Town of Mesilla, New Mexico

THE PLANNING, ZONING AND HISTORICAL APPROPRIATENESS COMMISSION (PZHAC) WILL HOLD A REGULAR MEETING AT THE MESILLA TOWN HALL, 2231 AVENIDA DE MESILLA.
TUESDAY JANUARY 3, 2023, AT 2:30 P.M.
AGENDA

1. **PLEDGE OF ALLEGIANCE**
2. **ROLL CALL AND DETERMINATION OF A QUORUM**
3. **CHANGES / APPROVAL OF AGENDA**
4. **PUBLIC INPUT**

   The public is invited to address the commission regarding items listed on the agenda as allowed by the chair. You can also email your comments to clerktreasurer@mesillanm.gov at least twenty-four (24) hours prior to the meeting.

5. **APPROVAL OF CONSENT AGENDA**

   Note: Items on the Consent Agenda, indicated by an asterisk (*), will be voted on with one motion unless a commissioner requests that a specific item be removed for discussion.

   a. ***PZHAC MINUTES:** December 19, 2022, Regular Meeting Minutes

6. **INFORMATION FOR ADMINISTRATIVE APPOVALS**

   a. **PZHAC Case #061498** – 2820 Boldt Street, submitted by Robert Church to repair canales and leaks and to re-roof with new material. **Zoned: Historical Residential (HR)**

7. **NEW BUSINESS**

   a. **PZHAC Case #061502** – 2116 & 2118 Calle De San Albino, submitted by Jade Bossert Trustee, to install a 6' tall dog ear cedar fence and two 4' wide dog ear cedar gates. **Zoned: Historical Residential (HR)**

   b. **PZHAC Case #061503** -- 2525 Calle de Parian A, submitted by Renee Beltran, to install a residential PV Solar System (8 Panels, 4 Inverters, 2.96 Kw. Main panel Upgrade: 200A Bus/200A Main). **Zoned: Historical Residential (HR)**

   c. **PZHAC Case #061504** – 1583 Paisano Rd, submitted by Gabriel Garcia, to install 20 roof-mounted solar panels and 2 energy storage systems (batteries). **Zoned: Rural Farm**

   d. **PZHAC Case #061505** – 2840 Teresita, submitted by Jacquie Porter, to repair stucco, add color coat, trim paint, replace windows on back porch, and rain gutters under canals. **Zoned: Historical Residential (HR)**

   e. **PZHAC Case #061506** – 2001 Avenida De Mesilla, submitted by Jimmy Nevarez for a sign permit. **Zoned: Historical Commercial (HC)**

8. COMMISSIONERS / STAFF COMMENTS

9. ADJOURNMENT

NOTICE

If you need an accommodation for a disability to enable you to fully participate in the hearing or meeting, please contact us at 524-3262 at least 48 hours prior to the meeting.

Posted on 12/29/2022 at the following locations: Town Hall - 2231 Avenida de Mesilla; Public Safety Building - 2670 Calle de Parian; Mesilla Community Center - 2251 Calle de Santiago; Shorty's Food Mart - 2290 Avenida de Mesilla; Ristramnn - 2531 Avenida de Mesilla, and the U.S. Post Office - 2253 Calle de Parian.

Town of Mesilla, New Mexico

THE PLANNING, ZONING AND
HISTORICAL APPROPRIATENESS COMMISSION (PZHAC)
MONDAY DECEMBER 19, 2022, 2:30 PM

MINUTES

1. PLEDGE OF ALLEGIANCE

Chairperson Yolanda Lucero led the Pledge of Allegiance.

2. ROLL CALL AND DETERMINATION OF QUORUM

Mayor Nora L. Barraza took roll call.

Commissioner Danny Jones – Present
Commissioner Eric Walkinshaw - Present
Chairperson Yolanda Lucero - Present
Commissioner Davie Salas- Present
Commissioner Gerard Nevarez – Present

Mayor Barraza declared a quorum.

3. CHANGES / APPROVAL OF AGENDA

Motion to approve the agenda was made by Commissioner Nevarez and seconded by Commissioner Walkinshaw.

Roll Call Vote:
Commissioner Jones - Yes
Commissioner Walkinshaw – Yes
Chairperson Lucero - Yes
Commissioner Salas- Yes
Commissioner Nevarez – Yes

Motion passes.

4. PUBLIC INPUT

Susan Krueger commented on the Night Sky Ordinance. She reminded the Commissioners to review the lighting attached to any new houses to make sure it meets the ordinance. She also commented on demolition by neglect that she felt was going on in the Town such as the Butler house. Houses such as this which are not kept up with deteriorate over time.

Chairperson Lucero asked Mrs. Krueger to also share these comments to the Board of Trustees.

Marcia Toomey, President of the Mesilla Farms Home Owners Association (HOA) commented that the last case under New Items is located in Mesilla Farms and the HOA board is not in favor of short-term rentals of any kind and it violated their covenants and restrictions. She asked that the Town of Mesilla continues to be supportive of their opinion on this matter. She gave Clerk-Treasurer Rani Bush a copy of their covenant and her letter.

Cesareo Contreras, 2832 Erminda owner and applicant of the short-term rental in question, commented that he read through the convenient and found no restrictions to any type of rentals. He also provided a letter to Clerk-Treasurer Bush that he also sent to the Mayor and president of the HOA.

5. APPROVAL OF CONSENT AGENDA

1. ***PZHAC MINUTES:** December 5, 2022, Regular Meeting Minutes

Motion to approve the consent agenda and Cases #061495 & 061496 (which were administratively approved) was made by Commissioner Jones and seconded by Commissioner Nevarez.

Roll Call Vote:
Commissioner Nevarez – Yes
Commissioner Salas - Abstained
Chairperson Lucero - Yes
Commissioner Walkinshaw - Yes
Commissioner Jones - Yes

Motion passes.

6. INFORMATION FOR ADMINISTRATIVE APPOVALS

a. **PZHAC Case #061495** – 1595 Paisano Rd, submitted by Frank and Chang Proctor to build a shed on the westside of property, not on a concrete pad. **Zoned: Rural Farm (RF)**

b. **PZHAC Case #061496** – 2600 Avenida de Mesilla, submitted by Gilbert Chavez for emergency repair of structural damage due to a car accident including framing, stucco, and plumbing work to restore as existing. **Zoned Historical Commercial (HC)**

7. NEW BUSINESS

a. **PZHAC Case #061493** – 2500 Calle de Colon, submitted by Maria Avalos, on SE side of property to remove dead tree, remove chain link fence, place culvert in ditch, and lay 4" base course on existing material (24' wide x 50' length on). **Zoned: Historical Residential (HR)**

Staff presented facts of the case.

