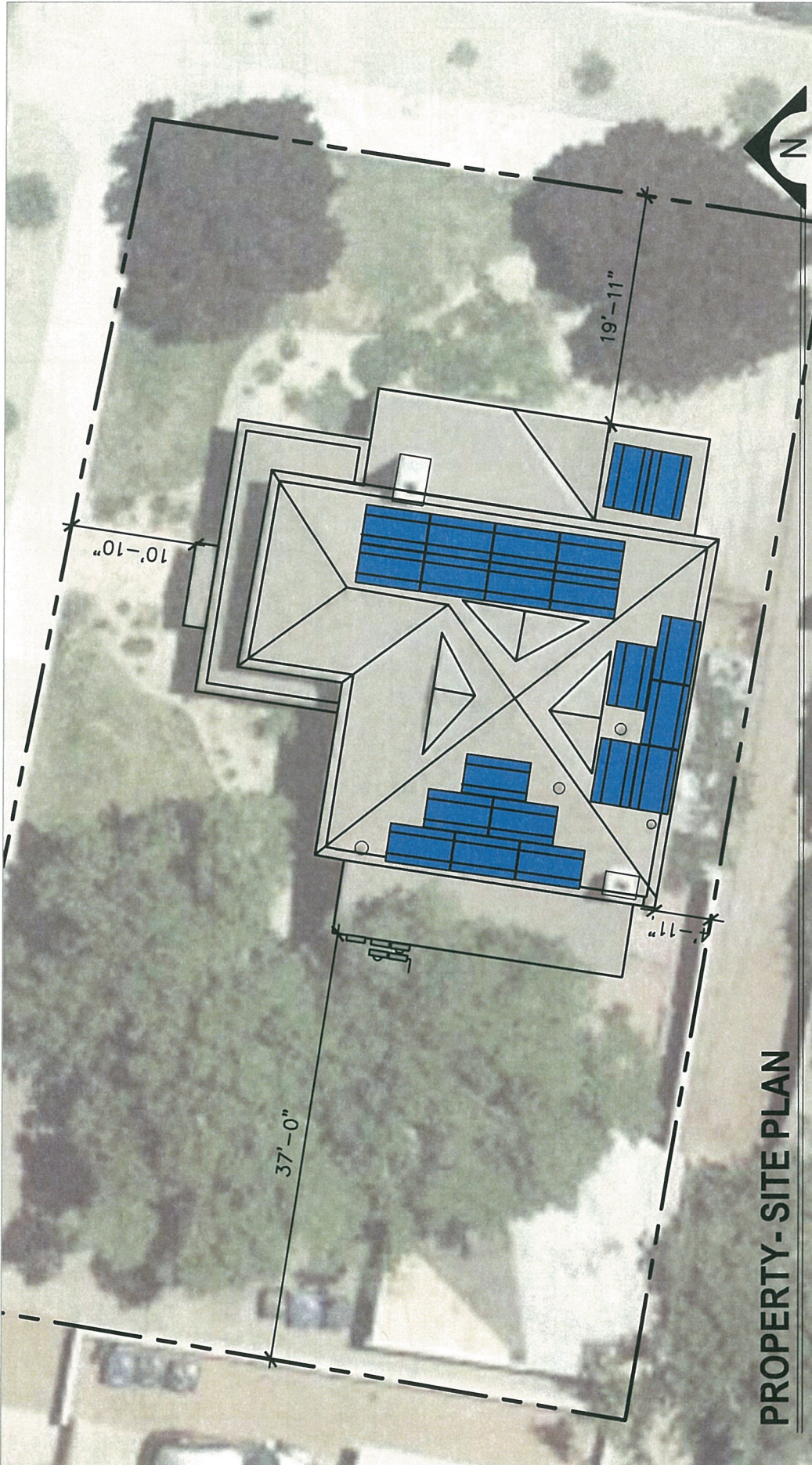


Jonas Terwilliger | Project Manager

jonas.terwilliger@affordable-solar.com | 505.944.4256 - direct



Office: 800.810.9939 | Fax: 505.944.9222
4840 Pan American East FWY NE, Alb., NM, 87109
thinkaffordablesolar.com | [facebook](https://www.facebook.com/affordablesolar)



PROPERTY - SITE PLAN

GENERAL NOTES:

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2. CONTRACTOR SHALL PROVIDE ALL MARKINGS AND LABELING IN ACCORDANCE WITH NEC ARTICLE 690 IV.

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 ALBUQUERQUE, NM 87102

PROJECT NO.: 314-C-5363

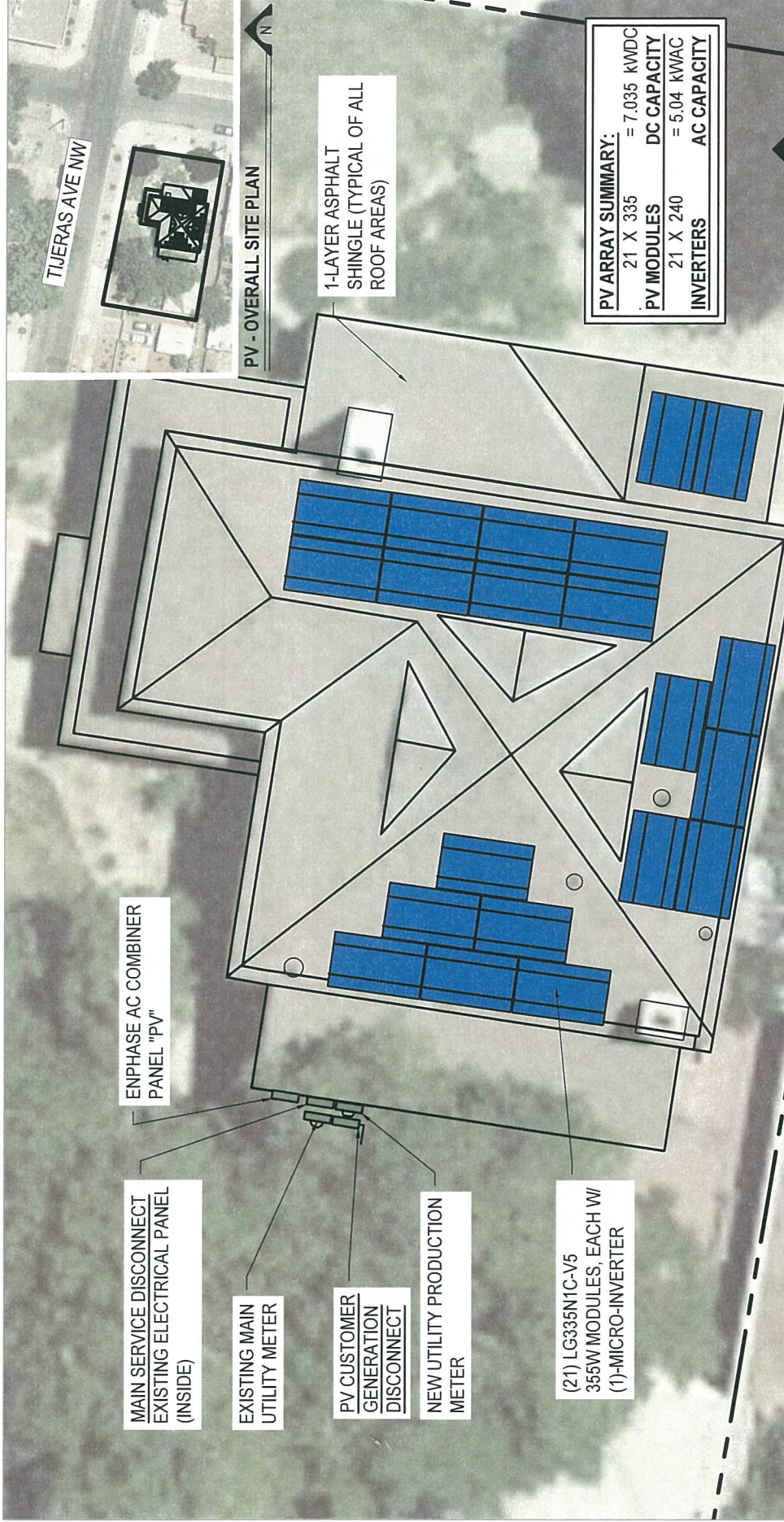
DATE: 6 NOVEMBER 2019

SUPPLEMENTAL DRAWING NO. **PV-3**

REV	DATE	DESCRIPTION	BY	CHK	APR	APR
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1	-	-	-	-	-	-
0	11-6-19	PNM INTERCONNECTION DOCS	RAM	RM	DN	RM

- ### SYSTEM SPECIFICATIONS
- RACKING - UNIRAC RM
 - (21) - ENPHASE (IQ7) 240W MICRO-INVERTERS
 - (5.04) - KW-TOTAL INVERTER CAPACITY
 - (21) - LG ELECTRONICS SOLAR (LG335N1C-V5) 335W MODULES
 - AZIMUTH ANGLE - 99°, 189° & 279°
 - MODULE TILT - 33° PITCHED ROOF - FLUSH

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PV ARRAY SUMMARY:	
21 X 335	= 7.035 KWDC
PV MODULES	DC CAPACITY
21 X 240	= 5.04 KWAC
INVERTERS	AC CAPACITY

PV - SITE PLAN

GENERAL NOTES:

- CONTRACTOR SHALL PROVIDE ALL MARKINGS AND LABELING IN ACCORDANCE WITH NEC ARTICLE 690 IV.
- PV ARRAY SHALL BE MOUNTED ON EXISTING STRUCTURE AND WILL NOT EXCEED 26'-0".
- PRODUCTION METER & CUSTOMER GENERATION DISCONNECT, ACCESSIBLE AT ALL TIMES WITHOUT ESCORT.

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PROJECT NAME: JOYCE GENTRY
 1100 TIJERAS AVE NW
 ALBUQUERQUE, NM 87102

PROJECT NO.: 314-C-5363

DATE: 6 NOVEMBER 2019

2	-	-	-	-	-	-
1	-	-	-	-	-	-
0	11-6-19	PNM INTERCONNECTION DOCS	RAM	RM	DN	RM
REV	DATE	DESCRIPTION	BY	CHK	APR	APR

SUPPLEMENTAL DRAWING NO.

PV-1

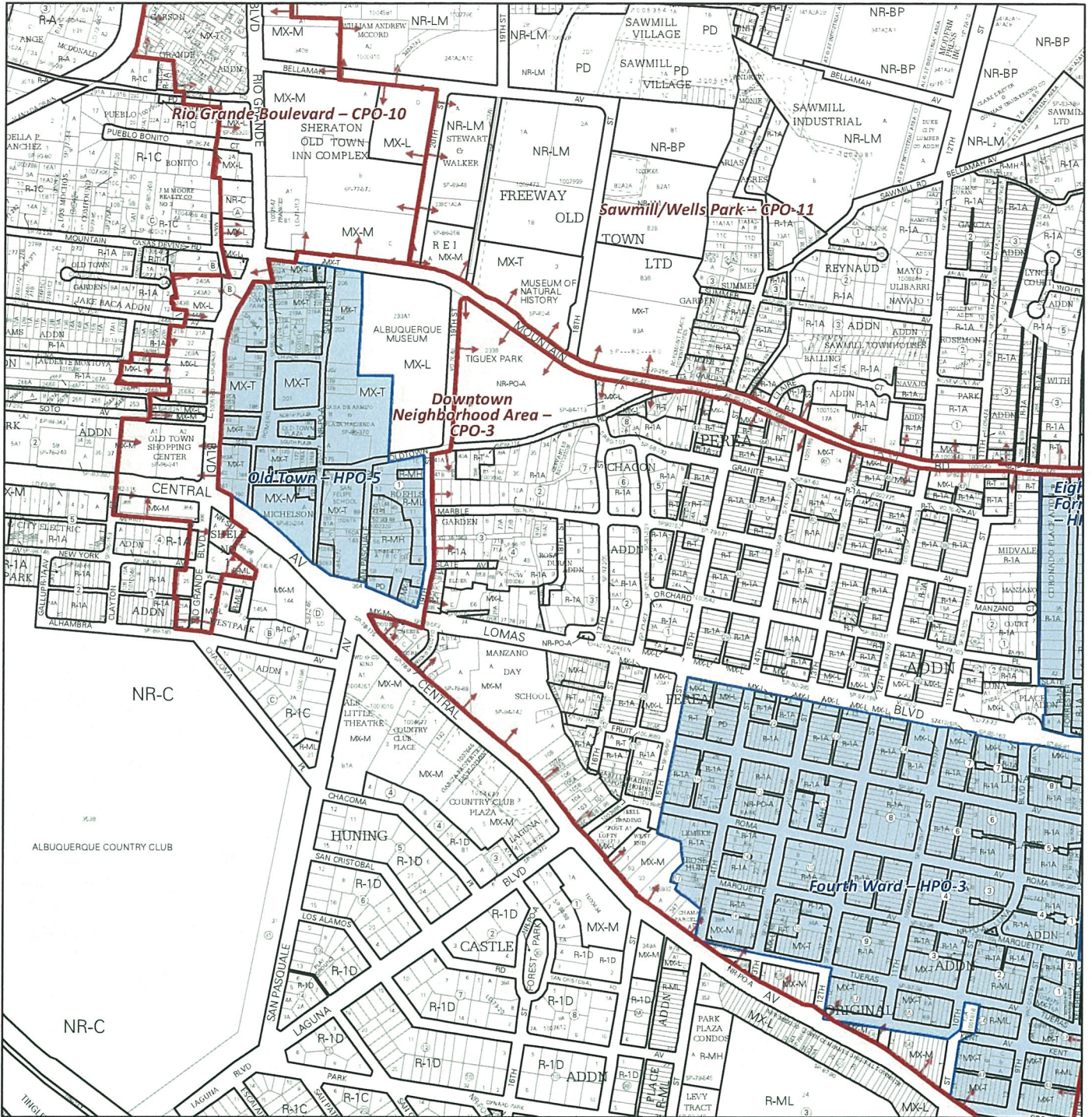
SYSTEM SPECIFICATIONS

- RACKING - UNIRAC RM
- (21) - ENPHASE (IQ7) 240W MICRO-INVERTERS
- (5.04) - KW-TOTAL INVERTER CAPACITY
- (21) - LG ELECTRONICS SOLAR (LG335N1C-V5) 335W MODULES
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For more details about the Integrated Development Ordinance visit: <http://www.cabq.gov/planning/codes-policies-regulations/integrated-development-ordinance>

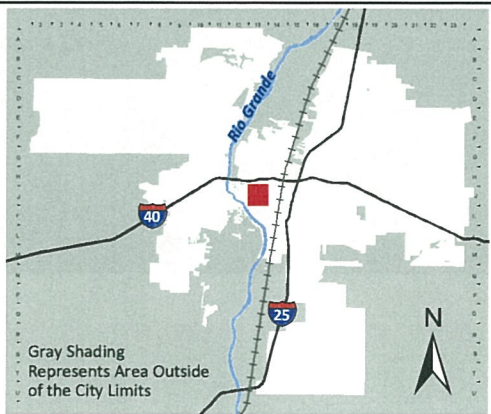
IDO Zone Atlas May 2018




IDO Zoning information as of May 17, 2018
The Zone Districts and Overlay Zones are established by the Integrated Development Ordinance (IDO).