Motion to approve was presented by Commissioner Nevarez and seconded by Commissioner Jones.

Discussion followed.

Roll Call Vote:
Commissioner Walkinshaw – Yes
Chairperson Lucero – Yes

Commissioner Salas- Yes
Commissioner Nevarez - Yes
Commissioner Jones – Yes

Motion passed.

b. **PZHAC Case #061497** – 2214 Calle de Guadalupe, submitted by Pat & Wendy Taylor for a 360 square foot addition of a kitchen and bath where there is an existing storage shed. **Zoned: Historical Commercial (HC)**

Staff presented facts of the case.

Motion to approve was presented by Commissioner Salas and seconded by Commissioner Nevarez.

Discussion followed. Commissioner Jones questioned the parking situation since it will become two residences.

Motion to amend the motion by adding the condition of a parking fee of $150 per unit was made by Commissioner Nevarez and seconded by Commissioner Salas.

Roll Call Vote on the amendment:
Commissioner Salas- Yes
Chairperson Lucero – Yes
Commissioner Walkinshaw – Yes
Commissioner Jones – Yes
Commissioner Nevarez - Yes

Motion passed.

Roll Call Vote on the amended motion:
Commissioner Nevarez – Yes with the condition
Commissioner Salas- Yes with the condition
Chairperson Lucero – Yes with the condition
Commissioner Walkinshaw – Yes with the condition
Commissioner Jones – Yes with the condition

Motion passed.

c. **PZHAC Case #061498** - 2571 Calle de Guadalupe, submitted by Jeff McBride & Jane Mercer to replace evaporative cooler and gas furnace with ducted mini split HVAC unit. **Zoned: Historical Residential (HR)**

Staff presented facts of the case.

Motion to approve was presented by Commissioner Walkinshaw and seconded by Commissioner Jones.

Discussion followed.

Roll Call Vote:
Commissioner Walkinshaw – Yes
Chairperson Lucero – Yes
Commissioner Salas- Yes
Commissioner Nevarez - Yes
Commissioner Jones – Yes

Motion passed.

d. **PZHAC Case #061499** - 2571 Calle de Guadalupe, submitted by Jeff McBride & Jane Mercer to raise the height of courtyard wall to 10 feet to match height of connected house. **Zoned: Historical Residential (HR)**

Staff presented facts of the case.

Motion to approve was presented by Commissioner Nevarez and seconded by Commissioner Walkinshaw.

Discussion followed. Commissioner Nevarez asked about the shed and a need for a right-of-entry letter. Mayor Barraza explained that the Marshall's department is following up about the shed and other issues with the adjoining property.

Motion to amend the motion by adding the condition of obtaining a right-of-entry letter before issuing the permit was made by Commissioner Nevarez.

Roll Call Vote on the amendment:
Commissioner Jones – Yes
Commissioner Walkinshaw – Yes
Chairperson Lucero – Yes
Commissioner Salas- Yes
Commissioner Nevarez - Yes

Motion passed.

Roll Call Vote on the amended motion:
Commissioner Nevarez - Yes with the condition
Commissioner Salas- Yes with the condition
Chairperson Lucero – Yes with the condition
Commissioner Walkinshaw – Yes with the condition
Commissioner Jones – Yes with the condition

Motion passed.

e. **STR #1036** - 2832 Erminda, submitted by Cesareo Contreras for a short-term rental, **Zoned: Historical Residential (HR)**

Staff presented facts of the case.

Motion to approve was presented by Commissioner Salas and seconded by Commissioner Walkinshaw.

Discussion followed. Mayor Barraza and Clerk-Treasurer Bush met with the town attorney regarding this issue. He explained to them that if short-term rentals are allowed in Mesilla Town Code, then the application should be approved. The Town should not get involved with covenants between HOA's and homeowners. Further disagreement between the two would have to be brought to civil court.

Roll Call Vote:
Commissioner Jones – No because it sets a precedent of going against an HOA covenant which he doesn't agree with.

Commissioner Walkinshaw – No because he is upset because they started renting without a permit.

Chairperson Lucero – Yes because of the Town's ordinances. She doesn't like going against the HOA, but it is her job to go by the Town's ordinances.

Commissioner Salas – Yes because it meets the Town's ordinances. The HOA regulations have nothing to do with this Board or the Town.

Commissioner Nevarez – No because he still sees some uncertainties and wants to make sure the Commission is not setting precedent.

Motion failed.

Mayor Barraza explained that the applicant has a right to appeal to the Board of Trustees.

8. COMMISSIONERS / STAFF COMMENTS

Commissioner Nevarez wished his fellow commissioners, the mayor, and staff a very happy holiday. Chairperson Lucero welcomed by Commissioner Salas back and wished all a merry Christmas.

Mayor Barraza explained that there are two applicants for the community development coordinator positions currently and interviews will be conducted soon.

Chairperson Lucero and Commissioner Nevarez asked about the number of short-term rentals allowed in Mesilla. Mayor Barraza noted that the Commission can review and recommend changes to the ordinances regarding short-term rentals to the Board of Trustees.

Chairperson Lucero is also concerned about the condition of the Butler house and the blacksmith shop. The Mayor is following up and will get the new Codes Enforcement officer involved as well.

Mayor Barraza mentioned that letters of interest for new commissioners have been extended until the end of this week. She is looking to extend term of the commissioners who service ends on December 31 until after the holidays so that she will have time to interview new commissioners in January. She thanked each commissioner for their commitment and dedication to the Commission. Chairperson Lucero thanked everyone for giving her the privilege to be on the Commission.

9. ADJOURNMENT

Roll Call Vote:
Commissioner Jones - Yes
Commissioner Walkinshaw - Yes
Chairperson Lucero - Yes
Commissioner Salas- Yes

Commissioner Nevarez - Yes

Motion passed.

Meeting was adjourned at 3:57 p.m.

APPROVED THIS 3rd DAY OF JANUARY 2023.

_____

Yolanda Lucero
Chairperson

ATTEST:

_____

Rani Bush
Town Clerk-Treasurer

BOARD ACTION FORM

AGENDA DATE:

PZHAC: January 3, 2023 **BOT:**

ITEM:

PZHAC Case #061502 – 2116 & 2118 Calle De San Albino, submitted by Jade Bossert Trustee, to install a 6' tall dog ear cedar fence and two 4' wide dog ear cedar gates. Zoned: Historical Residential (HR)

BACKGROUND AND ANALYSIS:

It is determined that the proposed application is acceptable and meets all applicable Town codes, the application should continue.

MUNICIPAL TOWN CODE:

This application falls under the ordinance MTC Chapter(s) 18.33 and 18.35

SUPPORTING INFORMATION:

- Application
- Site Plan
- Quote
- Picture

PZHAC ACTION:

The PZHAC may:

1. Recommend approval of this case with findings stated above.
2. Recommend approval of this case with findings stated above and conditions.
3. Deny the application.

BOT OPTIONS:

TOWN OF MESILLA

APPLICATION FOR BUILDING PERMIT

Permit Fee $ 90
Review Fee $ 16.50
Total Fee $106.50

2231 Avenida de Mesilla, P.O. Box 10, Mesilla, NM 88046 (575) 524-3262 ext. 104

CASE NO. 06 1502 ZONE: HR CODE: _____ APPLICATION DATE: 12/19/22

Jade Bossert Trustee Jade Bossert LTD Profit Sharing Plan and Trust Agreement (520)-906-5120 — 520-906-5120 / 520-797-6900

Name of Property Owner — Property Owner's Telephone Number

3151 W Camino Alto Tucson AZ 85742

Property Owner's Mailing Address — City — State — Zip Code

tucsonrealestate@mindspring.com

Property Owner's E-mail Address

Simmon's Odd Jobs

Contractor's Name & Address (If none, indicate Self)

575-649-2981 — To be provided — 404112

Contractor's Telephone Number — Contractor's Tax ID Number — Contractor's License Number

Address of Proposed Work: 2116 & 2118 Calle De San Albino Mesilla, NM

Description of Proposed Work: 6ft Dog Ear Wood Fence & Two Matching Dog Ear Wood Gates per drawing submitted

THIS APPLICATION SHALL INCLUDE ALL OF THE FOLLOWING **Plan sheets are to be no larger than 11 x 17 inches or shall be submitted electronically.**

1. ☑ Plot plan with legal description to show existing structures, adjoining streets, driveway(s), improvements & setbacks. Verification shall show that the lot was **LEGALLY** subdivided through the Town of Mesilla or that the lot has been in existence prior to February 1972.
2. ☑ Site Plan with dimensions and details.
3. ___ Foundation plan with details.
4. ___ Floor plan showing rooms, their uses, and dimensions.
5. ___ Cross section of walls.
6. ___ Roof and floor framing plan.
7. ___ Proof of legal access to the property.
8. ___ Drainage plan.
9. ___ Details of architectural style and color scheme (checklist included for Historical zones) – diagrams and elevations.
10. ___ Proof of sewer service or a copy of septic tank permit; proof of water service (well permit or statement from the Public Utility providing water services).
11. ___ Proof of legal access to the property.
12. ___ Other information as necessary or required by the Town Code or Community Development Department.

$3,145.05 — Estimated Cost

Jade Bossert — Signature of Applicant (dotloop verified 12/19/22 1:10 PM MST TADX-EFU2-2EDX-YOME)

12/19/22 — Date

Application Fee is due at time of submittal. Apart from administrative approvals, all permit requests must undergo a review process from staff, PZHAC and/or BOT before issuance of a building permit. **All Building permits expire after one year from date issued.**

FOR OFFICIAL USE ONLY

PZHAC ☐ Administrative Approval
☐ Approved Date: _____
☐ Disapproved Date: _____
☐ Approved with conditions