Zone Atlas Page:
J-13-Z

- Easement
- Escarpment
- Petroglyph National Monument
- Areas Outside of City Limits
- Airport Protection Overlay (APO) Zone
- Character Protection Overlay (CPO) Zone
- Historic Protection Overlay (HPO) Zone
- View Protection Overlay (VPO) Zone

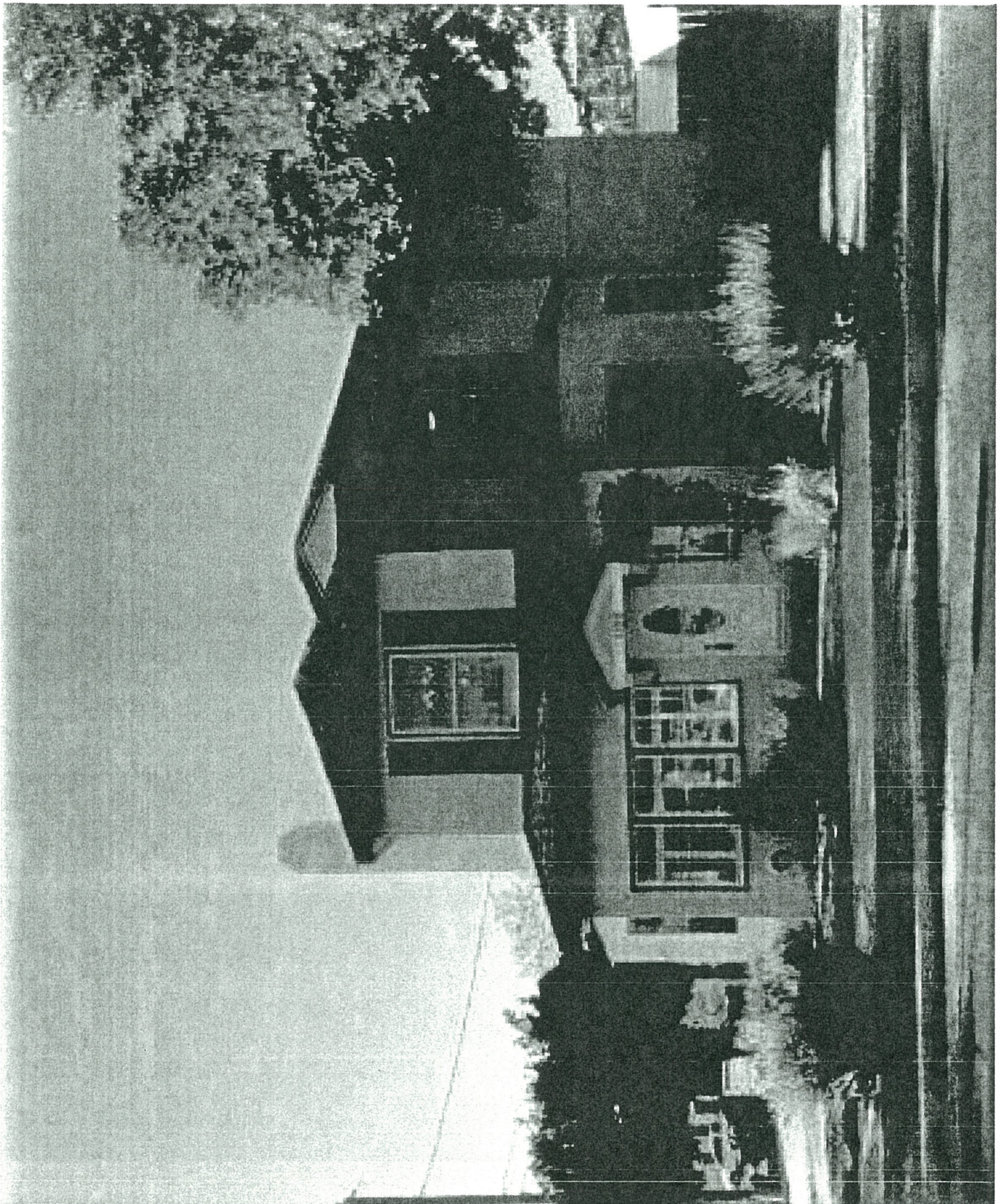


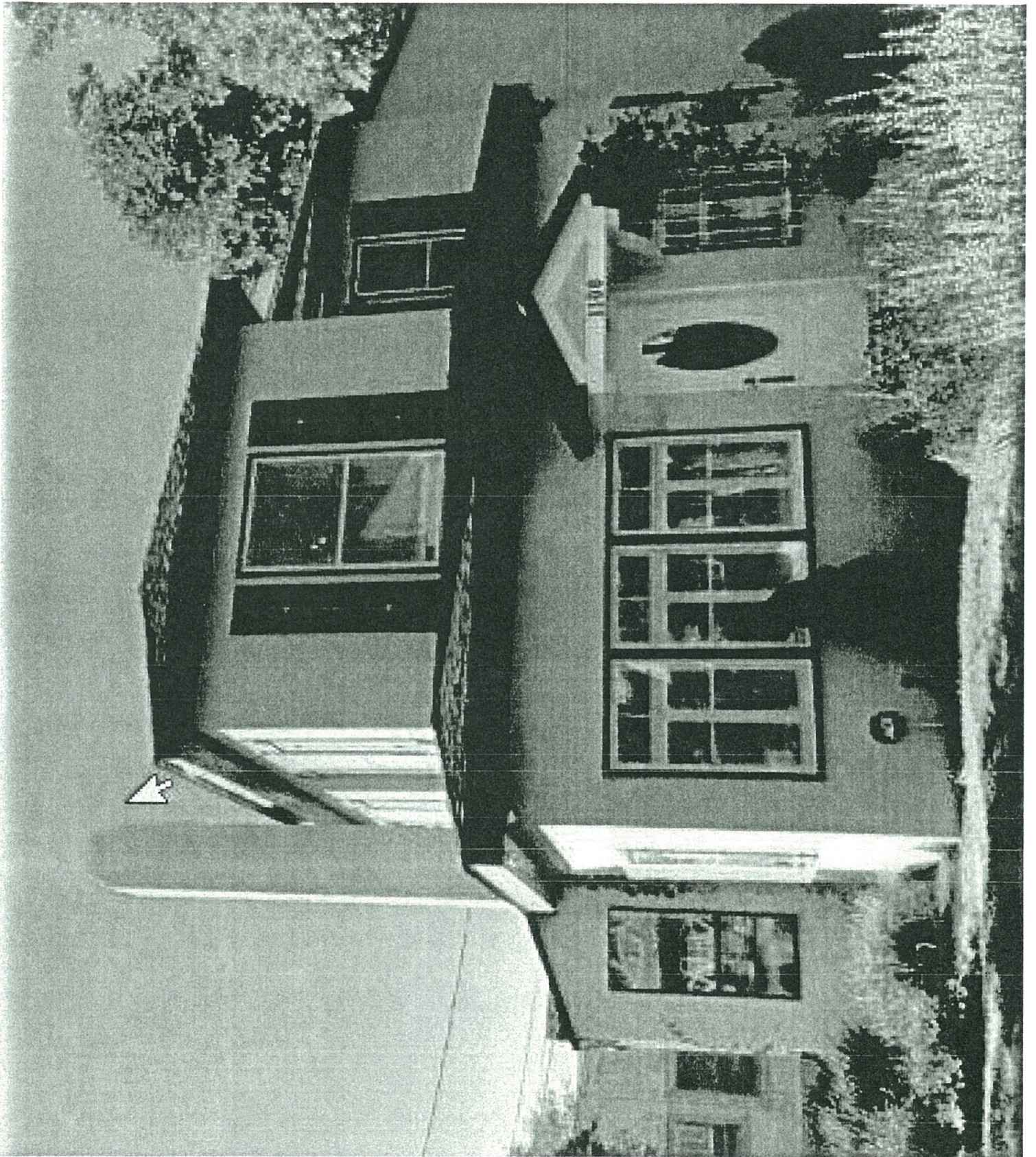
Gray Shading Represents Area Outside of the City Limits

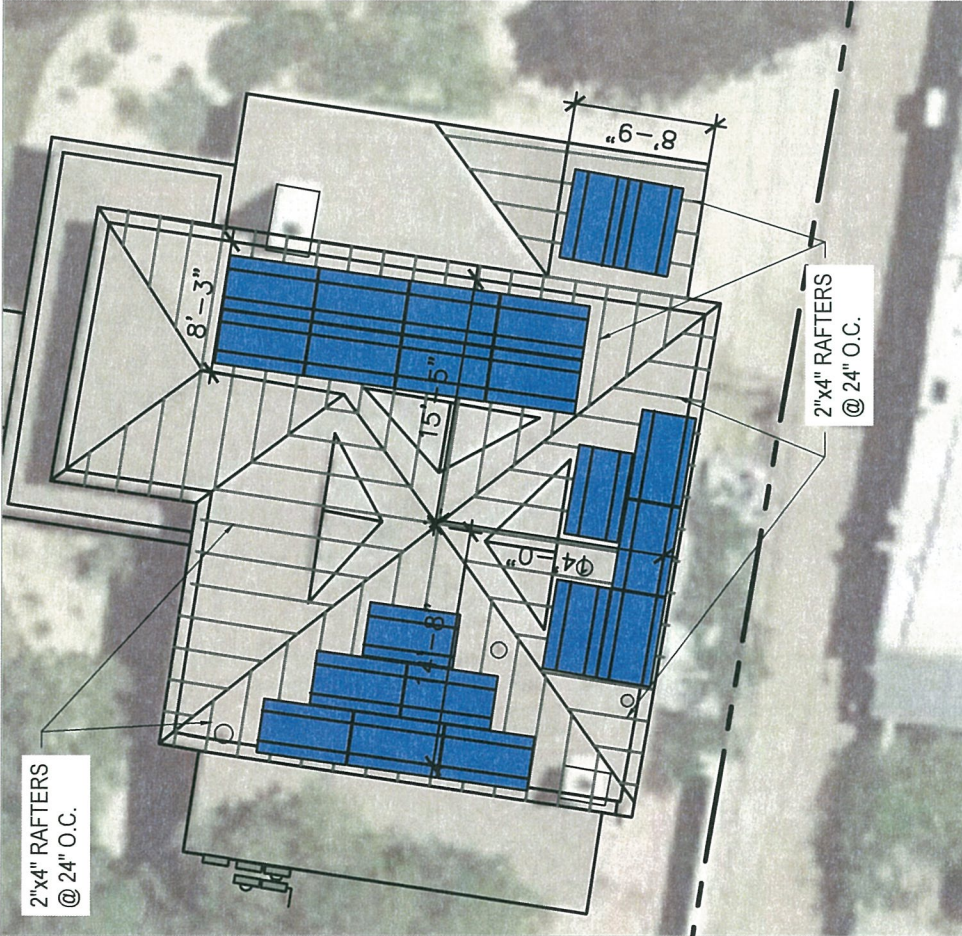


0 250 500 1,000 Feet









PV FRAMING PLAN

GENERAL NOTES:

- PV ARRAY SHALL BE MOUNTED ON EXISTING STRUCTURE AND WILL NOT EXCEED 26'-0".
- CONTRACTOR SHALL PROVIDE ALL MARKINGS AND LABELING IN ACCORDANCE WITH NEC ARTICLE 690 IV.

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PROJECT NAME JOYCE GENTRY
 1100 TIJERAS AVE NW
 ALBUQUERQUE, NM 87102

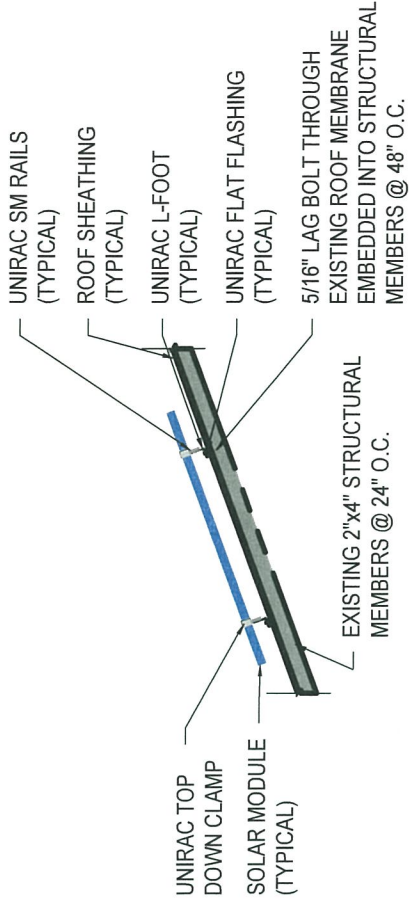
PROJECT NO. 314-C-5363
 DATE 6 NOVEMBER 2019

SUPPLEMENTAL
 DRAWING NO.

PV-4

SYSTEM SPECIFICATIONS

- RACKING - UNIRAC RM
- (21) - ENPHASE (IQ7) 240W MICRO-INVERTERS
- (5.04) - KW-TOTAL INVERTER CAPACITY
- (21) - LG ELECTRONICS SOLAR (LG335N1C-V5) 335W MODULES
- AZIMUTH ANGLE - 99°, 189° & 279°
- MODULE TILT - 33° PITCHED ROOF - FLUSH



SM-FLAT FLASHING ATTACHMENT DETAIL



2	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-
0	11-6-19	PNM INTERCONNECTION DOCS	RAM	RM	DN	RM		
REV	DATE	DESCRIPTION	BY	CHK	APR	APR		

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U-BUILDER PROJECT REPORT

VERSION: 1.0

PROJECT TITLE

SOLARMOUNT Flush

PROJECT ID

A7A106DA

CREATED

Nov. 6, 2019, 2:28 p.m.

NAME	Gentry, Joyce	Designed by james.sturgis@affordable-solar.com
ADDRESS	1100 Tijeras Ave NW	SOLARMOUNT FLUSH
CITY, STATE	Albuquerque, NM	LG
MODULE	LG LG335N1C-V5	21 - LG335N1C-V5
		387 ft ²
		7.04 KW

BILL OF MATERIALS

LEGEND: ■ Base System Part ■ Accessory

PART NUMBER	PART TYPE	DESCRIPTION	QUANTITY	SUGGESTED QUANTITY	UNIT PRICE (USD)	TOTAL LIST PRICE (USD)
315168M	Rail	SM LIGHT RAIL 168" MILL	13	13	28.46	369.98
315246M	Rail	SM LIGHT RAIL 246" MILL	4	4	41.68	166.72
303019M	Splice	BND SPLICE BAR PRO SERIES MILL	8	8	4.74	37.92
302030M	Mid Clamp	SM PRO SERIES MID - MILL	24	24	2.10	50.40
302035M	End Clamp	SM PRO SERIES UNIV END	36	36	2.52	90.72
008009P	Grounding Lug	ILSCO LAY IN LUG (GBL4DBT)	9	9	5.75	51.75
004055M	Flashing	FLASHKIT PRO, MILL 10PK	72	72	7.25	522.00

BASE SYSTEM PRICE	\$715.74	ACCESSORIES PRICE	\$573.75	TOTAL PRICE	\$1289.49
\$0.102 PER WATT		\$0.082 PER WATT		\$0.183 PER WATT	

This design is to be evaluated to the product appropriate Unirac Code Compliant Installation Manual which references International Building Code 2009, 2012, 2015, 2018 and ASCE 7-05, ASCE 7-10, ASCE 7-16 and California Building Code 2010, 2016. The installation of products related to this design is subject to requirements in the above mentioned installation manual.

DETAILED PARTS DESCRIPTION

QTY



Rail 315168M SM LIGHT RAIL 168" MILL

13

Structural aluminum extrusion containing slots that accept module and roof attachment hardware, electrical bonding accessories, and splice bars.



Rail 315246M SM LIGHT RAIL 246" MILL

4

Structural aluminum extrusion containing slots that accept module and roof attachment hardware, electrical bonding accessories, and splice bars.



Splice 303019M BND SPLICE BAR PRO SERIES MILL

8

Mill finished aluminum extrusion for joining adjacent lengths of rail to one another. Includes pre-assembled bolts. Uses 1/2" socket for 1-tool system install.



Mid Clamp 302030M SM PRO SERIES MID - MILL

24

SOLARMOUNT Pro Series universal height mid clamps: Installed between modules and provide top-down clamping to secure module frame to SM rail. These pre-assembled, self-standing clamps will accommodate module frame heights from 30mm to 51mm. Mill finished (bare) aluminum.



End Clamp 302035M SM PRO SERIES UNIV END

36

SOLARMOUNT Pro Series universal end clamps: Installed at the beginning and end of a row of modules. These clamps slide into the top rail channel and secure the module frame bottom-side return flange. Rail should be cut flush with the module frame for a clean look. End cap included for each clamp; end cap works on both SM standard and light rail profiles.



Grounding Lug 008009P ILSCO LAY IN LUG (GBL4DBT)

9

For electrical bonding of PV modules and rails. Accepts 4-14 AWG copper wires. Tin plated copper body, 1/4" stainless steel fasteners.



Flashing 004055M FLASHKIT PRO, MILL 10PK

72

FLASHKIT PRO is the complete attachment solution for composition shingle roofs. Featuring Unirac's patented SHED & SEAL technology, a weather proof system which provides the ultimate protection against roof leaks. Kitted in 10 packs for maximum convenience. Includes mill finish flashing and L-foot, lag with pre-assembled sealing washer, and 3/8" t-bolt and nut.

ENGINEERING REPORT

Plan review

AVERAGE PSF	2.55 lbs/ft ²
TOTAL NUMBER OF MODULES	21
TOTAL KW	7.04 KW
TOTAL AREA	~387 ft ²

Loads Used for Design

BUILDING CODE	ASCE 7-10
BASIC WIND SPEED	115 mph
GROUND SNOW LOAD	20 psf
SEISMIC (SS)	0.45
ELEVATION	4959 ft
WIND EXPOSURE	B

Loads Determined by Zip

CITY, STATE	Albuquerque, NM
BASIC WIND SPEED	115 mph
	Special Wind Region
GROUND SNOW LOAD	5 psf

Inspection

PRODUCT	SOLARMOUNT FLUSH
MODULE MANUFACTURER	LG
MODEL	21 - LG335N1C-V5
MODULE WATTS	335 watts
MODULE LENGTH	66.40"
MODULE WIDTH	40.00"
MODULE THICKNESS	1.57"
MODULE WEIGHT	37.70 lbs
EXPANSION JOINTS	Every 40'
RAILS DIRECTION	EW
BUILDING HEIGHT	30 ft
ROOF TYPE	Shingle
RAFTER SPACING	24"
TOTAL WEIGHT	986.38 lbs

Array 1

ROOF POINT LOAD UP	-73.0 lbs	DESIGN RAIL SPAN	48"
ROOF POINT LOAD DOWN	108.5 lbs	MAXIMUM RAIL SPAN	84"
TOTAL NUMBER OF MODULES:	8	MAXIMUM RAIL CANTILEVER:	16.00"
TOTAL KW:	2.68 KW	ROOF PITCH:	34°
ROWS/ COLUMNS:	2 / 4 (no gaps)		
NS DIMENSION:	~ 6.75 ft		
EW DIMENSION:	~ 22.38 ft		

Array 2

ROOF POINT LOAD UP	-73.0 lbs	DESIGN RAIL SPAN	48"
ROOF POINT LOAD DOWN	108.5 lbs	MAXIMUM RAIL SPAN	84"
TOTAL NUMBER OF MODULES:	2	MAXIMUM RAIL CANTILEVER:	16.00"
TOTAL KW:	0.67 KW	ROOF PITCH:	34°
ROWS/ COLUMNS:	2 / 1 (no gaps)		
NS DIMENSION:	~ 6.75 ft		
EW DIMENSION:	~ 5.53 ft		

Array 3

ROOF POINT LOAD UP	-73.0 lbs	DESIGN RAIL SPAN	48"
ROOF POINT LOAD DOWN	108.5 lbs	MAXIMUM RAIL SPAN	84"
TOTAL NUMBER OF MODULES:	5	MAXIMUM RAIL CANTILEVER:	16.00"
TOTAL KW:	1.68 KW	ROOF PITCH:	34°
ROWS/ COLUMNS:	2 / 3 (with gaps)		
NS DIMENSION:	~ 6.75 ft		
EW DIMENSION:	~ 16.77 ft		