BOT ☐ Approved Date: _____
☐ Disapproved Date: _____
☐ Approved with Conditions

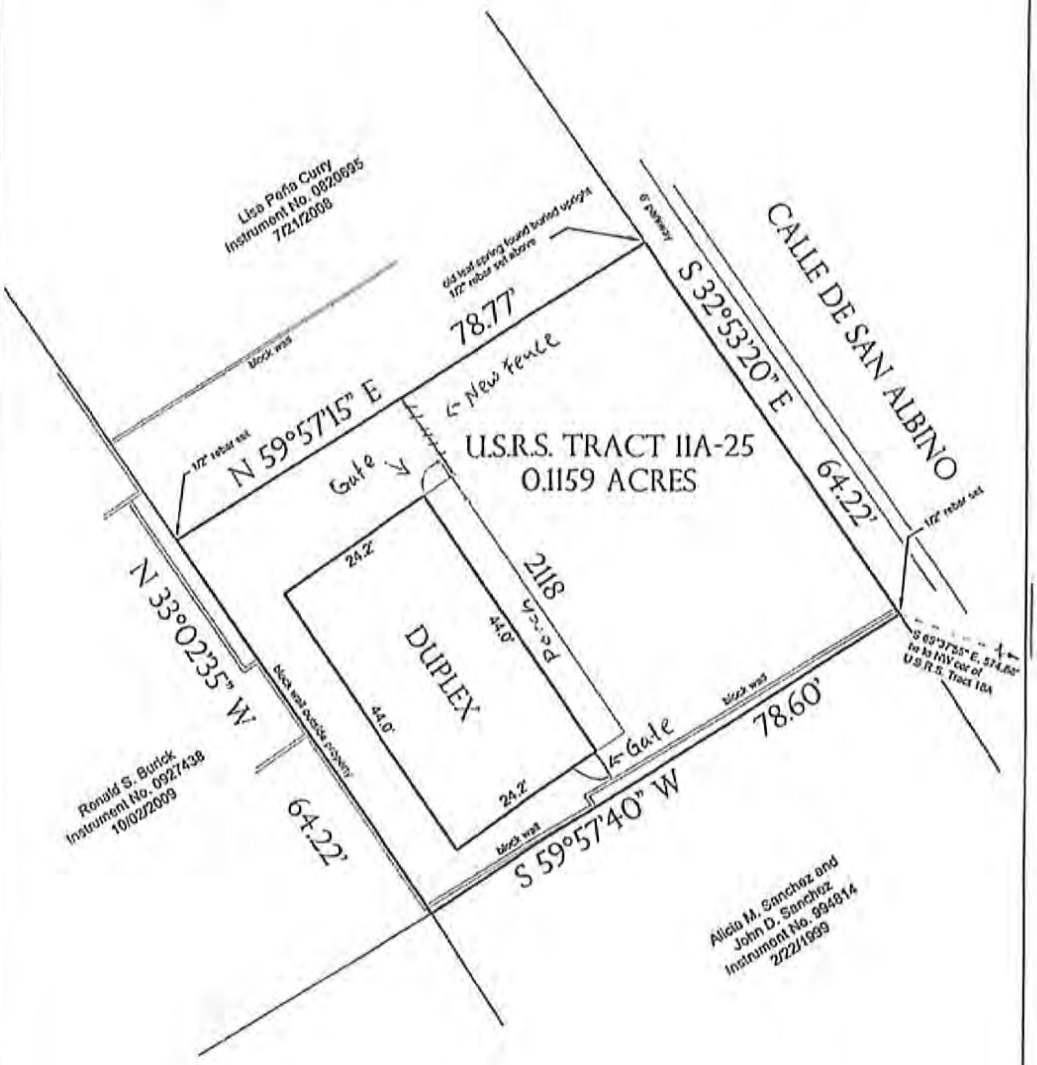
PZHAC APPROVAL REQUIRED: X YES ___ NO BOT APPROVAL REQUIRED: X YES ___ NO

CID PERMIT/INSPECTION REQUIRED: ___ YES ___ NO ___ SEE CONDITIONS

CONDITIONS: _____

PERMISSION ISSUED / DENIED BY: _____ ISSUE DATE: _____

PLAT OF SURVEY SHOWING LOCATION OF IMPROVEMENTS ON 0.1159 ACRE PARCEL IN SECTION 25, TOWNSHIP 23 SOUTH, RANGE 1 EAST, N.M.P.M., OF THE U.S.R.S. SURVEYS DESIGNATED AS U.S.R.S. TRACT IIA-25 IN THE TOWN OF MESILLA, DONA ANA COUNTY, NEW MEXICO



1. Date of Survey: May 9, 2022
2. Basis of Bearing : property corners found in place for Special Warranty Deed filed April 07, 2017 as Instrument No. 1708932
3. Distances are ground in U.S. Foot
4. Record or platted information, where it differs from that found in the field, is shown in brackets [ ]
5. Property lies within Flood Zone "X", area is determined to be outside the 500 year-year flood plain as designated in Flood Insurance Rate Map No 35013C1003 G effective date: July 6, 2016

0 20'

I, Gilbert Chavez, New Mexico Professional Survey No. 6832, do hereby certify that this Plat of Survey and actual survey on the ground upon which it is based were performed by me on April 22, 2022; that I am responsible for this survey; that this survey meets the Minimum Standards for Surveying in New Mexico; and that it is true and correct to the best of my knowledge and belief. I further certify that this survey is not a land division or Subdivision as defined in the Subdivision Act and that this instrument is a Plat of Survey of an existing lot.

Gilbert Chavez, PS No. 6832 April 23, 2022

GILBERT CHAVEZ PROFESSIONAL SURVEYOR
Vista Grande Surveys, LLC.
P.O. Box 682
Mesilla, NM 88046-0682
Phone 527-4675
E-mail: gilchvz@q.com

VG 22-015

QUOTE

Jade Bossert
2118 Calle De San Albino
LAS CRUCES NM 88005
USA

Date
Nov 30, 2022

Expiry
Nov 29, 2022

Quote Number
QU-0136

Simmons Odd Jobs
3157 Las Placitas Rd
LAS CRUCES NM 88011
UNITED STATES

Privacy Fence and Gates on Both Units

Unit 2018
Metal Posts
Cedar Frame
6' Tall Dog Ear Cedar Pickets
4' Wide Man Gate W/ 2 Way Latch

Unit 2016
Metal Posts
Metal Gate Kit 4' wide x 6' Tall

Description	Quantity	Unit Price	Tax	Amount USD
Materials 2" Metal Posts 8' tall with 2' in ground Concreted in ground Mounting brackets to attach 2x4 cedar frames (3 rows) Concrete for posts	1.00	600.00	8.45%	600.00
Materials WOOD FENCING FRAME AND PICKETS 2x4 cedar for frame 3 rows of framing for pickets 6' dog ear cedar pickets 5.5" wide	1.00	600.00	8.45%	600.00
Materials GATE 4' wide man gate Metal Frame gate with 2 way lockable latch Cedar pickets matching new fence pattern	1.00	400.00	8.45%	400.00
Materials (Unit 2016) GATE 4' wide man gate metal frame gate with 2 way latch Cedar pickets to match fencing Metal posts concreted 2' in ground	1.00	500.00	8.45%	500.00

Description	Quantity	Unit Price	Tax	Amount USD
Labor Labor to complete all fencing including gates	1.00	800.00	8.45%	800.00
			Subtotal	2,900.00
			TOTAL NM 8.45%	245.05
			TOTAL USD	**3,145.05**

Terms

Privacy fence prices out per specs given. If there are any changes or more linear feet, price will be changed accordingly.
Any change orders must be paid in full, upfront prior to work being started.

PAYMENT SCHEDULE:
50% due upfront to reserve schedule and materials
Balance due at completion
PAY IN FULL TO RECEIVE A $150 DISCOUNT!!

BOARD ACTION FORM

AGENDA DATE:

PZHAC: January 3, 2023 **BOT:**

ITEM:

PZHAC Case #061503 - 2525 Calle de Parian A, submitted by Renee Beltran, to install a residential PV Solar System (8 Panels, 4 Inverters, 2.96 Kw. Main panel Upgrade: 200A Bus/200A Main).. Zoned: Historical Residential (HR)

BACKGROUND AND ANALYSIS:

It is determined that the proposed application is acceptable and meets all applicable Town codes, the application should continue.

MUNICIPAL TOWN CODE:

This application falls under the ordinance MTC Chapter 18.35.060.

SUPPORTING INFORMATION:

- Application
- Correction Letters
- Site Plans w/ Dimensions
- Picture
- Residential Agreement
- Structural Analysis Report

PZHAC ACTION:

The PZHAC may:

1. Recommend approval of this case with findings stated above.
2. Recommend approval of this case with findings stated above and conditions.
3. Deny the application.

BOT OPTIONS:

TOWN OF MESILLA

APPLICATION FOR BUILDING PERMIT

Permit Fee $ 260
Review Fee $ 42
Total Fee $ 302

2231 Avenida de Mesilla, P.O. Box 10, Mesilla, NM 88046 (575) 524-3262 ext. 104

CASE NO. 06/503 ZONE: HR CODE: _____ APPLICATION DATE: 11/28/22

Renee Beltran — Name of Property Owner
(575) 635-6683 — Property Owner's Telephone Number
2525 Calle De Parian A — Property Owner's Mailing Address
Mesilla — City
NM — State
88046 — Zip Code
reneebeltran94@gmail.com — Property Owner's E-mail Address
Solcius LLC / 1555 N Freedom Blvd, Provo, UT 84604 — Contractor's Name & Address (If none, indicate Self)
844-37-2258 — Contractor's Telephone Number
_____ — Contractor's Tax ID Number
32880 — Contractor's License Number

Address of Proposed Work: 2525 Calle De Parian A, Mesilla, NM 88046

Description of Proposed Work: Residential PV Solar Installation: 8 Panels, 4 Inverters, 2.96 Kw. Main Panel Upgrade: 200A Bus/200A Main

THIS APPLICATION SHALL INCLUDE ALL OF THE FOLLOWING **Plan sheets are to be no larger than 11 x 17 inches or shall be submitted electronically.**

1. ___ Plot plan with legal description to show existing structures, adjoining streets, driveway(s), improvements & setbacks. Verification shall show that the lot was **LEGALLY** subdivided through the Town of Mesilla or that the lot has been in existence prior to February 1972.
2. ___ Site Plan with dimensions and details.
3. ___ Foundation plan with details.
4. ___ Floor plan showing rooms, their uses, and dimensions.
5. ___ Cross section of walls.
6. ___ Roof and floor framing plan.
7. ___ Proof of legal access to the property.
8. ___ Drainage plan.
9. ___ Details of architectural style and color scheme (checklist included for Historical zones) – diagrams and elevations.
10. ___ Proof of sewer service or a copy of septic tank permit; proof of water service (well permit or statement from the Public Utility providing water services).
11. ___ Proof of legal access to the property.
12. ___ Other information as necessary or required by the Town Code or Community Development Department.

$ _____ Estimated Cost

DocuSigned by: Renee Beltran D7C1BB4B118246A... Signature of Applicant

11/28/22 Date

Application Fee is due at time of submittal. Apart from administrative approvals, all permit requests must undergo a review process from staff, PZHAC and/or BOT before issuance of a building permit. **All Building permits expire after one year from date issued.**

FOR OFFICIAL USE ONLY

PZHAC
- ☐ Administrative Approval
- ☐ Approved Date: _____
- ☐ Disapproved Date: _____
- ☐ Approved with conditions

BOT
- ☐ Approved Date: _____
- ☐ Disapproved Date: _____
- ☐ Approved with Conditions

PZHAC APPROVAL REQUIRED: X YES ___ NO BOT APPROVAL REQUIRED: X YES ___ NO

CID PERMIT/INSPECTION REQUIRED: X YES ___ NO ___ SEE CONDITIONS

CONDITIONS: _____

PERMISSION ISSUED / DENIED BY: _____ ISSUE DATE: _____

1555 North Freedom Blvd
Provo, UT 84604
844-357-2258

Date
02-12-22

2525 Calle De Parian A,
Mesilla, NM 88046

To whom it may concern,

The following corrections have been made to the Beltran2 Residence Permit:

The site plan on PV02 has been updated with additional dimension linear measurements which include ballast tray valley-parapet wall and width/length of arrays that span ballast tray valleys end to end. The parapet wall and array heights are approximately nine inches high.

Thank you,
Richard Velasquez
solarpermits@solcius.com
844-357-2258

1555 North Freedom Blvd
Provo, UT 84604
844-357-2258

Date
22-12-22

2525 Calle De Parian A,
Mesilla, NM 88046

To whom it may concern,

The following corrections have been made to the Beltran2 Residence Permit:

1. The field service has changed the wall conduit on site to SCH 80 in accordance with Code Section: 14.10.4.11 L , 2017 NMEC. Roof top conduits are still EMT.
2. The project address has been updated to meet state CID guidelines.
3. The site plan on PV02 has been updated with additional dimension linear measurements which include ballast tray valley-parapet wall and width/length of arrays that span ballast tray valleys end to end. The parapet wall and array heights are approximately nine inches high.

Thank you,
Richard Velasquez
solarpermits@solcius.com
844-357-2258

SHEET INDEX	
PV01	TITLE SHEET
PV02	SITE PLAN
PV03	ELECTRICAL LINE DIAGRAM
PV04	EQUIPMENT LABELS
PV05	ATTACHMENT SPACING
PV06	RACK RAIL DIAGRAM
PV07	ELEVATION
PV08	PROPERTY PLAN
	SPECIFICATION SHEETS

SCOPE OF WORK		
Installation of Solar PV System		
# OF PANELS:	8	
# OF INVERTERS:	4	
DC SYSTEM SIZE:	2.96	KW-DC
AC SYSTEM SIZE:	2	KW-AC
MSP UPGRADE:	200A BUS	
	200A MAIN	

APPLICABLE CODES

2017 NATIONAL ELECTRIC CODE (NEC)

2015 INTERNATIONAL RESIDENTIAL CODE

2015 INTERNATIONAL BUILDING CODE

STREET VIEW GE VIEW

Latitude Longitude
32.270736 -106.798616

CONSTRUCTION NOTES

A. ALL GROUNDING ELECTRODES AS DESCRIBED IN NEC 250.52(A)(1)-(A)(7) THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SERVED SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN NEC 250.52(A)(4)-(A)(8) SHALL BE INSTALLED PER NEC 250.50. ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER NEC 250.53. THE GROUNDING OR BONDING CONDUCTOR SHALL BE CONNECTED TO THE GROUNDING ELECTRODE BY LISTED CLAMPS PER NEC 250.70.

B. ROOFTOP MOUNTED PHOTOVOLTAIC SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ROOF PENETRATIONS SHALL BE FLASHED AND SEALED IN ACCORDANCE WITH IRC R909.3

C. ACCESS AND WORKING SPACE SHALL BE PROVIDED AND MAINTAINED ABOUT ALL ELECTRICAL EQUIPMENT TO PERMIT READY AND SAFE OPERATION AND MAINTENANCE OF SUCH EQUIPMENT PER NEC 110.26.

D. ALL PLAQUES AND SIGNS WILL BE INSTALLED AS REQUIRED BY NEC.

E. CONDUIT WILL BE INSTALLED IN COMPLIANCE WITH NEC 358.

F. GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED PER NEC 250.64(B) AND SHALL BE CONTINUOUS PER NEC 250.64(C).

G. ROOF COVERINGS SHALL COMPLY WITH IBC 1506.2, 1507 & IRC R904.3.

H. CIRCUIT BREAKERS, IF BACKFED, SHALL BE SUITABLE FOR SUCH OPERATION PER NEC 705.12(B)(4) AND WILL BE INSTALLED PER NEC 408.36(D).

I. INVERTERS UL LISTED 1741 PER IRC R324.3.

J. ROOFTOP MOUNTED PHOTOVOLTAIC PANEL SYSTEM SHALL BE TESTED, LISTED AND IDENTIFIED WITH A FIRE CLASSIFICATION IN ACCORDANCE WITH UL 1703.