Array 4

ROOF POINT LOAD UP	-73.0 lbs	DESIGN RAIL SPAN	48"
ROOF POINT LOAD DOWN	108.5 lbs	MAXIMUM RAIL SPAN	84"
TOTAL NUMBER OF MODULES:	6	MAXIMUM RAIL CANTILEVER:	16.00"
TOTAL KW:	2.01 KW	ROOF PITCH:	34°
ROWS/ COLUMNS:	3 / 3 (with gaps)		
NS DIMENSION:	~ 10.17 ft		
EW DIMENSION:	~ 16.77 ft		

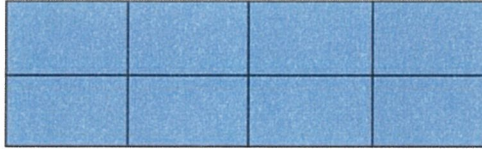
INSTALLATION AND DESIGN PLAN

ROOF AREA 1 / ARRAY 1

LEGEND

Module (Roof Zones)

- Zone 1
- Zone 2
- Zone 3



ROW	MODULES	ZONE	RAIL TYPE	SPLICES	ROOF ATTACHMENTS
1	4	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (2)', 'SM LIGHT RAIL 246" MILL 315246M \$41.68 (1)']	2	12
2	4	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (2)', 'SM LIGHT RAIL 246" MILL 315246M \$41.68 (1)']	2	12

DESIGN RAIL SPAN	48"
MAXIMUM RAIL SPAN (ZONE 1*)	84"
PREFERRED RAIL SPAN	48"
MAXIMUM RAIL CANTILEVER	16.00"
RAIL DIRECTION	EW

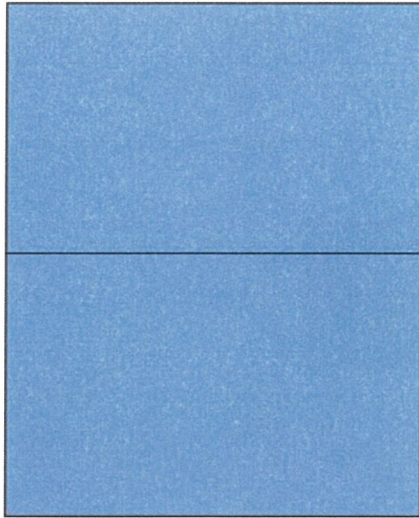
* Zone 2 and 3 Rail Spans must be independently verified

ROOF AREA 1 / ARRAY 2

LEGEND

Module (Roof Zones)

- Zone 1
- Zone 2
- Zone 3



ROW	MODULES	ZONE	RAIL TYPE	SPLICES	ROOF ATTACHMENTS
1	1	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (1)']	0	4
2	1	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (1)']	0	4
DESIGN RAIL SPAN				48"	
MAXIMUM RAIL SPAN (ZONE 1*)				84"	
PREFERRED RAIL SPAN				48"	
MAXIMUM RAIL CANTILEVER				16.00"	
RAIL DIRECTION				EW	

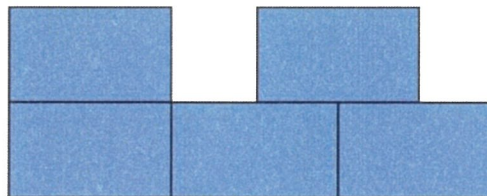
* Zone 2 and 3 Rail Spans must be independently verified

ROOF AREA 1 / ARRAY 3

LEGEND

Module (Roof Zones)

- Zone 1
- Zone 2
- Zone 3



ROW	MODULES	ZONE	RAIL TYPE	SPLICES	ROOF ATTACHMENTS
1	2	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (2)']	0	8

2	3	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (1)', 'SM LIGHT RAIL 246" MILL 315246M \$41.68 (1)']	2	10
---	---	---	--	---	----

DESIGN RAIL SPAN	48"
MAXIMUM RAIL SPAN (ZONE 1*)	84"
PREFERRED RAIL SPAN	48"
MAXIMUM RAIL CANTILEVER	16.00"
RAIL DIRECTION	EW

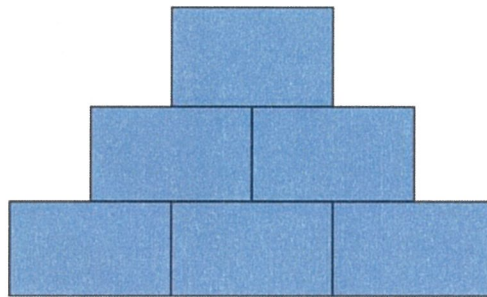
* Zone 2 and 3 Rail Spans must be independently verified

ROOF AREA 1 / ARRAY 4

LEGEND

Module (Roof Zones)

	Zone 1
	Zone 2
	Zone 3



ROW	MODULES	ZONE	RAIL TYPE	SPLICES	ROOF ATTACHMENTS
1	1	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (1)']	0	4
2	2	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (2)']	0	8
3	3	1	['SM LIGHT RAIL 168" MILL 315168M \$28.46 (1)', 'SM LIGHT RAIL 246" MILL 315246M \$41.68 (1)']	2	10

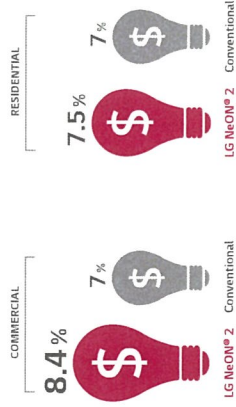
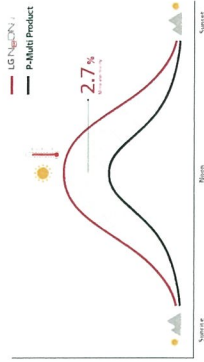
DESIGN RAIL SPAN	48"
MAXIMUM RAIL SPAN (ZONE 1*)	84"
PREFERRED RAIL SPAN	48"
MAXIMUM RAIL CANTILEVER	16.00"
RAIL DIRECTION	EW

* Zone 2 and 3 Rail Spans must be independently verified

LG NeON 2

Strong Performance, Even in Low Light

Each cell in a NeON² module captures sunlight from both the front and back. This makes the modules more efficient in the mornings and evenings, when sunlight is absorbed at a lower angle.



Better Internal Rate of Return

NeON² modules provide a greater Internal Rate of Return than conventional solar modules.*

**The comparison between the IRR (Internal Rate of Return) was calculated internally at LG to compare the relative return rate between different modules. Therefore, this return rate is not guaranteed. Further, the rate may differ according to the area and date of the analysis.*

Improved Temperature Coefficient

LG NeON²'s Cello Technology™ enables the modules to perform well in high temperatures and in low irradiation conditions. Free-flowing electrons keep module temperatures lower. When compared to other brands, LG Solar modules deliver the highest temperature performance ratings and output, even on the hottest days.

Peace of Mind Warranty

LG is a trusted global brand that stands behind its solar power products. Thanks to our lasting presence in the electronics and solar markets, our customers know we will be there to assist them both now and in the years ahead. LG's NeON² solar modules are backed by a 25-year warranty that covers product-related issues and a 25-year performance warranty that guarantees our modules will continue to produce at least 86% of their original output for a quarter of a century – a significant energy savings and a far higher rate than the 80% guaranteed for most solar modules.

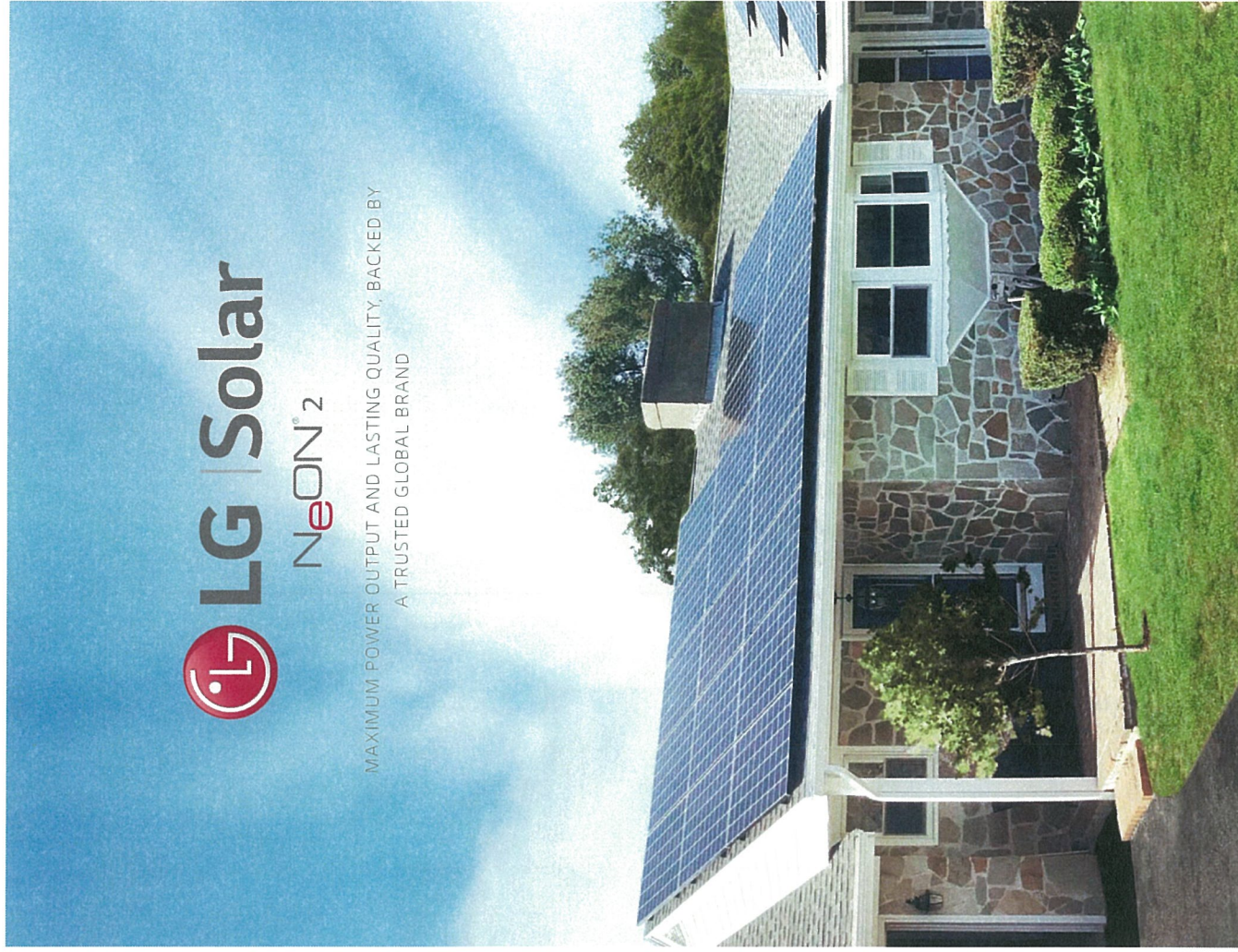


LG Electronics U.S.A. Inc.
1000 Sylvan Ave. Englewood Cliffs, NJ 07632
www.lgsolarusa.com

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MAXIMUM POWER OUTPUT AND LASTING QUALITY, BACKED BY
A TRUSTED GLOBAL BRAND



Why LG?

LG Solar products are designed for residential and commercial use and reflect LG's expertise in world-class manufacturing. When you purchase LG solar panels, you invest in a product manufactured with stringent research and development standards. LG panels have consistently outperformed other brand designs in wattage output per panel at industry-recognized testing laboratories – and they're backed by a trusted global brand and 25-year product and performance warranties.

LG NeON²



LG NeON² Modules and Cello Technology™

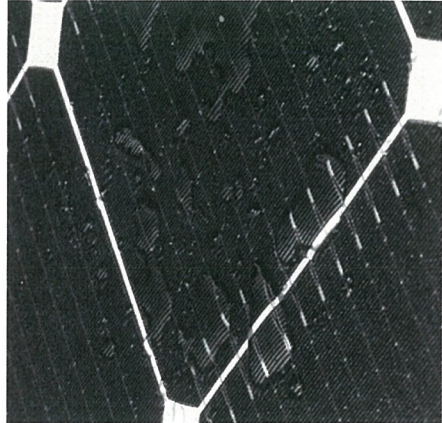
LG NeON² solar modules provide high efficiency, maximized power output, appealing aesthetics, and reliable performance. The 60-cell modules incorporate Cello Technology™ (Cell connection with Electrically Low Loss, Low Stress, and Optical Absorption Enhancement), developed by LG to increase power output and improve module appearance. Cello Technology™ incorporates 12 wires into each module instead of the usual 3 busbars. The circular-shaped wires absorb light more efficiently and enable electrons to flow more freely through the panel, significantly boosting output and module efficiency.

Cello Technology™ also means LG NeON² solar modules are less vulnerable to environmental damage, boosting long-term reliability – and they experience very low degradation rates when first exposed to light.



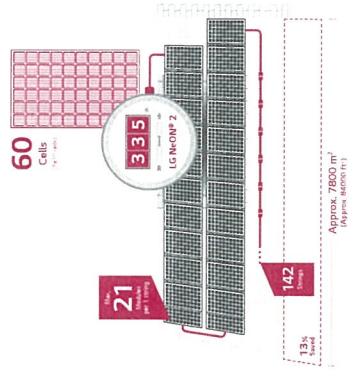
Enhanced Physical Durability

The highest-quality materials and a newly reinforced frame design lead to maximum load capacity for every LG NeON² solar module. Each module can handle a full ton of snow load or withstand 208-mph winds. In comparison, Hurricane Katrina (2005) produced a maximum speed of 175-mph winds.



Space-Saving Modules for Residential Projects

LG NeON² is available in 72-cell modules for larger and commercial projects, and in smaller 60-cell modules. The high output and efficiency of the 60-cell modules enable easier installation in limited spaces and can help installers avoid shaded areas. This also leaves room for future system expansion, such as power storage batteries or electric car charging.



LG NeON[®] 2

LG335N1C-V5



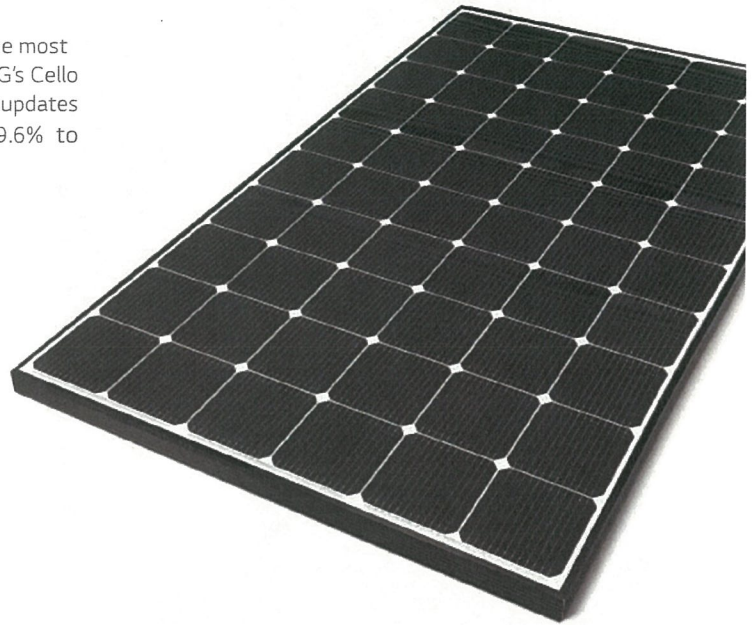
60

335W

The LG NeON[®] 2 is LG's best selling solar module, and is one of the most powerful and versatile modules on the market today. Featuring LG's Cello Technology, the LG NeON[®] 2 increases power output. New updates include an extended performance warranty from 86% to 89.6% to give customers higher performance and reliability.



In progress



Features



Enhanced Performance Warranty

LG NeON[®] 2 has an enhanced performance warranty. After 25 years, LG NeON[®] 2 is guaranteed to perform at minimum 89.6% of initial performance.



Enhanced Product Warranty

LG has extended the warranty of the NeON[®] 2 to 25 years, which is among the top of industry standards.



Better Performance on a Sunny Day

LG NeON[®] 2 now performs better on sunny days, thanks to its improved temperature coefficient.



Roof Aesthetics

LG NeON[®] 2 has been designed with aesthetics in mind using thinner wires that appear all black at a distance. The LG NeON[®] 2 can increase the aesthetic value of your home with a more modern design.

About LG Electronics

LG Electronics is a global leader in electronic products in the clean energy markets by offering solar PV panels and energy storage systems. The company first embarked on a solar energy source research program in 1985, supported by LG Group's vast experience in the semi-conductor, LCD, chemistry and materials industries. In 2010, LG Solar successfully released its first MonoX[®] series to the market, which is now available in 32 countries. The NeON[®] (previous MonoX[®] NeON), NeON[®]2, NeON[®]2 BiFacial won the "Intersolar AWARD" in 2013, 2015 and 2016, which demonstrates LG's leadership and innovation in the solar industry.