K. NON-CURRENT-CARRYING METAL PARTS OF EQUIPMENT, RACEWAYS, AND OTHER ENCLOSURES, IF GROUNDED, SHALL BE CONNECTED TO AN EQUIPMENT GROUNDING CONDUCTOR BY ONE OF THE METHODS SPECIFIED IN NEC 250.134(A) OR (B).

L. THE DISCONNECTING MEANS FOR UNGROUNDED CONDUCTORS SHALL CONSIST OF A MANUALLY OPERABLE SWITCHES OR CIRCUIT BREAKERS COMPLYING WITH NEC 690.15(D)(1).

M. THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTIONS SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS PER NEC 690.4(C).

N. IT IS THE DUTY OF THE PERSON REQUESTING ANY INSPECTIONS REQUIRED BY THE IRC TO PROVIDE ACCESS TO AND MEANS FOR INSPECTION OF SUCH WORK PER IRC R109.3.

O. SMOKE ALARMS & CARBON MONOXIDE ALARMS MUST BE INSTALLED PER IRC R314.2.2 AND R315.2.2.

P. SOLAR PV MODULES CANNOT BE INSTALLED OVER OR BLOCK ANY ATTIC VENTS, PLUMBING VENTS, FURNACE OR WATER HEATER VENTS, ETC.

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Arlo Hulick, P.E. on
12/27/2022

solcius

REGIONAL OFFICE:
SOLCIUS, LLC
1530 GOODYEAR DR, STE G EL PASO, TX 79936
(844) 357-2258

CUSTOMER:
Eddie Reagan 2525 Calle De Parian Apt. A Mesilla NM 88046 (575) 635-6683

UTILITY:
El Paso Electric Co (NM)

DESIGNER:
Richard Velasquez

DATE:
22-12-22

PROJECT #:
P-245555-22

Financier:
Mosaic

JURISDICTION:
Mesilla

SYSTEM SIZE:
2.96 KW-DC
2 KW-AC

SHEET TITLE:
TITLE SHEET

VERSION:
3.3.6

SHEET #:
PV01

AZIMUTH AND TILT TABLE						
ROOF	AZIMUTH	TILT ANGLE OF PANEL	TILT ANGLE OF ROOF	MODULE COUNT	SOLAR ACCESS	ROOF TYPE
A	138	8	0	4	100%	Membrane
B	318	8	0	4	100%	Membrane
C						
D						
E						
F						
G						
H						
I						
ZNSHINE ZXM6-NH120-370/M TOTAL: 8						
NEP BDM-300X2						

3' FIRE SETBACKS (IFC 605.11.1)

3" VENTILATION LOCATION ON THE RIDGE SHALL NOT BE REQUIRED TO BE FREE OF OBSTACLES.

STC CALCULATION BOX

NEW INVERTERS: 4 NEP BDM-300X2 = 2 KW-AC

NEW PANELS: 8 ZNShine ZXM6-NH120-370/M X 370W = 2.96 KW-DC

TOTAL ROOF AREA:	0
PROPOSED SOLAR AREA:	156.87 sqft
PROPOSED SOLAR WEIGHT:	454.92 lb
PROPOSED % COVERAGE:	0%

ARLO EDWARD HULICK NEW MEXICO 18932 PROFESSIONAL ENGINEER

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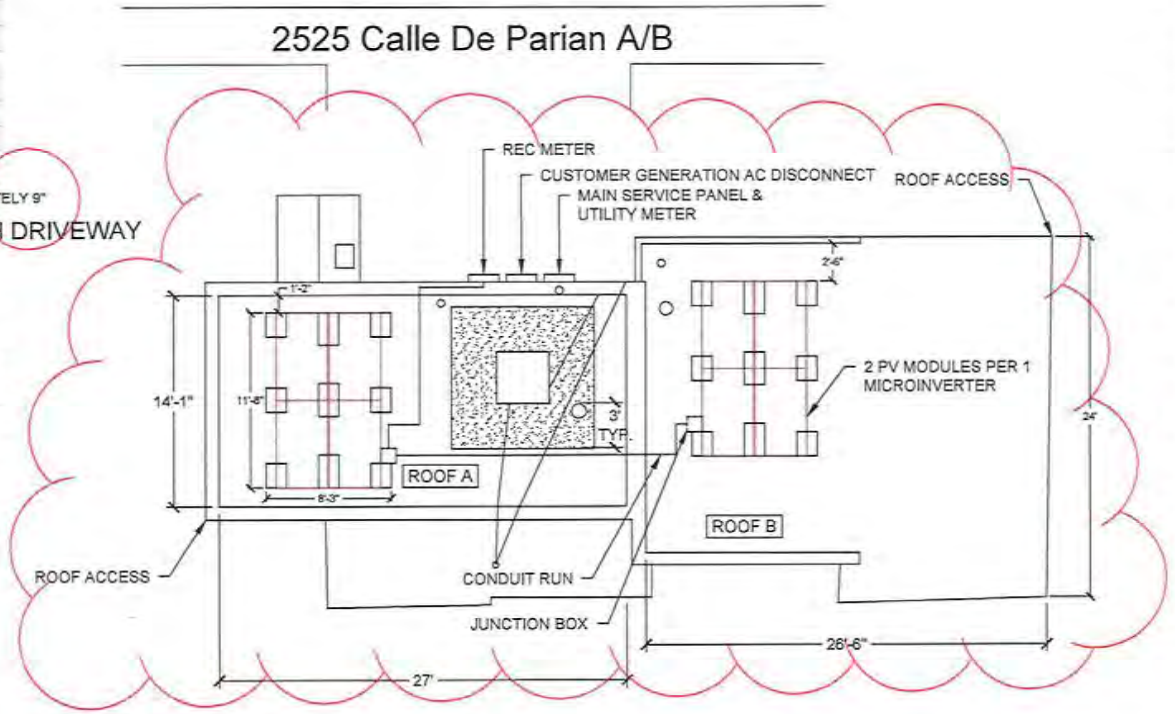
2525 Calle De Parian A/B

THE PARAPET WALL HEIGHT IS APPROXIMATELY 9"

UTILITY ACCESS THROUGH DRIVEWAY



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UTILITY:

El Paso Electric Co (NM)

DESIGNER:

Richard Velasquez

DATE:

22-12-22

PROJECT #:

P-245555-22

Financier:

Mosaic

JURISDICTION:

Mesilla

SYSTEM SIZE:

2.96 KW-DC
2 KW-AC

SHEET TITLE:

SITE PLAN

VERSION:

3.3.6

SHEET #:

PV02

EQUIPMENT SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	PART NUMBER	NOTES
1	SOLAR PANEL	ZNSHINE	ZXM6-NH120-370/M	QUANTITY (8)
2				
3	MICRO INVERTER	NEP	NEP BDM-300X2	QUANTITY (4)
4	JUNCTION BOX	PVC JUNCTION BOX (OR EQ.)	5133710U CANTEX	
5	RACKING	ECOFASTEN CLICKFIT	ECOFASTEN CLICKFIT	
6	REC METER	EATON	URTRS1018CH, 600V, 125A, FOR	
7	NON-FUSED AC DISCONNECT	EATON OR EQUAL	DG221URB,240V,30A,2P,3R	LOCKABLE
8				
9				
10				
11				
12	MAIN PANEL UPGRADE			

CONDUIT AND CONDUCTOR SCHEDULE (PER NEC 690.8(B), TABLE 310.15(B)(2)(a), TABLE 250.122)

TAG	CONDUCTOR TYPE	MIN. CONDUCTOR SIZE	# OF CONDUCTORS	CONDUIT TYPE	MIN. CONDUIT SIZE
1	OPTIMIZER CABLE	#10	2	IN FREE AIR	N/A
	BARE COPPER (EGC)	#6	1		
2	THWN-2	#10	2	MC THROUGH ATTIC WHERE POSSIBLE, OTHERWISE EMT RUN ON ROOF	3/4"
	THWN-2 / EGC	#10	1		
3	THWN-2	#10	2	H ATTIC WHERE POSSIBLE, OTHERWISE EMT R	3/4"
	THWN-2 / EGC	#10	1		
4	THWN-2	#10	3	EMT	3/4"
	THWN-2 / EGC	#10	1		
5	THWN-2	#10	3	EMT	3/4"
	THWN-2 / EGC	#10	1		

INVERTER SPECIFICATIONS		
MANUFACTURER	NEP	
MODEL	BDM-300X2	
MAX DC INPUT VOLTAGE	[V]	60
MAX OUTPUT POWER	[W]	580
NOMINAL AC OUTPUT VOLTAGE	[V]	240
NOMINAL AC OUTPUT CURRENT	[A]	2.09
REQUIRED OVERCURRENT PROTECTION	[A]	20

PV MODULE SPECIFICATIONS		
MAKE	ZNShine	
MODEL	ZXM6-NH120-370/M	
MAX POWER-POINT CURRENT (I_{mp})	[A]	10.82
MAX POWER-POINT VOLTAGE (V_{mp})	[V]	34.2
OPEN CIRCUIT VOLTAGE (V_{oc})	[V]	41
SHORT CIRCUIT CURRENT (I_{sc})	[A]	11.42
MAX POWER (P_{max})	[W]	370

STC CALCULATION BOX

NEW INVERTERS: 4 NEP BDM-300X2 = 2 KW-AC

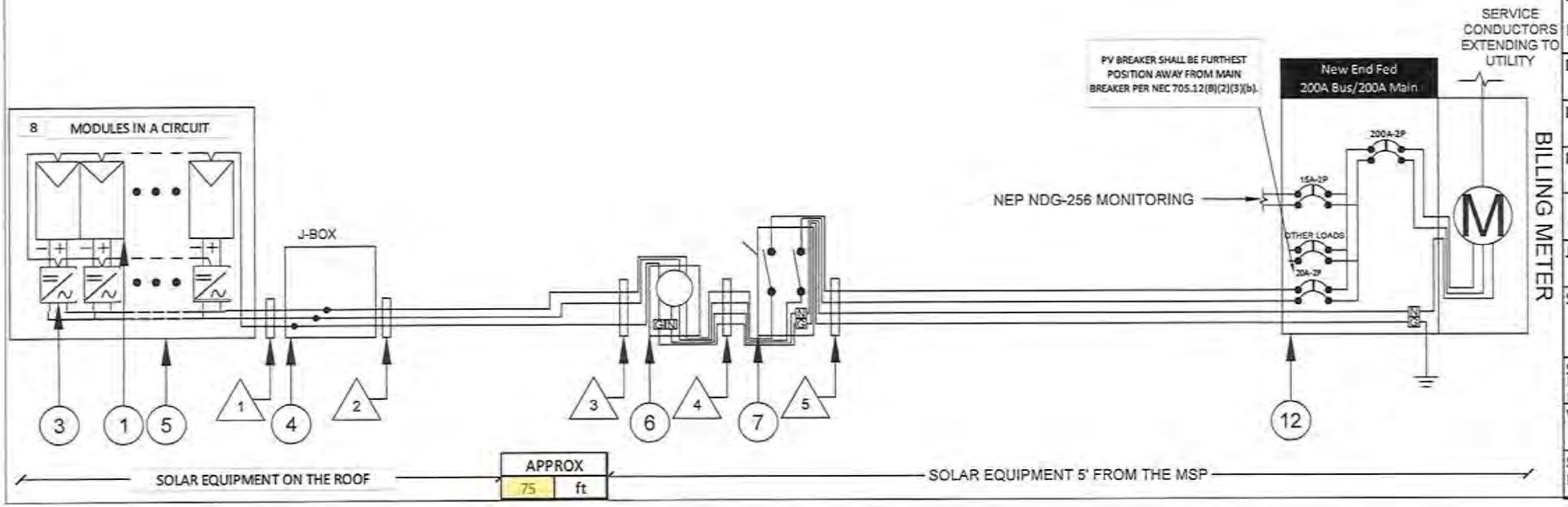
NEW PANELS: 8 ZNShine ZXM6-NH120-370/M X 370W = 2.96 KW-DC

NEW MAIN SERVICE PANEL INFORMATION

VOLTAGE:	120/240	[V]
PHASES:	1	ø
BOX/BUS RATING:	200	[A]
MAIN BREAKER:	200	[A]
PV SYSTEM BREAKER SIZE:	20	[A]
FEED TYPE:		N/A

CALCS:	
NEC 705.12(B)(2)(3)(b)	(200A BUS)*(1)=200A MAX BUS RATING
	PV BACKFEED (20A)+MAIN BREAKER (200A)=(220<=200)

ESTIMATED ANNUAL PRODUCTION: 4565 KWH



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UTILITY:

El Paso Electric Co (NM)

DESIGNER:
Richard Velasquez

DATE:
22-12-22

PROJECT #:
P-245555-22

Financier:
Mosaic

JURISDICTION:
Mesilla

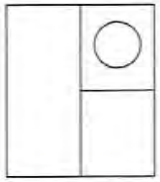
SYSTEM SIZE:
2.96 KW-DC
2 KW-AC

SHEET TITLE:
ELECTRICAL LINE DIAGRAM

VERSION:
3.3.6

SHEET #:
PV03

Main Service Panel



FOR ILLUSTRATION ONLY
(NOT ACTUAL MSP)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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

⚠WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

⚠ WARNING
POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE.