LG335N1C-V5

General Data

Cell Properties (Material / Type)	Monocrystalline / N-type
Cell Maker	LG
Cell Configuration	60 Cells (6 x 10)
Number of Busbars	12EA
Module Dimensions (L x W x H)	1,686mm x 1,016mm x 40 mm
Weight	17.1 kg
Glass(Material)	Tempered Glass with AR Coating
Backsheet(Color)	White
Frame(Material)	Anodized Aluminium
Junction Box(Protection Degree)	IP 68 with 3 Bypass Diodes
Cables(Length)	1,000 mm x 2EA
Connector(Type / Maker)	MC 4 / MC

Certifications and Warranty

Certifications	IEC 61215-1/-1-1/2:2016, IEC 61730-1/2:2016, UL 1703
	ISO 9001, ISO 14001, ISO 50001
	OHSAS 18001, PV CYCLE
	IEC 61701 : 2012 Severity 6
Salt Mist Corrosion Test	IEC 61701 : 2012 Severity 6
Ammonia Corrosion Test	IEC 62716 : 2013
Module Fire Performance	Type 1 (UL 1703)
Fire Rating	Class C (UL 790, ULC/ORD C 1703)
Solar Module Product Warranty	25 Years
Solar Module Output Warranty	Linear Warranty*

* 1) First year 98% 2) After 1st year 0.35% annual degradation 3) 89.6% for 25 years

Temperature Characteristics

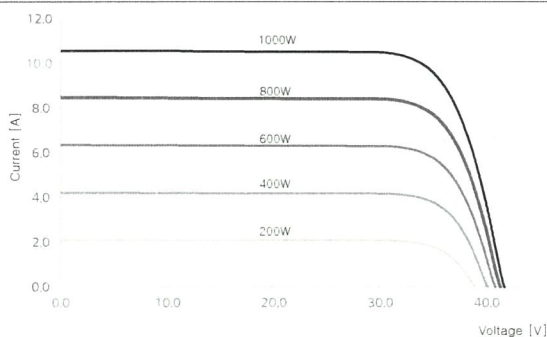
NMOT [†]	[°C]	42 ± 3
Pmax	[%/°C]	-0.36
Voc	[%/°C]	-0.27
Isc	[%/°C]	0.03

* NMOT (Nominal Module Operating Temperature) Irradiance 800 W/m², Ambient temperature 20 °C, Wind speed 1 m/s, Spectrum AM 1.5

Electrical Properties (NMOT)

Model	LG335N1C-V5	
Maximum Power (Pmax)	[W]	250
MPP Voltage (Vmpp)	[V]	31.9
MPP Current (Impp)	[A]	7.84
Open Circuit Voltage (Voc)	[V]	38.5
Short Circuit Current (Isc)	[A]	8.43

I-V Curves



Electrical Properties (STC*)

Model	LG335N1C-V5	
Maximum Power (Pmax)	[W]	335
MPP Voltage (Vmpp)	[V]	34.1
MPP Current (Impp)	[A]	9.83
Open Circuit Voltage (Voc, ± 5%)	[V]	41.0
Short Circuit Current (Isc, ± 5%)	[A]	10.49
Module Efficiency	[%]	19.6
Power Tolerance	[%]	0 ~ +3

* STC (Standard Test Condition) Irradiance 1000 W/m², Cell temperature 25 °C, AM 1.5

Operating Conditions

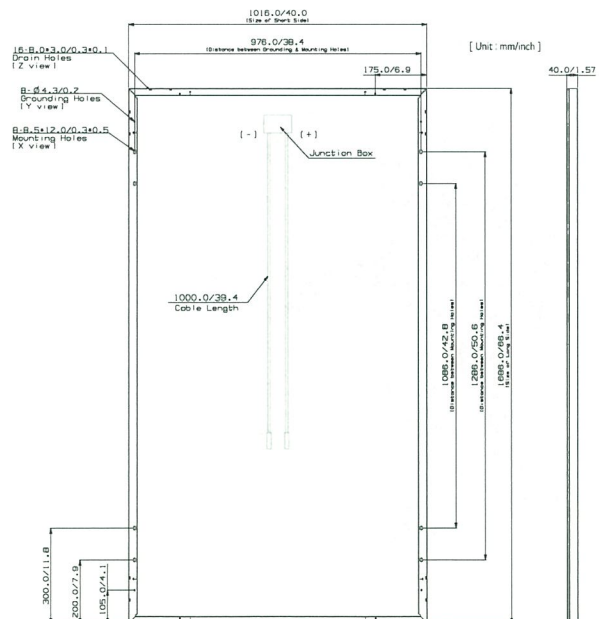
Operating Temperature	[°C]	-40 ~ +90
Maximum System Voltage	[V]	1,000(UL), 1000(IEC)
Maximum Series Fuse Rating	[A]	20
Mechanical Test Load (Front)	[Pa / psf]	5,400 / 113
Mechanical Test Load (Rear)	[Pa / psf]	4,000 / 84

* Test Load = Design load X Safety Factor (1.5)

Packaging Configuration

Number of Modules per Pallet	[EA]	25
Number of Modules per 40ft HQ Container	[EA]	650
Packaging Box Dimensions (L x W x H)	[mm]	1,750 x 1,120 x 1,221
Packaging Box Gross Weight	[kg]	464

Dimensions (mm / inch)

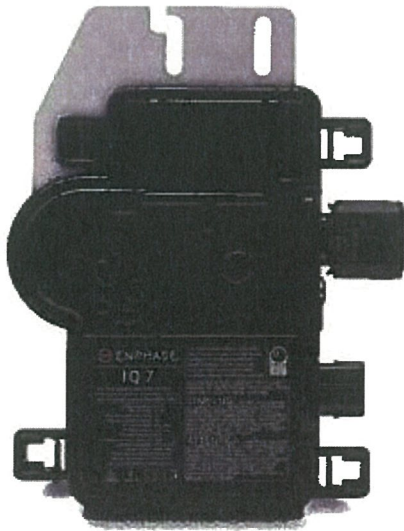


Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.



Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.



Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US		IQ7PLUS-72-2-US / IQ7PLUS-72-B-US	
Commonly used module pairings ¹	235 W - 350 W +		235 W - 440 W +	
Module compatibility	60 cell PV modules only		60-cell and 72-cell PV modules	
Maximum input DC voltage	48 V		60 V	
Peak power tracking voltage	27 V - 37 V		27 V - 45 V	
Operating range	16 V - 48 V		16 V - 60 V	
Min/Max start voltage	22 V / 48 V		22 V / 60 V	
Max DC short circuit current (module Isc)	15 A		15 A	
Oversoltage class DC port	II		II	
DC port backfeed current	0 A		0 A	
PV array configuration	1 x 1 ungrounded array, No additional DC side protection required, AC side protection requires max 20A per branch circuit			
OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range ²	240 V / 211-264 V		240 V / 211-264 V	
		208 V / 183-229 V		208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit ³	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Oversoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.7 leading ... 0.7 lagging		0.7 leading ... 0.7 lagging	
EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak CEC efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %
MECHANICAL DATA				
Ambient temperature range	-40°C to +65°C			
Relative humidity range	4% to 100% (condensing)			
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)			
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	Friends PV2 (MC4 intermateable). Adaptors for modules with MC4 or UTX connectors: - PV2 to MC4: order ECA-S20-S22 - PV2 to UTX: order ECA-S20-S25			
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)			
Weight	1.08 kg (2.38 lbs)			
Cooling	Natural convection - No fans			
Approved for wet locations	Yes			
Pollution degree	PD3			
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure			
Environmental category / UV exposure rating	NEMA Type 6 / outdoor			
FEATURES				
Communication	Power Line Communication (PLC)			
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.			
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.			
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.			

1. No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/en-us/support/module-compatibility>

2. Nominal voltage range can be extended beyond nominal if required by the utility.

3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit enphase.com





October 11, 2018

UniRac
1411 Broadway Boulevard NE
Albuquerque, New Mexico 87102-1545
TEL: (505) 242-6411
FAX: (505) 242-6412

Attn.: Engineering Department,

Re: Engineering Certification for UniRac's SolarMount Design & Engineering Guide

PZSE, Inc.-Structural Engineers has reviewed UniRac's "SolarMount Design & Engineering Guide" and specifically the enhancements of the SolarMount Flush-to-Roof System, Pressure Lookup Tables, and Downward & Upward Span Length Tables.

This certification excludes connections to building structures and the effects on building structure components. All information, data and analysis contained within the Installation Manual are based on, and comply with the following:

1. 2009, 2012, & 2015 International Building Code, by International Code Council, Inc. 2009, 2012, & 2015
2. ASCE/SEI 7-05 and ASCE/SEI 7-10 Minimum Design Loads for Buildings and other Structures
3. 2010 & 2015 Aluminum Design Manual, by The Aluminum Association, 2010 & 2015

This letter certifies that the structural calculations contained within UniRac's "SolarMount Design & Engineering Guide" are in compliance with the above Codes.

If you have any questions on the above, do not hesitate to call.

Prepared By:
PZSE, Inc. – Structural Engineers
Roseville, CA





4840 Pan American Fwy NE
Albuquerque, NM 87109-2220

Direct: 505-944-4220 / Toll Free: 800-810-9939

June 15, 2020

NOTICE OF APPLICATION FOR CERTIFICATE OF APPROPRIATENESS

In that Affordable Solar Installations, Inc., is applying for a Certificate of Appropriateness major with the Landmarks Commission for Gentry Law Office, 1100 Tijeras Ave NW, Albuquerque, NM 87102.

This case is going before the Landmarks Commission on July 08, 2020 at 3:05PM so that we may request permission to have panels facing the side street (11th St.) on this corner lot.

The meeting may be attended via Zoom using the connection information that follows:

Subject: Landmarks Commission

When: Wednesday, July 8, 2020 3:05 PM-7:05 PM (UTC-07:00) Mountain Time (US & Canada).

Where: <https://cabq.zoom.us/j/94926632852>

Landmarks Commission

Join Zoom Meeting

<https://cabq.zoom.us/j/94926632852>

Meeting ID: 949 2663 2852

One tap mobile

+13462487799,,94926632852# US (Houston)

+16699006833,,94926632852# US (San Jose)

Dial by your location

+1 346 248 7799 US (Houston)



Jonas Terwilliger | Project Manager

jonas.terwilliger@affordable-solar.com | 505.944.4256 - direct



Office: 800.810.9939 | Fax: 505.944.9222
4840 Pan American East FWY NE, Alb., NM, 87109
thinkaffordablesolar.com | [facebook](#)



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Landmarks Commission

LC PRE-APPLICATION MEETING

APPLICANT: Affordable Solar

DATE: June 3, 2020

AGENCY REPRESENTATIVES PRESENT AT MEETING:

Leslie Naji

Angela Behrens

Others _____

1. WHAT IS THE ADDRESS OF THE SUBJECT PROPERTY?

1100 Tijeras NW

2. WHAT IS THE NATURE OF THE PROJECT

Solar panels on a corner lot

3. SUMMARY OF DISCUSSION (continued over)

Usually solar panels are a staff decision but since 1100 Tijeras is a corner lot with a prominent roof plane facing 11th St, the decision should be reviewed by the Landmarks Commission. The next hearing will be July 8th.

Application materials must be submitted by noon on June 10. For notification information, advise neighborhood associations and property owners within 100 feet that the hearing will be held vis ZOOM:

Subject: Landmarks Commission
When: Wednesday, July 8, 2020 3:05 PM-7:05 PM (UTC-07:00) Mountain Time (US & Canada).
Where: <https://cabq.zoom.us/j/94926632852>

Landmarks Commission
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+1 669 900 6833 US (San Jose)
+1 253 215 8782 US (Tacoma)
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
+1 301 715 8592 US (Germantown)

Meeting ID: 949 2663 2852

You should receive an email from Diego Ewell with the buffer map and mailing addresses of property owners.

NOTE: Pre-application discussions are provided to assist applicants in acquiring information on process, guidelines and requirements pertaining to their request. Interpretation of zoning requirements is the responsibility of the zoning enforcement officer, as provided for by the comprehensive zoning code. Any statements regarding zoning at the pre application discussion are intended solely to direct the applicant to seek further information.

4. SIGN AND DATE TO VERIFY ATTENDANCE & RECEIPT OF THIS SUMMARY
(PRE-APPLICATION DISCUSSIONS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE NON-BINDING)



6.3.2020

STAFF / DATE

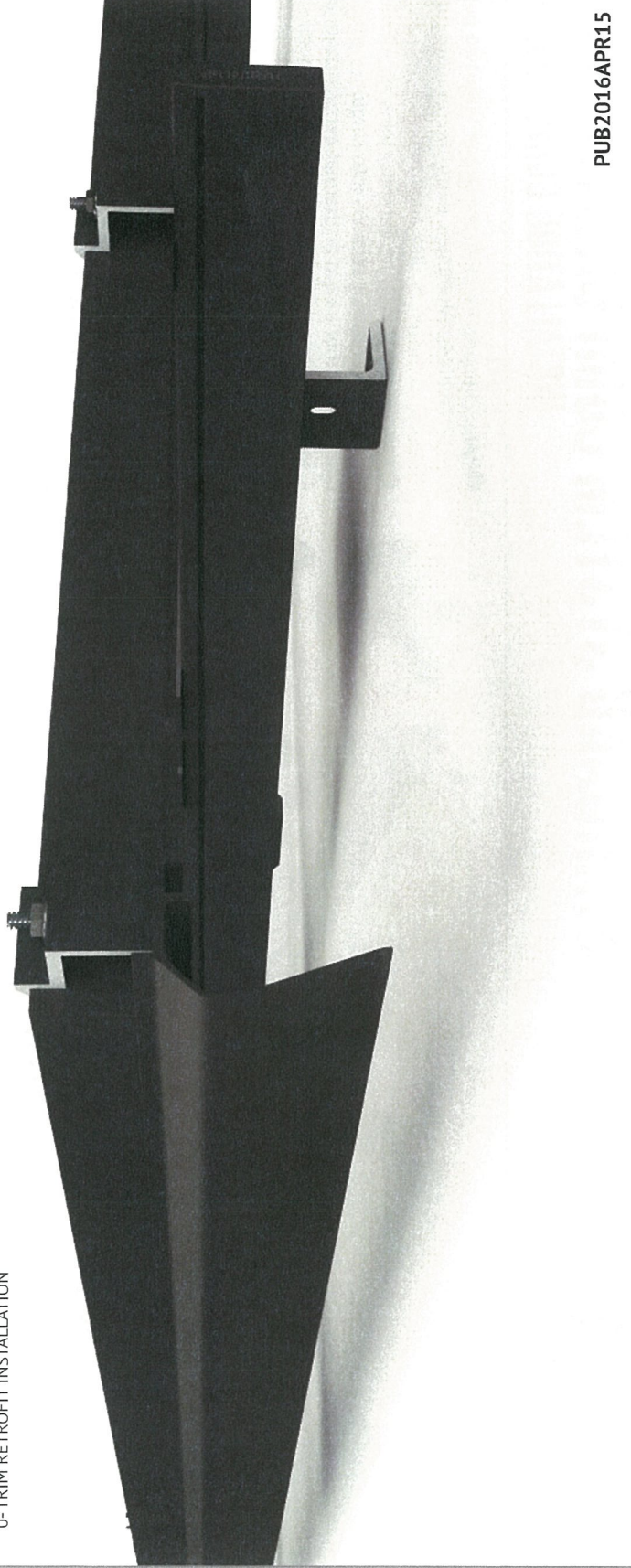
APPLICANT OR AGENT / DATE



INSTALLATION GUIDE

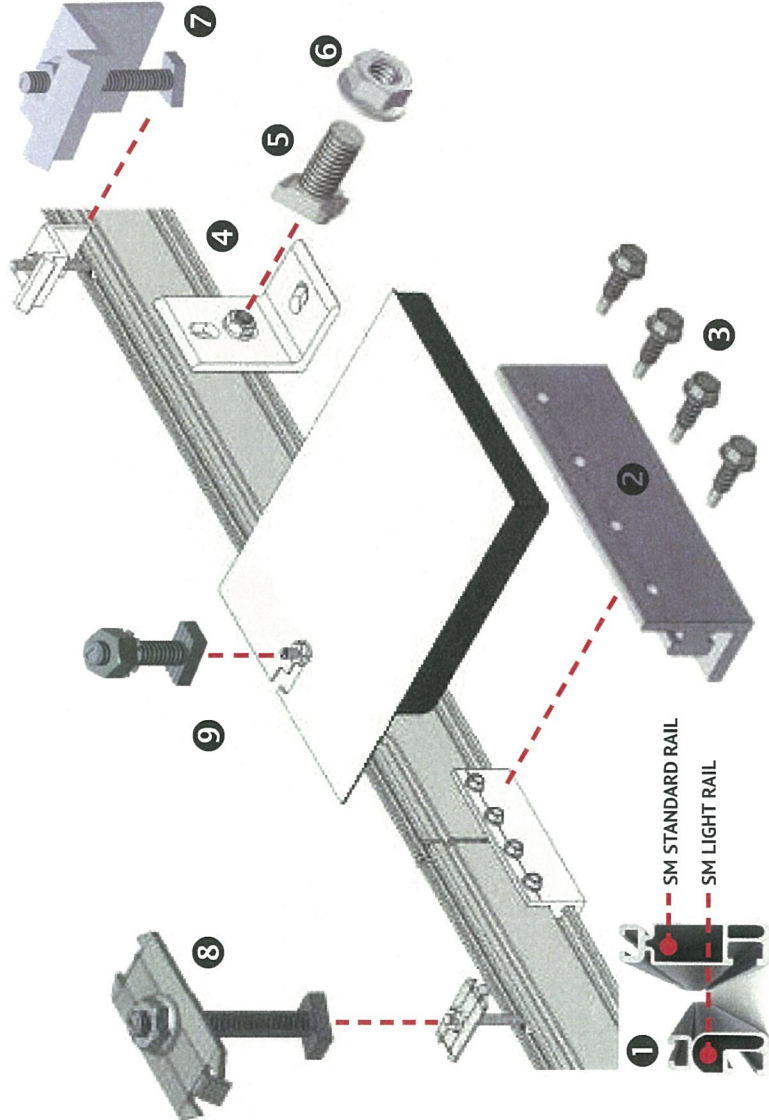
TABLE OF CONTENTS

- A- SYSTEM COMPONENTS
- B- MODULE COMPATIBILITY
- C- SYSTEM LAYOUT
- D- FIRE SYSTEM COMPLIANCE NOTES
- E- ROOF ATTACHMENT & L-FEET
- F- SPLICE & THERMAL BREAK
- G- ATTACH RAIL TO L-FEET
- H- MICROINVERTER MOUNTING
- I- SYSTEM GROUNDING
- J- ENDCLAMP, TRIM & FIRST MODULE
- K- BONDING MIDCLAMP & TRIM
- L- REMAINING MODULES & TRIM
- M- BONDING CONNECTION GROUND PATHS
- N- BONDING CONNECTION GROUND PATHS - MAINTENANCE
- O- TRIM RETROFIT INSTALLATION



- 1 RAIL:** Supports PV modules. Use at least two per row of modules. Aluminum extrusion, available in mill, clear anodized, or dark anodized.
- 2 RAIL SPLICE:** Non structural splice joins, aligns, and electrically bonds rail sections into single length of rail. Forms either a rigid or thermal expansion joint, 4 inches long, pre-drilled (see page F). Anodized aluminum extrusion available in clear or dark.
- 3 SELF-DRILLING SCREW:** (No. 12 x 3/4") – Use 4 per rigid splice or 2 per expansion joint. Stainless steel. Supplied with splice. In combination with rigid splice, provides rail to rail bond.
- 4 L-FOOT:** Use to secure rails through roofing material to building structure. Refer to loading tables or U-Builder for spacing.
- 5 L-FOOT T-BOLT:** (3/8" x 3/4") – Use one per L-foot to secure rail to L-foot. Stainless steel. Supplied with L-foot. In combination with flange nut, provides electrical bond between rail and L-foot.
- 6 SERRATED FLANGE NUT (3/8"):** Use one per L-foot to secure and bond rail to L-foot. Stainless steel. Supplied with L-foot.
- 7 MODULE ENDCLAMP:** Provides bond from rail to endclamp. Pre-assembled aluminum clamp available in clear or dark finish. Supplied washer keeps clamp and bolt upright for ease of assembly.
- 8 MODULE MIDCLAMP:** Pre-assembled clamp provides module to module and module to rail bond. Stainless steel clamp and T-bolt. Available in clear or dark finish.
- 9 MICROINVERTER MOUNTING BOLT:** Pre-assembled bolt and nut attaches and bonds microinverter to rail. Washer at base keeps bolt upright for ease of assembly.

NOTE - POSITION INDICATOR: T-bolts have a slot in the hardware end corresponding to the direction of the T-Head.



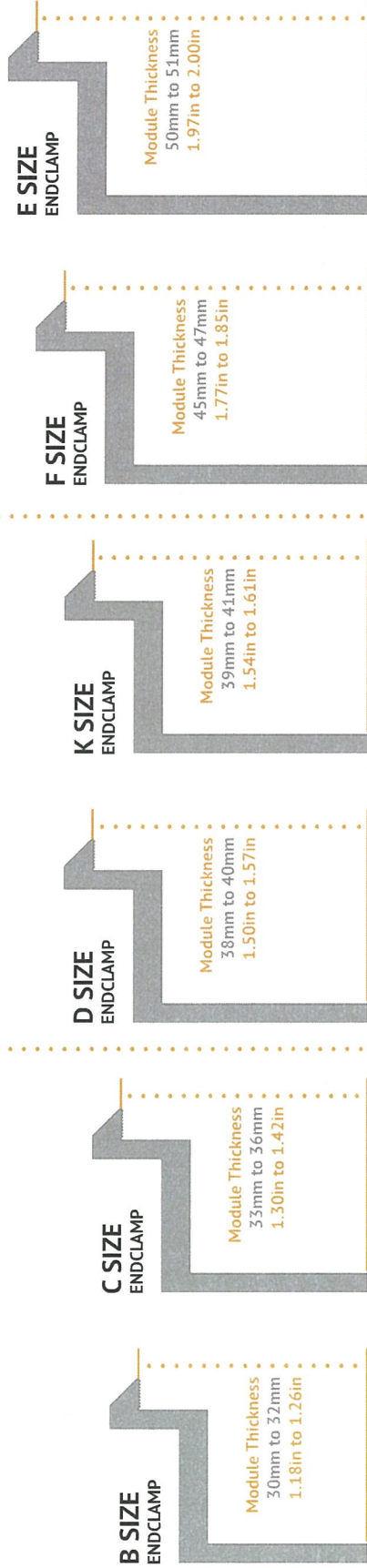
Anti-Seize*

Stainless steel hardware can seize up, a process called galling. To significantly reduce its likelihood:

1. Apply minimal lubricant to bolts, preferably Anti-Seize commonly found at auto parts stores
2. Shade hardware prior to installation, and
3. Avoid spinning stainless nuts onto bolts at high speed.

Wrenches and Torque	
Wrench Size	Recommended Torque (ft.-lbs)
1/4" Hardware ●●●●	*10
3/8" Hardware ●	*30
#12 Hardware ●	10

Torques are not designed for use with wood connectors
 *w/Anti-Seize.



PLANNING YOUR SOLARMOUNT INSTALLATIONS

The installation can be laid out with rails parallel to the rafters or perpendicular to the rafters. Note that SOLARMOUNT rails make excellent straight edges for doing layouts.

Center the installation area over the structural members as much as possible.

Leave enough room to safely move around the array during installation. Some building codes and fire codes require minimum clearances around such installations, and the installer should check local building code requirements for compliance.

The length of the installation area is equal to:

- the total width of the modules,
- plus 1/4" inch for each space between modules (for mid-clamp),
- plus approximately 3 inches (1 1/2 inches for each Endclamp)

LAYING OUT L-FEET FOR TOP CLAMPS

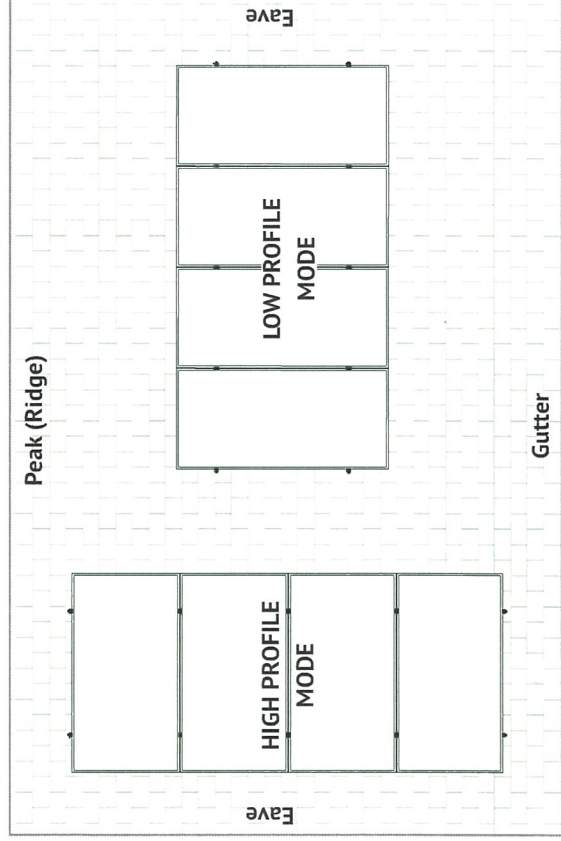
L-feet, in conjunction with proper flashing equipment and techniques, can be used for attachment through existing roofing material, such as asphalt shingles, sheathing or sheet metal to the building structure.

Locate and mark the position of the L-foot lag screw holes within the installation area as shown below. Follow manufacturer module guide for rail spacing based on appropriate mounting locations.

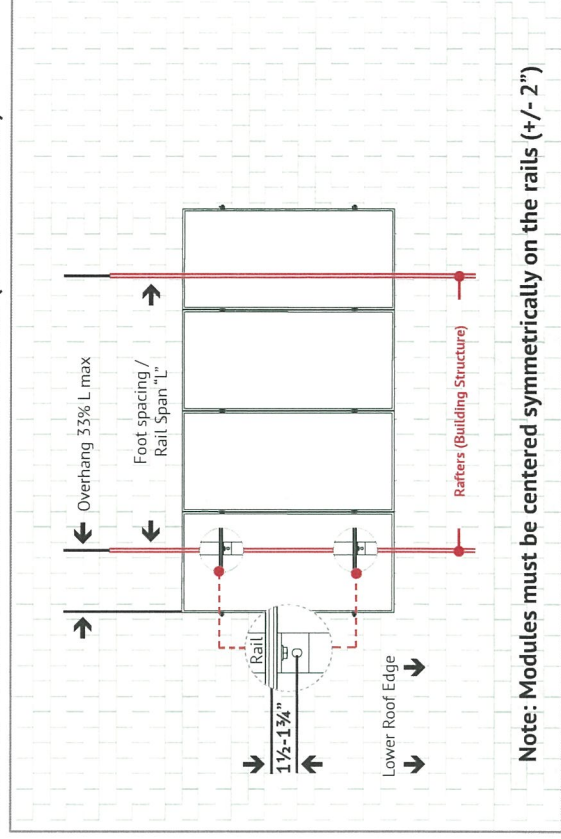
If multiple rows are to be installed adjacent to one another, it is not likely that each row will be centered above the rafters. Adjust as needed, following the guidelines below as closely as possible.

Refer to **Unirac Solarmount D&E Guide & U-Builder for allowable spans and cantilevers.**

RAILS MAY BE PLACED PARALLEL OR PERPENDICULAR TO RAFTERS



LAYOUT WITH RAILS PERPENDICULAR TO RAFTERS (RECOMMENDED)



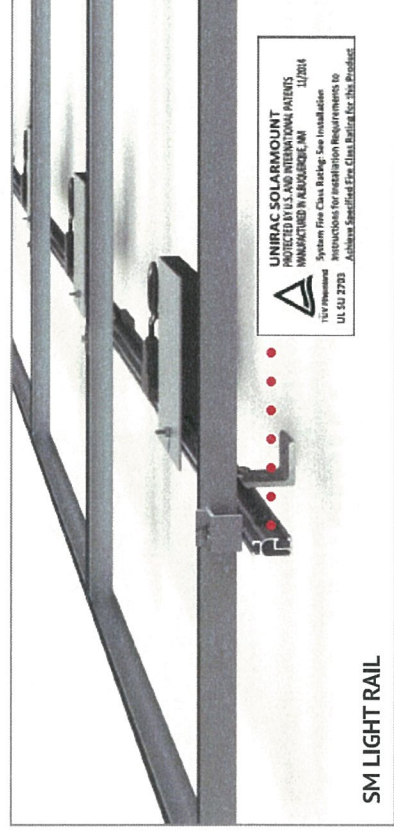
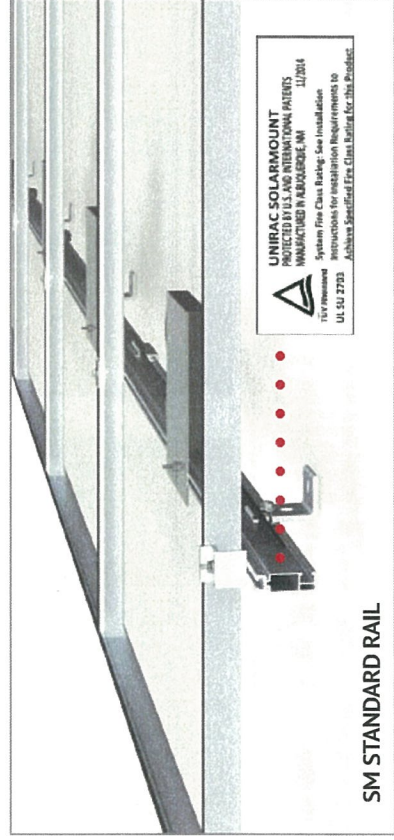
SYSTEM LEVEL FIRE CLASSIFICATION

The system fire class rating requires installation in the manner specified in the SOLARMOUNT Installation Guide. SOLARMOUNT has been classified to the system level fire portion of UL 1703. This UL 1703 classification has been incorporated into our UL 2703 product certification. SOLARMOUNT has achieved system level performance for steep sloped roofs. System level fire performance is inherent in the SOLARMOUNT design, and no additional mitigation measures are required. The fire classification rating is only valid on roof pitches greater than 2:12 (slopes \geq 2 inches per foot, or 9.5 degrees). There is no required minimum or maximum height limitation above the roof deck to maintain the system fire rating for SOLARMOUNT. Module Types & System Level Fire Ratings are listed below:

Rail Type	Module Type	System Level Fire Rating	Rail Direction	Module Orientation	Mitigation Required
Standard Rail	Type 1, Type 2, Type 3 & Type 10	Class A, Class B & Class C	East-West North-South	Landscape OR Portrait Landscape OR Portrait	None Required None Required
Light Rail	Type 1 & Type 2	Class A, Class B & Class C	East-West North-South	Landscape OR Portrait Landscape OR Portrait	None Required None Required

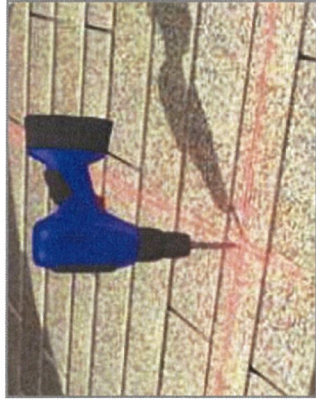
UL2703 CERTIFICATION MARKING LABEL

Unirac SOLARMOUNT is listed to UL 2703. Marking Labels are shipped with the Midclamps. After the racking system is fully assembled, a single Marking Label should be applied to the SOLARMOUNT rail at the edge of the array. Note: The sticker label should be placed such that it is visible, but not outward facing.





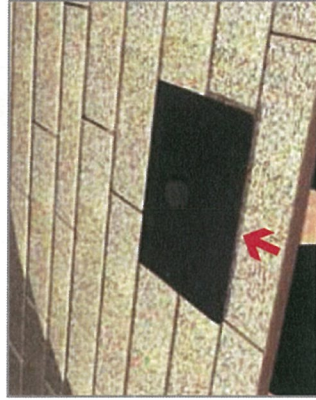
ROOF PREPARATION: Layout and install flashing at rafter locations determined per Design and Engineering Guide.



DRILL PILOT HOLES: Center the roof attachment over the rafter and drill a pilot hole(s) for the lag bolt(s).

NOTE: Determine lag bolt size and embedment depth.

Quick Tip: Pre-drill the pilot hole through the flat flashing lag bolt location for easier installation.

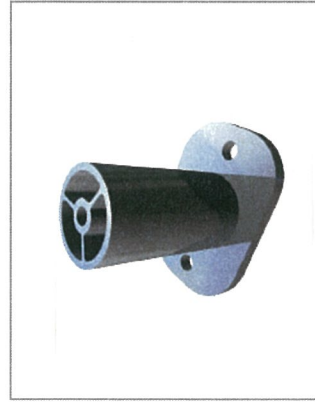


FLAT FLASHING INSTALLATION: Insert the Flat Flashing so the top part is under the next row of shingles and the hole lines up with the pilot hole.



INSTALL LAG BOLTS & L-FOOT: Insert the lag bolt through the L-Foot in the order shown in the illustration. Verify proper orientation before tightening lag bolts.

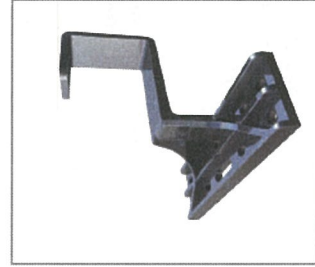
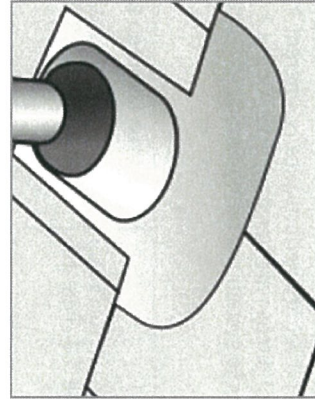
See [Unirac Flat Flashing Manual for Additional Details.](#)



2 PIECE ALUMINUM STANDOFF WITH FLASHING & L-FOOT:

- If necessary cut an opening in the roofing material over a rafter to accommodate the flashing riser.
- Install the standoff, ensuring that both lag bolts are screwed into the rafter.
- Insert the flashing under the shingle above and over the shaft of the standoff. (No-Calk™ collar does not require sealing of the flashing and standoff shaft)
- Add L-Foot to top with bolt that secures the EPDM washer to the top of the standoff.

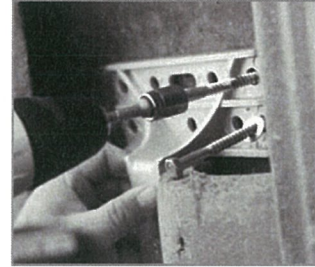
See [Standoffs & Flashings Installation Manual 907.2 for Additional Details.](#)

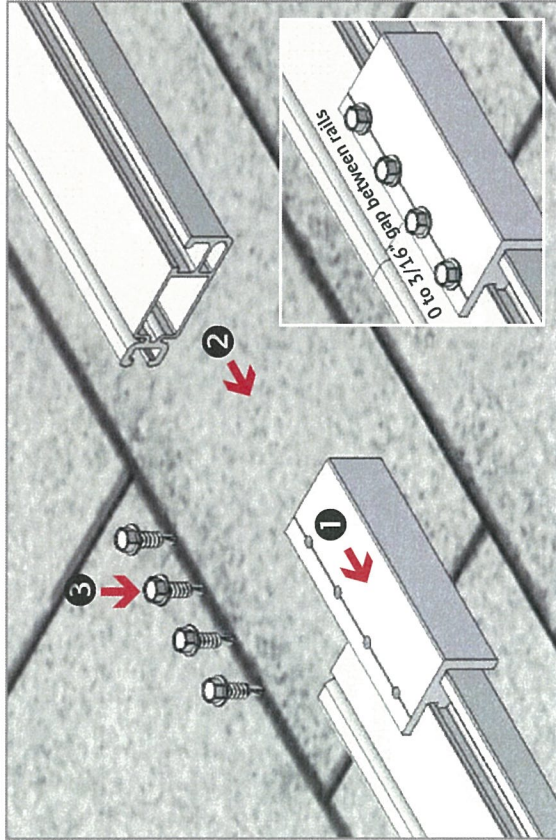


TOP MOUNT TILE HOOK & L-FOOT:

- Remove or slide up the roof tile, position the roof hook above the roof rafter
- Place Tile Hook in the middle of the underlying interlocking tile's valley. Drill 3/16 inch pilot holes through the underlayment into the center of the rafters. Securely fasten each tile hook to the rafters with two 5/16" x 3 1/2" lag screws. Slide down or re-insert the tile.
- Attach L Foot to tile roof hook.

See [Tile Hook Universal Mount Installation Manual for Additional Information.](#)





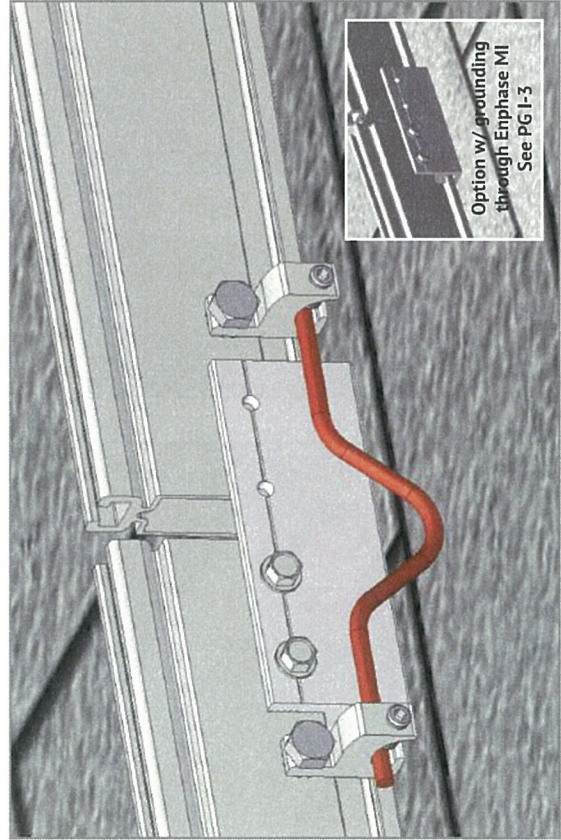
SPLICE INSTALLATION (IF REQUIRED PER SYSTEM DESIGN)

If your installation uses SOLARMOUNT splice bars, attach the rails together before mounting to the L-foot / footings. Use splice bars only with flush installations or those that use low-profile tilt legs. A rail should always be supported by more than one footing on both sides of the splice. There should be a gap between rails, up to 3/16" at the splice connections. T-bolts should not be placed less than a distance of 1" from the end of the rail regardless of a splice.

TORQUE VALUE (See Note on PG. A)

Hex head socket size 5/16" - Do not exceed 10 ft-lbs. Do not use Anti-Seize.

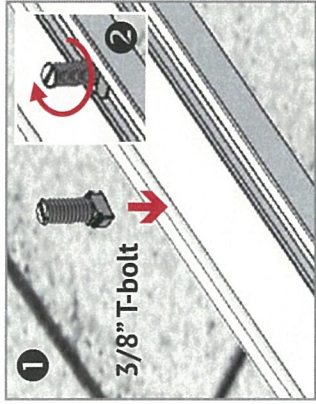
Max length of spliced rail is 40 ft. An expansion joint is required > 40 ft.



EXPANSION JOINT USED AS THERMAL BREAK

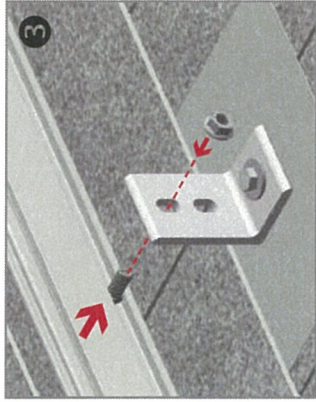
Expansion joints prevent buckling of rails due to thermal expansion. Splice bars may be used for thermal expansion joints. To create a thermal expansion joint, slide the splice bar into the footing slots of both rail lengths. Leave approximately 1/2" between the rail segments. Secure the splice bar with two screws on one side only. Footings (such as L-foot or standoffs) should be secured normally on both sides of the splice. No PV module or mounting hardware component should straddle the expansion joint. Modules must clearly end before the joint with mounting hardware (top mount Endclamps) terminating on that rail. T-bolts should not be placed less than a distance of 1" from the end of the rail regardless of a splice. The next set of modules would then start after the splice with mounting hardware beginning on the next rail. **A thermal break is required every 40 feet of continuously connected rail. For additional concerns on thermal breaks in your specific project, please consult a licensed structural engineer. Runs of rail less than 40 feet in length, with more than two pairs spliced together, are an acceptable installation for the SOLARMOUNT systems.**

Bonding connection for splice used as a thermal break. Option shown uses two Ilco lugs (Model No. GBL-4DBT P/N GBL-4DBT - see product data sheet for more details) and solid copper wire.

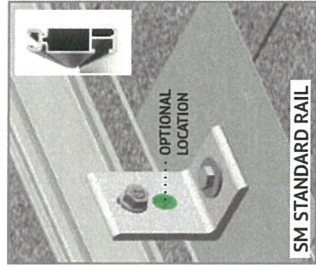


1

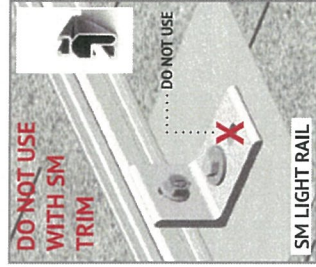
3/8" T-bolt



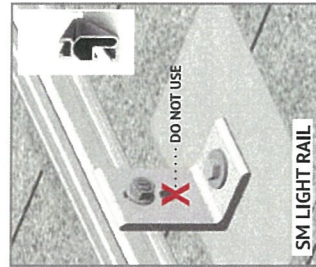
3



SM STANDARD RAIL



DO NOT USE WITH SM TRIM



DO NOT USE

SM LIGHT RAIL

PLACE T-BOLT INTO RAIL & SECURE BOLT: Insert 3/8" T-bolt into rail at L-foot locations. Apply Anti-Seize to bolt. Rotate T-bolt into position.

SECURE T-BOLT: Apply Anti-Seize to bolt. Rotate T-bolt into position.



Note: Allowable L-foot slot locations for SM Standard & Light Rail.

SM STANDARD RAIL: Use either slot to connect the L-foot to the rail to obtain the desired height and alignment when using SM Standard rail.

SM LIGHT RAIL: For a lower profile array when using SM Light rail, rotate the L-foot to orient the side with only one (1) slot against the rail. **Only use the slot location closest to the rail to connect the lag bolt to the flashing / roof on the side with two (2) slots.**
NOTE: Use only the top slot to connect the L-foot to the rail to obtain the desired height and alignment when using SM Light rail.

ALIGN RAILS: Align one pair of rail ends to the edge of the installation area. The opposite pair of rail ends will overhang installation area. Do not trim them off until the installation is complete. If the rails are perpendicular to the rafters, either end of the rails can be aligned, but the first module must be installed at the aligned end.

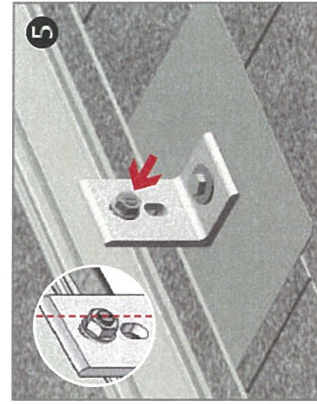
If the rails are parallel to the rafters, the aligned end of the rails must face the lower edge of the roof. Securely tighten all hardware after alignment is complete.

Mount modules to the rails as soon as possible. Large temperature changes may bow the rails within a few hours if module placement is delayed.



4

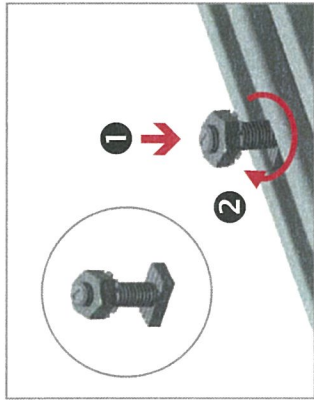
Edge Of Installation Area



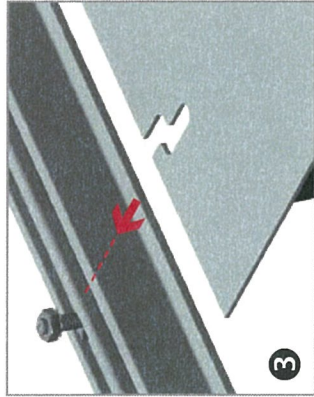
5

ALIGN POSITION INDICATOR: Hand tighten nut until rail alignment is complete. Verify that position indicator on bolt is vertical (perpendicular to rail)

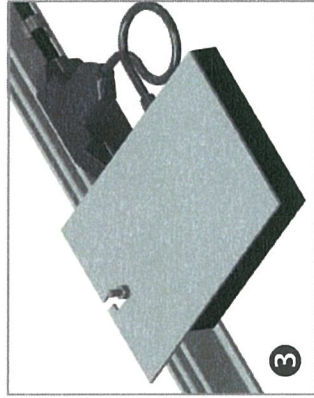
TORQUE VALUE (See Note on PG. A)
3/8" nut to 30 ft-lbs



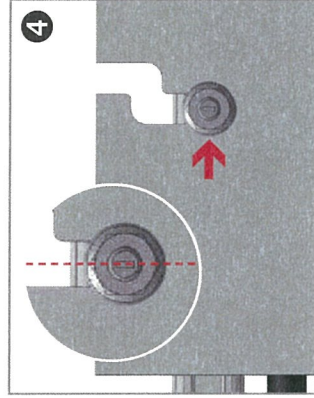
INSTALL MICROINVERTER MOUNT T-BOLT: Apply Anti-Seize and install pre-assembled 1/4" dia. bonding T-bolts into top 1/4" rail slot at microinverter locations. Rotate bolts into position.



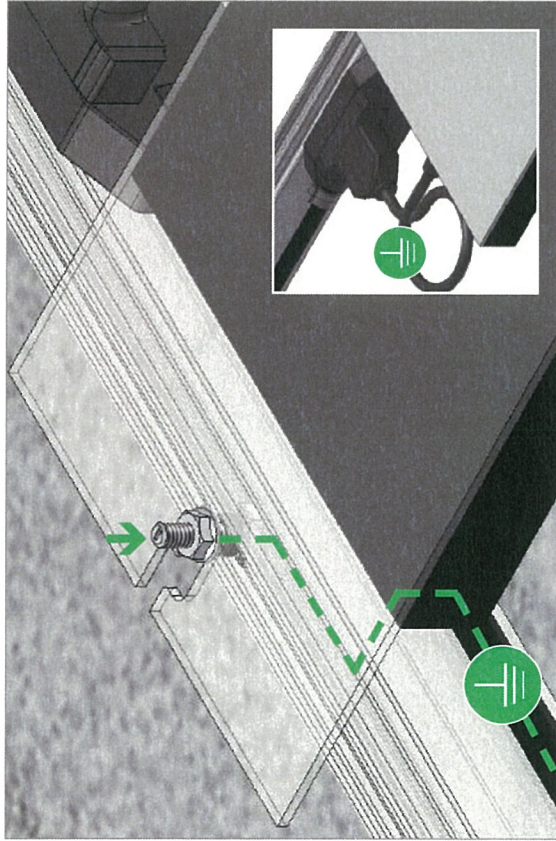
INSTALL MICROINVERTER: Install microinverter on to rail. Engage with bolt.



INSTALL MICROINVERTER:
TORQUE VALUE (See Note on PG. A)
 1/4" nut to 10 ft-lbs w/Anti-Seize



ALIGN POSITION INDICATOR: Verify that position indicator on bolt is perpendicular to rail.



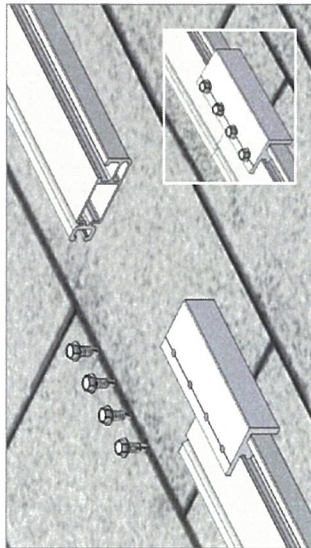
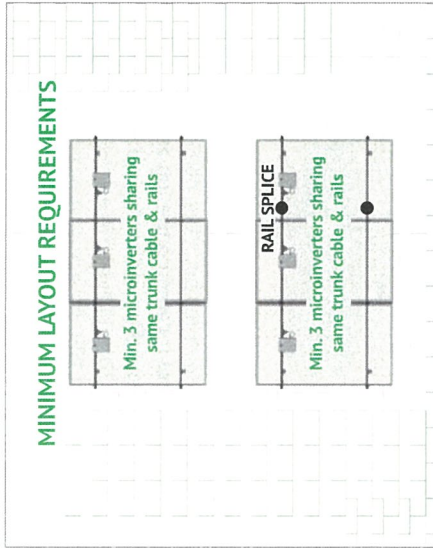
SM EQUIPMENT GROUNDING THROUGH ENPHASE MICROINVERTERS

The Enphase M215 and M250 microinverters have integrated grounding capabilities built in. In this case, the DC circuit is isolated from the AC circuit, and the AC equipment grounding conductor (EGC) is built into the Enphase Engage integrated grounding (IG) cabling.

In order to ground the SOLARMOUNT racking system through the Enphase microinverter and Engage cable assembly, there must be a minimum of three PV modules connected to the same trunk cable within a continuous row. Continuous row is defined as a grouping of modules installed and bonded per the requirements of this installation guide sharing the same two rails. The microinverters are bonded to the SOLARMOUNT rail via the mounting hardware. Complete equipment grounding is achieved through the Enphase Engage cabling with integrated grounding (IG). No additional EGC grounding cables are required, as all fault current is carried to ground through the Engage cable.

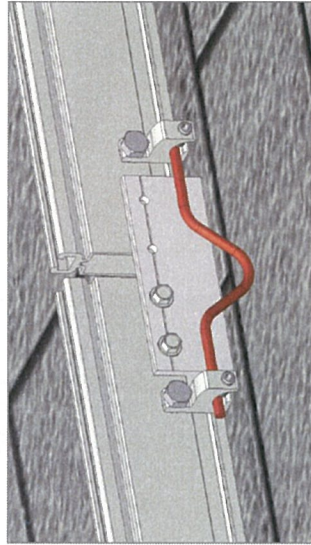
[e] enphase
SOLARMOUNT INTEGRATED BONDING ADVANTAGE
WITH SYSTEM GROUNDING THROUGH ENPHASE MICROINVERTERS AND TRUNK CABLES
LOSE ALL THE COPPER & LUGS

CONTINUOUS RAIL & ELECTRICAL BONDING SPLICE
Enphase Microinverter (MI) Requirements (Model No. M215 & M250)
3 Microinverters sharing same trunk cable & rails



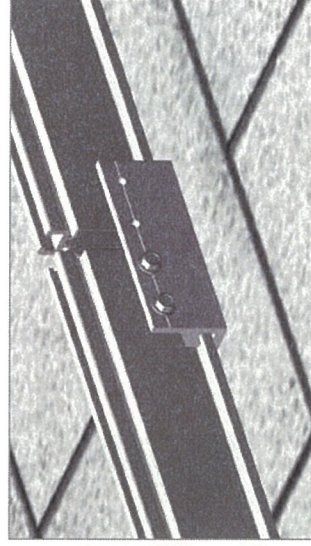
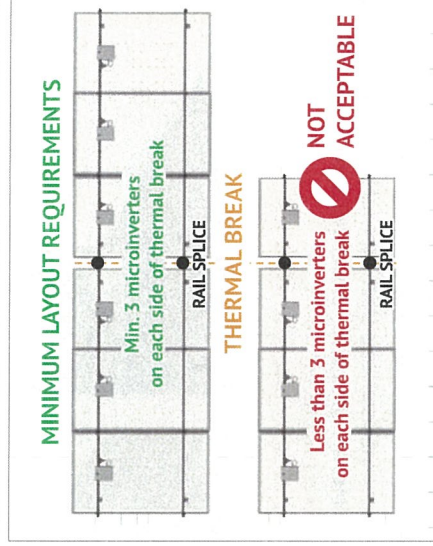
ELECTRICAL BONDING SPLICE

EXPANSION JOINT W/GROUNDING LUGS & COPPER JUMPER
Enphase Microinverter (MI) Requirements (Model No. M215 & M250)
3 or more Microinverters sharing same trunk cable & rails



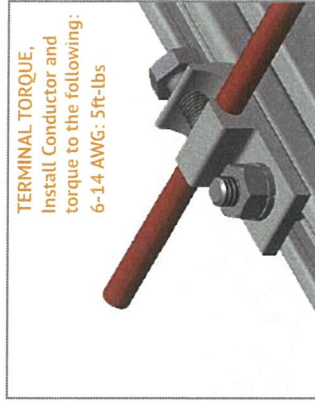
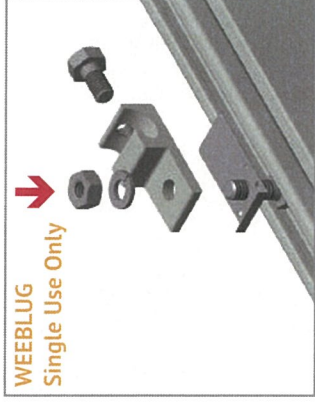
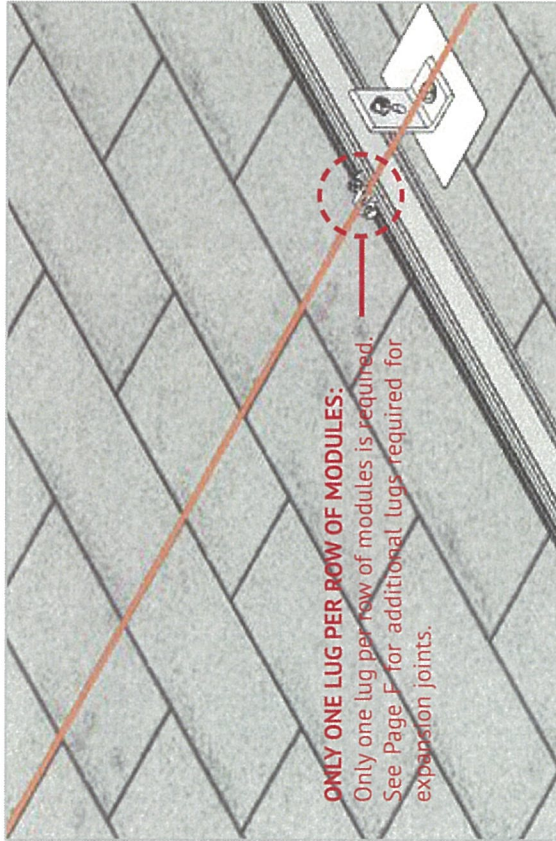
EXPANSION JOINT USED AS THERMAL BREAK W/ GROUNDING LUGS & COPPER JUMPER

EXPANSION JOINT W/O ELECTRICAL BONDING CONNECTION
Enphase Microinverter (MI) Requirements (Model No. M215 & M250)
Min. 3 Microinverters on each side of thermal break



EXPANSION JOINT USED AS THERMAL BREAK W/O ELECTRICAL BONDING CONNECTION

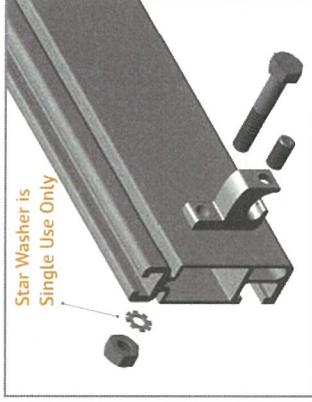
NOTE: THE ABOVE IMAGES ARE SAMPLE CONFIGURATIONS TO ILLUSTRATE THE REQUIREMENTS FOR SM SYSTEM GROUNDING THROUGH ENPHASE MICROINVERTERS DESCRIBED ON PAGE 1-2



WEEBLUG CONDUCTOR - UNIRAC P/N 008002S:

Apply Anti Seize and insert a bolt in the aluminum rail and through the clearance hole in the stainless steel flat washer. Place the stainless steel flat washer on the bolt, oriented so the dimples will contact the aluminum rail. Place the lug portion on the bolt and stainless steel flat washer. Install stainless steel flat washer, lock washer and nut. Tighten the nut until the dimples are completely embedded into the rail and lug.
TORQUE VALUE 10 ft lbs. (See Note on PG. A)
See product data sheet for more details, Model No. **WEEB-LUG-6.7**

GROUNDING LUG MOUNTING DETAILS:
Details are provided for both the WEEB and IlSCO products. The WEEBLug has a grounding symbol located on the lug assembly. The IlSCO lug has a green colored set screw for grounding indication purposes. Installation must be in accordance with NFPA NEC 70, however the electrical designer of record should refer to the latest revision of NEC for actual grounding conductor cable size.
Required if not using approved integrated grounding microinverters

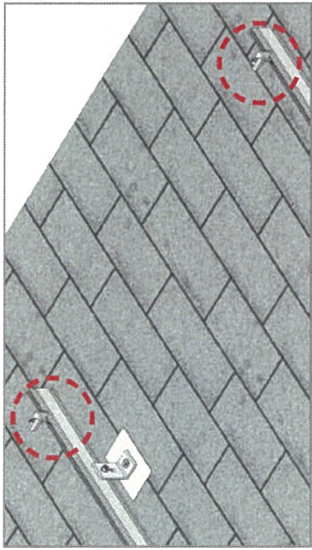


GROUNDING LUG - BOLT SIZE & DRILL SIZE		
GROUND LUG	BOLT SIZE	DRILL SIZE
WEEBLug	1/4"	N/A - Place in Top SM Rail Slot
ILSCO Lug	#10-32	7/32"

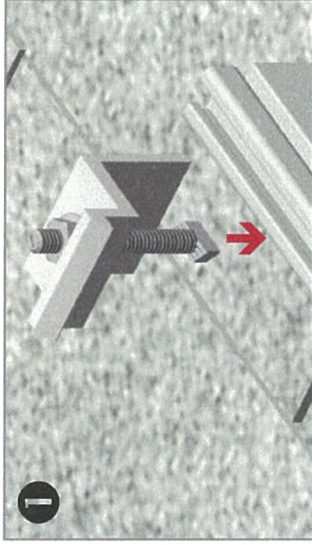
- Torque value depends on conductor size.
- See product data sheet for torque value.

ILSCO LAY-IN LUG CONDUCTOR - UNIRAC P/N 008009P: Alternate Grounding Lug
- Drill, deburr hole and bolt thru both rail walls per table.
TORQUE VALUE 5 ft lbs. (See Note on PG. A)
See ILSCO product data sheet for more details, Model No. **GBL-4DBT.**

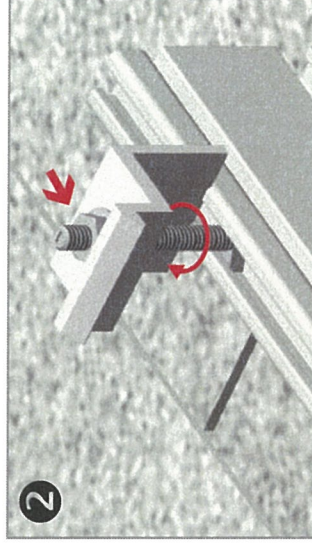
NOTE: ISOLATE COPPER FROM ALUMINUM CONTACT TO PREVENT CORROSION



INSTALL MODULE ENDCLAMPS: The Endclamp is supplied as an assembly with a T-bolt, serrated flange nut, and washer. The washer retains the clamp at the top of the assembly. This will enable the clamp to remain upright for module installation.

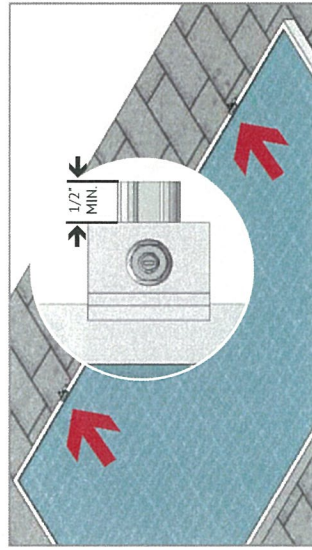


1 **INSERT ENDCLAMP T-BOLT:** Insert 1/4" T-bolt into rail.



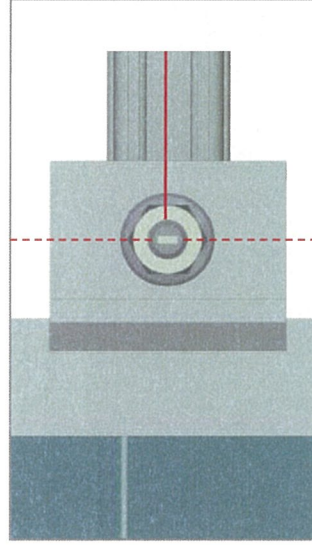
2 **ROTATE ENDCLAMP T-BOLT:** Rotate T-bolt into position. Verify that the position indicator & T-bolt shaft are angled in the correct position.

End clamps are positioned on rails prior to the first end module and installed after the last end module.



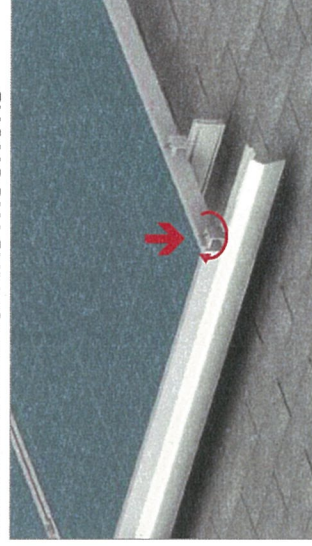
INSTALL FIRST MODULE: Install the first end module onto rails. Engage module frame with Endclamps. Verify that the position indicator & T-bolt shaft are angled in the correct position.

TORQUE VALUE (See Note on PG. A) 1/4" nuts to 10 ft-lbs. w/Anti Seize



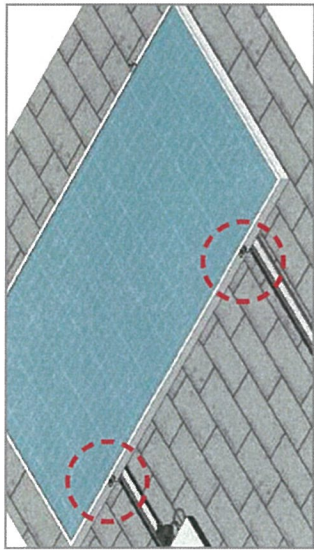
POSITION INDICATOR - SERRATED T-BOLT: Verify the T-bolt position indicator is perpendicular to the rail.

TRIM INSTALLATION INSTRUCTIONS

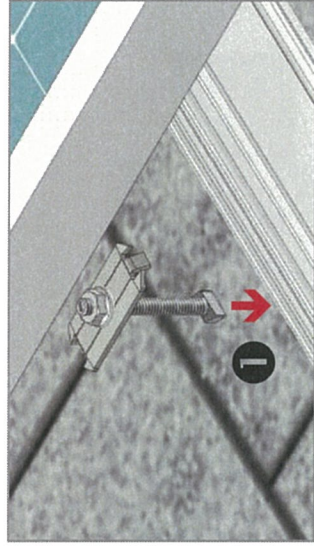


TRIM ENDCLAMPS: Install Endclamps on Trim in like manner to module endclamps per install instructions above.

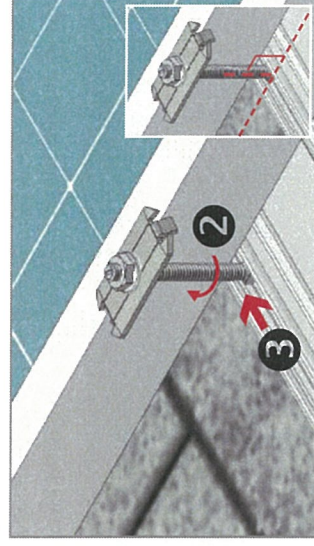
TORQUE VALUE (See Note on PG. 1) 1/4" nuts to 10 ft-lbs w/ Anti Seize



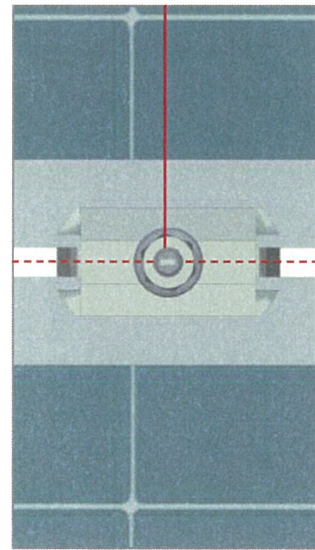
INSTALL MIDCLAMPS: Midclamp is supplied as an assembly with a T-bolt for module installation. Clamp assemblies may be positioned in rail near point of use prior to module placement.



INSERT MIDCLAMP T-BOLT: Apply Anti-Seize and insert 1/4" T-bolt into rail.

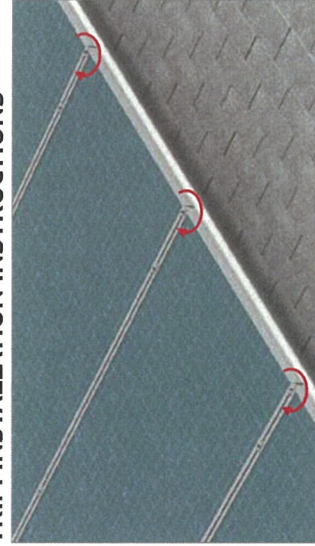


ROTATE MIDCLAMP T-BOLT: Rotate bolt into position and slide until bolt and clamp are against module frame. Do not tighten nut until next module is in position. Verify that the position indicator & T-bolt shaft are angled in the correct position.



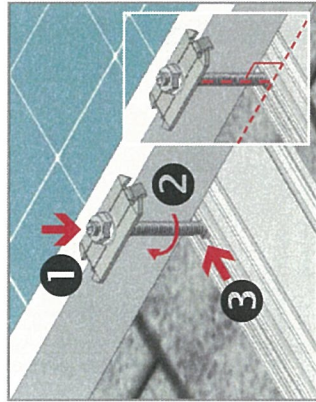
POSITION INDICATOR - SERRATED T-BOLT: Verify the T-bolt position indicator is perpendicular to the rail.

TRIM INSTALLATION INSTRUCTIONS



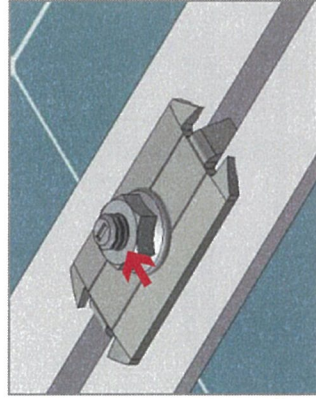
TRIM MIDCLAMPS: Ensure Trim lip is in contact with module face and verify alignment marks on T-bolts are in proper position, tighten midclamp on Trim, repeat at each gap between modules.

TORQUE VALUE (See Note on PG. 1)
 1/4" nuts to 10 ft-lbs w/ Anti Seize



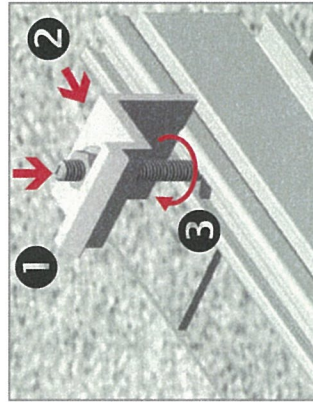
INSTALL REMAINING MID-CLAMPS: Proceed with module installation. Engage each module with previously positioned Midclamp assemblies.

NOTE: Apply Anti-Seize to each Mid Clamp prior to installation.



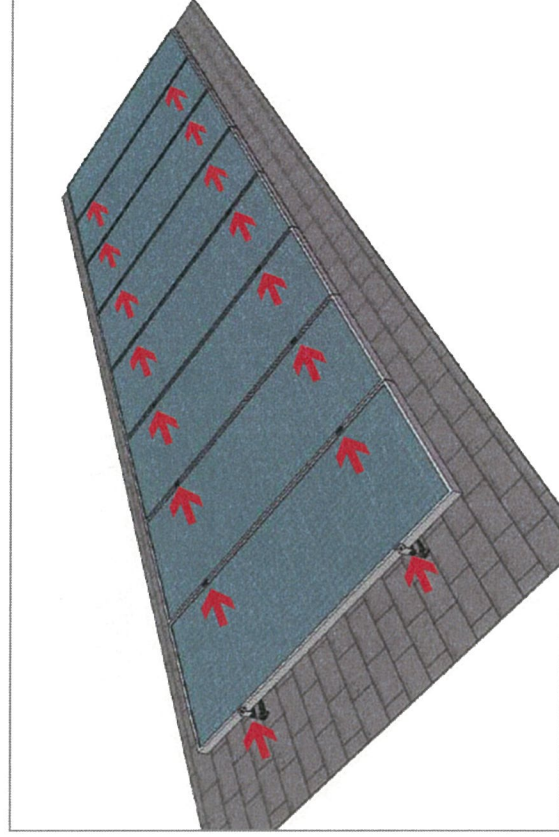
POSITION T-BOLT ALIGNMENT MARKS: Verify that the position indicator(s) & T-bolt shaft(s) are angled in the correct position.

TORQUE VALUE (See Note on PG. A)
1/4" nuts to 10 ft-lbs. w/Anti Seize



INSTALL ENDCLAMPS: Apply Anti-Seize and install final Endclamps in same manner as first Endclamps. Slide clamps against module.

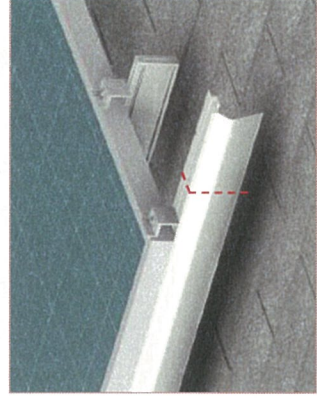
TORQUE VALUE (See Note on PG. A)
1/4" nuts to 10 ft-lbs. w/Anti Seize



FINISH MODULE INSTALLATION: Proceed with module installation. Engage each module with the previously positioned clamp assembly:

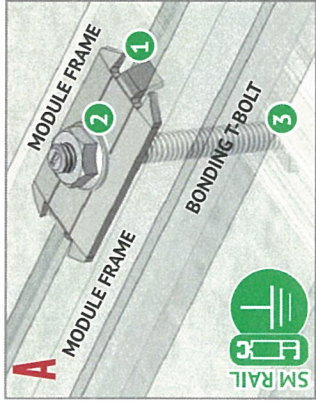
- Install second module
- Install remaining Midclamps & modules & position alignment marks
- Install Endclamps & position alignment marks
- Cut rail to desired length

TRIM INSTALLATION INSTRUCTIONS



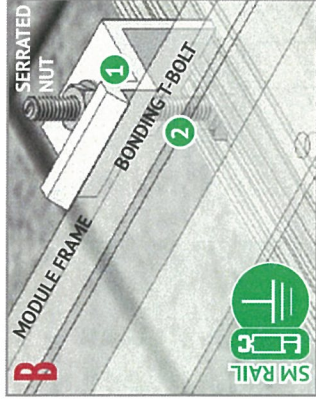
FINISH TRIM INSTALLATION, INSTALL ENDCLAMP & CUT EXCESS RAIL: Install final endclamp & Cut away excess Trim at end of array or where required for proper cantilevers. See **D&E Guide or U-Builder for allowable cantilevers.**

TORQUE VALUE (See Note on PG. 1)
1/4" nuts to 10 ft-lbs w/ Anti Seize



BONDING MIDCLAMP ASSEMBLY

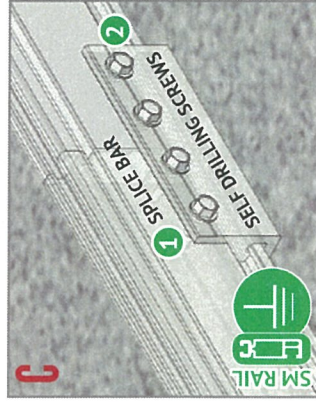
- 1 Stainless steel Midclamp points, 2 per module, pierce module frame anodization to bond module to module through clamp.
- 2 Serrated flange nut bonds stainless steel clamp to stainless steel T-bolt.
- 3 Serrated T-bolt head penetrates rail anodization to bond T-bolt, nut, clamp, and modules to grounded SM rail.



ENDCLAMP ASSEMBLY

- 1 Serrated flange nut bonds aluminum Endclamp to stainless steel T-bolt.
- 2 Serrated T-bolt head penetrates rail anodization to bond T-bolt, nut, and Endclamp to grounded SM rail.

Note: End clamp does not bond to module frame.



BONDING RAIL SPLICE BAR

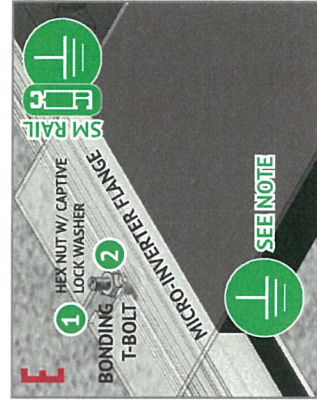
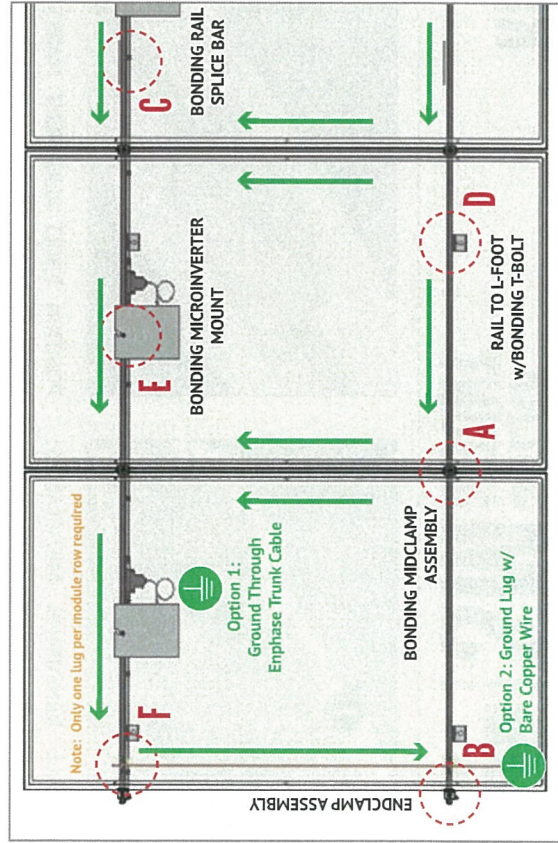
- 1 Stainless steel self drilling screws drill and tap into splice bar and rail creating bond between splice bar and each rail section.
- 2 Aluminum splice bar spans across rail gap to create rail to rail bond. Rail on at least one side of splice will be grounded.

Note: Splice bar and bolted connection are non-structural. The splice bar function is rail alignment and bonding.



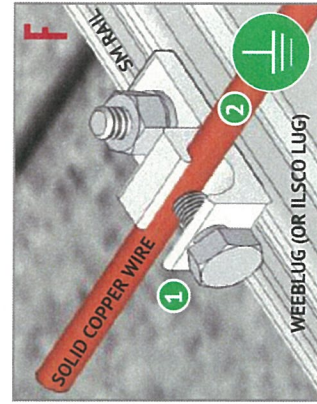
RAIL TO L-FOOT w/BONDING T-BOLT

- 1 Serrated flange nut removes L-foot anodization to bond L-Foot to stainless steel T-bolt.
- 2 Serrated T-bolt head penetrates rail anodization to bond T-bolt, nut, and L-foot to grounded SM rail.



BONDING MICROINVERTER MOUNT

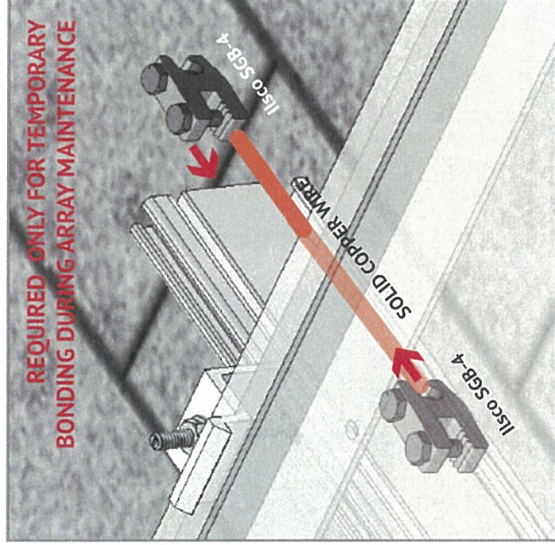
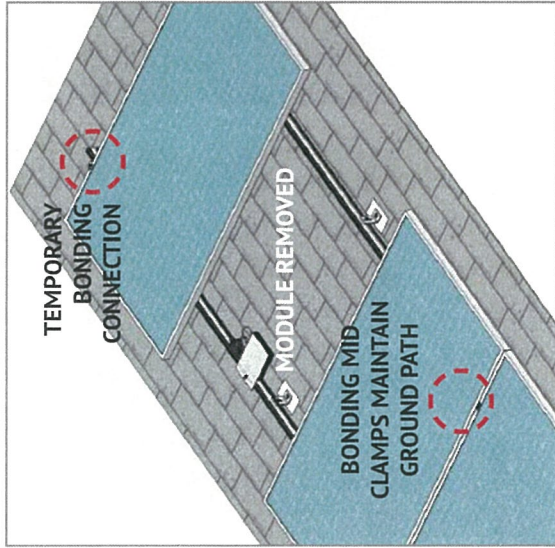
- 1 Hex nut with captive lock washer bonds metal microinverter flange to stainless steel T-bolt.
- 2 Serrated T-bolt head penetrates rail anodization to bond T-bolt, nut, and L-foot to grounded SM rail. System ground including racking and modules may be achieved through the trunk cable of approved microinverter systems. See page 1 for details.



RACK SYSTEM GROUND

- 1 WEEB washer pierces anodized rail to create bond between rail and lug.
- 2 Solid copper wire connected to lug is routed to provide final system ground connection.

NOTE: IlSCO lug can also be used when secured to the side of the rail. See page 1-3 for details.



ELECTRICAL CONSIDERATIONS

SOLARMOUNT is intended to be used with PV modules that have a system voltage less than or equal to 1000 VDC. For standard system grounding a minimum 10AWG, 105°C copper grounding conductor should be used to ground a 1000 VDC system, according to the National Electric Code (NEC). It is the installer's responsibility to check local codes, which may vary. See below for interconnection information.

INTERCONNECTION INFORMATION

There is no size limit on how many SOLARMOUNT & PV modules can be mechanically interconnected for any given configuration, provided that the installation meets the requirements of applicable building and fire codes.

GROUNDING NOTES

The installation must be conducted in accordance with the National Electric Code (NEC) and the authority having jurisdiction. Please refer to these resources in your location for required grounding lug quantities specific to your project.

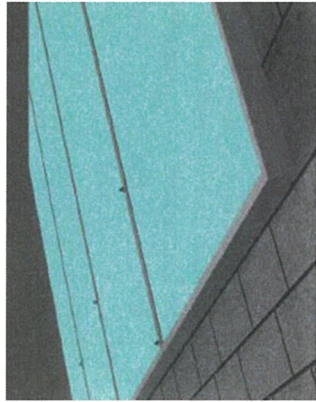
The grounding / bonding components may overhang parts of the array so care must be made when walking around the array to avoid damage.

Conductor fastener torque values depend on conductor size. See product data sheets for correct torque values.

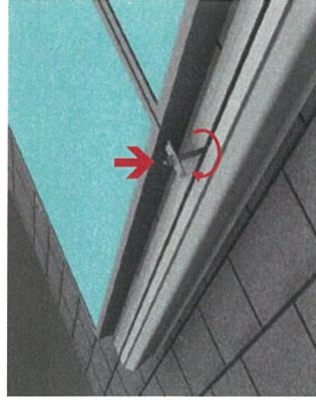
TEMPORARY BONDING CONNECTION DURING ARRAY MAINTENANCE

When removing modules for replacement or system maintenance, any module left in place that is secured with a bonding Midclamp will be properly grounded. If a module adjacent to the end module of a row is removed or if any other maintenance condition leaves a module without a bonding mid clamp, a temporary bonding connection must be installed as shown

- Attach IlSCO SGB4 to wall of rail
- Attach IlSCO SGB4 to module frame
- Install solid copper wire jumper to IlSCO lugs

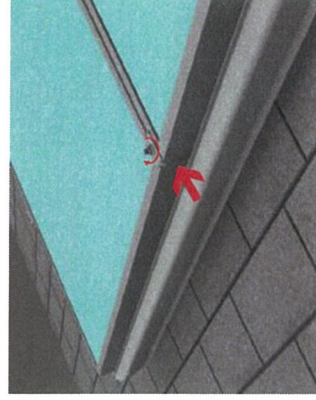


PREPARATION: At front edge of array, ensure at least 3.25 inches of space between modules and roof surface and that modules are aligned to within 3/8". Plan for Trim length so that Endclamps can be properly installed.



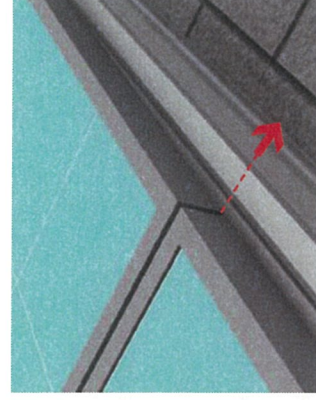
1ST MIDCLAMP: Position Trim in front of array. Insert Midclamp into the Trim slot, aligned with the gap between the 1st two modules at either end of array.

NOTE: Apply Anti-Seize to Each Mid-Clamp prior to installation

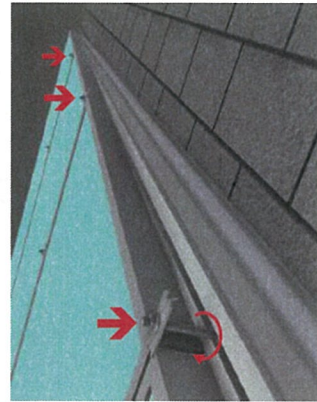


MOUNT TRIM: Position Trim beneath modules by sliding T-bolt into gap between modules and tighten. Midclamp should stay in position and support Trim. Tighten snugly enough so that Trim is held firmly in place.

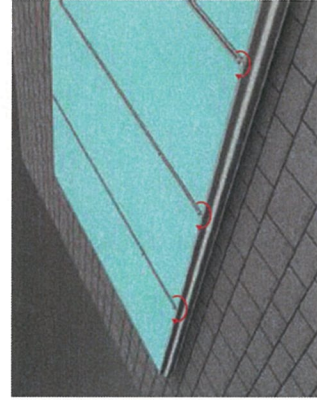
TORQUE VALUE: Do not exceed specified torque value (10 ft-lbs)



CLEAR T-BOLT SLOT: Rotate unattached end of Trim out and away from array so T-bolt slot (at next T-bolt insertion point) is clear of modules. This may require force to deflect the Trim slightly. Deflect only enough to insert T-bolt.



INSERT MIDCLAMPS: Insert T-bolt into slot and slide clamp (rotating Trim) into position between modules and leave loose. Continue to work down array, inserting Midclamps and positioning in gaps between modules.



FASTEN MIDCLAMPS: Return to each inserted Midclamp. Ensuring Trim lip is in contact with module face and verifying alignment marks on T-bolts are in proper position, tighten clamp.

TORQUE VALUE (See Note on PG. 1)
1/4" nuts to 10 ft-lbs w/ Anti Seize



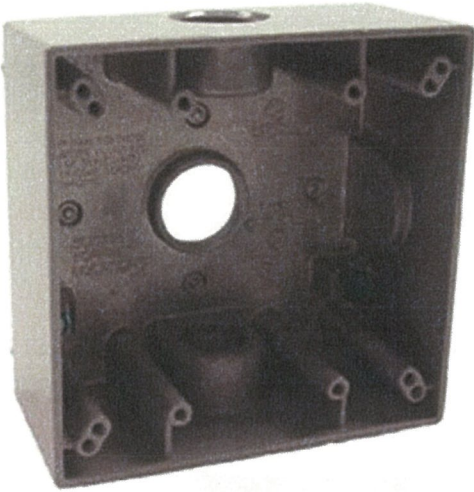
ENDCLAMPS: Install Endclamps per previous Endclamp install instructions

TORQUE VALUE (See Note on PG. 1)
1/4" nuts to 10 ft-lbs w/ Anti Seize



CUT EXCESS TRIM: Mark excess Trim and cut at end of array or where required for proper cantilevers.

5341-0 -- Two Gang Weatherproof Box 3-3/4" Outlets



Gray - Shrink

Product Specifications	
Product Type	Two - Gang Boxes
Product Family	Bell Weatherproof Boxes, Extensions and Adapters
Product Material	Die Cast Aluminum
Product Usage	2" Deep, with Lugs - Three Threaded Outlets
Outlets	3-3/4"
Color	Gray
Package Type	Shrink
Cubic Inches	32.0
Standard Package	12
WT. PER HU.	110.1
Ship Carton Length	16.1875
Ship Carton Width	6.5
Ship Carton Height	8.5
Ctn Cube	894.4
Ctn Weight	10.7
Pallet Quantity	1080
Inner Leaf 2 of 5	50050169534101
UPC Number	050169534106

Product Description
Gray - Shrink

Applications

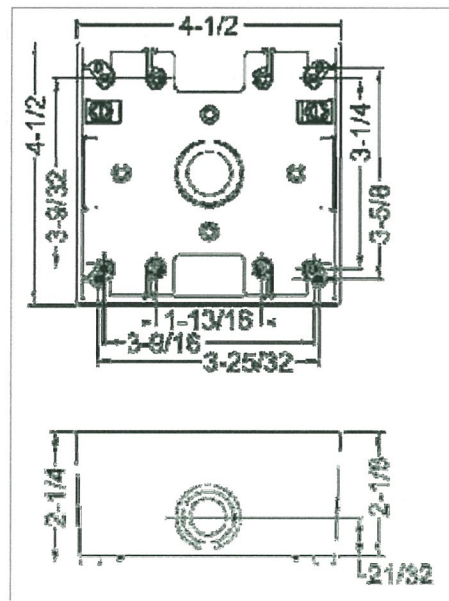
- For use in branch circuit wiring in wet, damp, or dry locations
- Can be used as a weatherproof junction box, or as a housing for receptacles, switches, and GFCI's

Product Features

- Seamless die cast aluminum construction
- Reinforced connector outlets
- State-of-the-art powder coat finish
- Eight box mounting options with detachable lugs provided
- Two closure plugs included
- Ground screw installed
- Multi-lingual instructions in each package
- Internal threads and hubs comply with NEMA requirements. Hubs accept all threaded fittings and threaded conduit

Compliances

UL 514-A listed, File E195978 CSA C22.2 No. 18 NEMA 3R Rated



LABELS FOR PV SYSTEMS

These labels may be required by local A.H.J.'s. Check with local rules for more information.

**UTILITY SAFETY
DISCONNECT
USE TO ISOLATE FROM
CUSTOMER GENERATION**

4" X 3"

**DISTRIBUTED
GENERATION
DISCONNECT**

R.E.C. METER

1" X 4"

**PHOTOVOLTAIC SYSTEM
DRAWINGS**

0.75" X 4"

**AC INVERTER BRANCH CIRCUIT
ISOLATION DISCONNECT**

NEC LABELS FOR PV SYSTEMS

DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE 690.53

Rated Current (Imp) at Maximum Power Point:

Rated Voltage (Vmp) at Maximum Power Point:

Maximum System Voltage: 690.7(A)

Maximum System Current: 690.8(A)

Max Rated Charge Controller Output Current (if applicable):

This data will allow the inspector to verify proper conductor ampacity and overcurrent device rating. It will also allow the user to compare system performance with the specifications.

4" X 3"

WARNING 690.64(B)(7)

INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

Unless the panelboard is rated not less than the sum of the ampere ratings of all overcurrent devices supplying it, a connection in a panelboard shall be positioned at the opposite end from the input feeder location or main circuit location. A permanent warning label shall be applied to the distribution equipment with the following or equivalent markings.

1" X 4"

INTERACTIVE SYSTEM POINT OF INTERCONNECTION 690.54

VOLTS: **AMPS:**

All interactive system(s) points of interconnection with other sources SHALL be marked at an accessible location at the disconnecting means as a power source with the maximum ac output operating current and the operating ac voltage.

WARNING 690.5(C)

ELECTRICAL SHOCK HAZARD DO NOT TOUCH TERMINALS

TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

If a switch or circuit breaker has all of the terminals energized when in the open position, a label should be placed near it indicating this. For example: DC Disconnects connected to grid-tied inverters.

WARNING 690.5(C)

ELECTRICAL SHOCK HAZARD IF A GROUND FAULT IS INDICATED NORMALLY GROUNDED CONDUCTORS MY BE UNGROUNDED AND ENERGIIZED

A warning label shall appear on the utility-interactive inverter or be applied by the installer near the ground-fault indicator at a visible location.