AC Disconnect (If Used)

FOR ILLUSTRATION ONLY
(NOT ACTUAL DISCONNECT)

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: 8.36
NOMINAL OPERATING AC VOLTAGE: 240

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

WARNING: PHOTOVOLTAIC POWER SOURCE

*LOCATION: EVERY 10' ALONG ANY CONDUITS OR MC CABLE THAT CONTAIN DC CIRCUITS, AT EVERY ENCLOSURE, AND AT EACH SIDE OF WHERE THE CONDUIT OR CABLE PASSES THROUGH A WALL, FLOOR, OR ANY OTHER PARTITION.

NOTES: DC CONDUIT MUST BE A REFLECTIVE STICKER

NOTES:

PRODUCTION METER (If Used)

REC METER

FOR ILLUSTRATION ONLY
(NOT ACTUAL METER)

ALL SIGNAGE MUST BE PERMANENTLY ATTACHED AND BE ABLE TO WITHSTAND THE ENVIRONMENT THEY ARE INSTALLED. SIGNAGE ALSO CANNOT BE HAND WRITTEN. NEC 110.21(B)

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El Paso Electric Co (NM)

DESIGNER:
Richard Velasquez

DATE:
22-12-22

PROJECT #:
P-245555-22

Financier:
Mosaic

JURISDICTION:
Mesilla

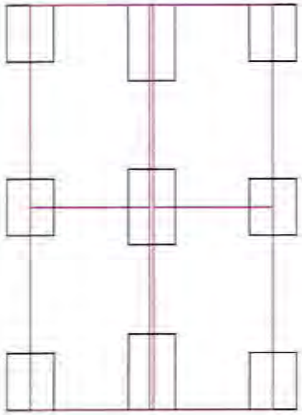
SYSTEM SIZE:
2.96 KW-DC
2 KW-AC

SHEET TITLE:
EQUIPMENT LABELS

VERSION:
3.3.6

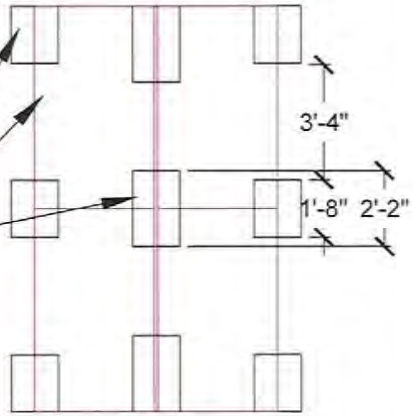
SHEET #:
PV04

LABEL	ROOF TYPE	MOUNTING TYPE	AREA OF ARRAY	GROSS WEIGHT	DEAD LOAD RATING	EXISTING STRUCTURAL FRAMING	MAX RAIL SPAN	RAIL SPAN OFFSET
ROOF A	MEMBRANE	EAST WEST BALLAST	78.4 SQ. FT.	172 IBS.	2.19 LBS/SQ.FT.	2X4 @24" O.C.		
ROOF B	MEMBRANE	EAST WEST BALLAST	78.4 SQ. FT.	172 IBS.	2.19 LBS/SQ.FT.	2X4 @24" O.C.		



ROOF A

BALLAST TRAY VALLEY (TYP)
SOLAR MODULE (TYP)
BALLAST TRAY RIDGE (TYP)



ROOF B

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12/22/2022

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UTILITY:
El Paso Electric Co (NM)

DESIGNER:
Richard Velasquez

DATE:
22-12-22

PROJECT #:
P-245555-22

Financier:
Mosaic

JURISDICTION:
Mesilla

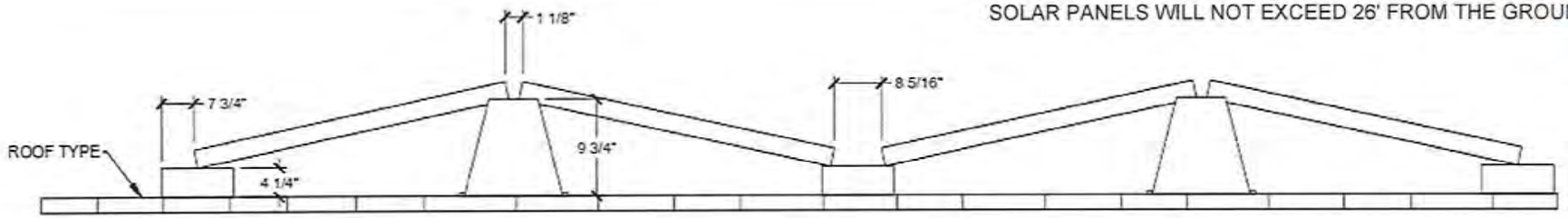
SYSTEM SIZE:
2.96 KW-DC
2 KW-AC

SHEET TITLE:
ATTACHMENT SPACING

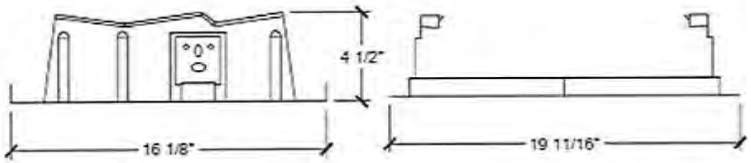
VERSION:
3.3.6

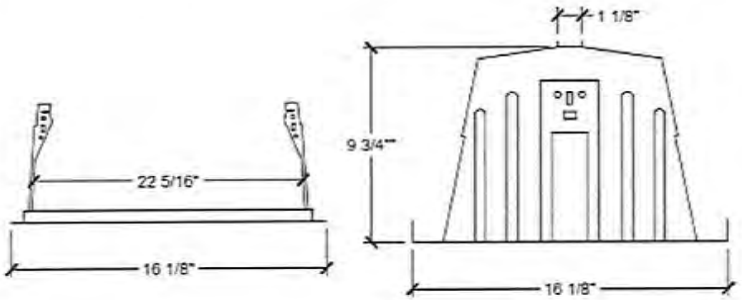
SHEET #:
PV05

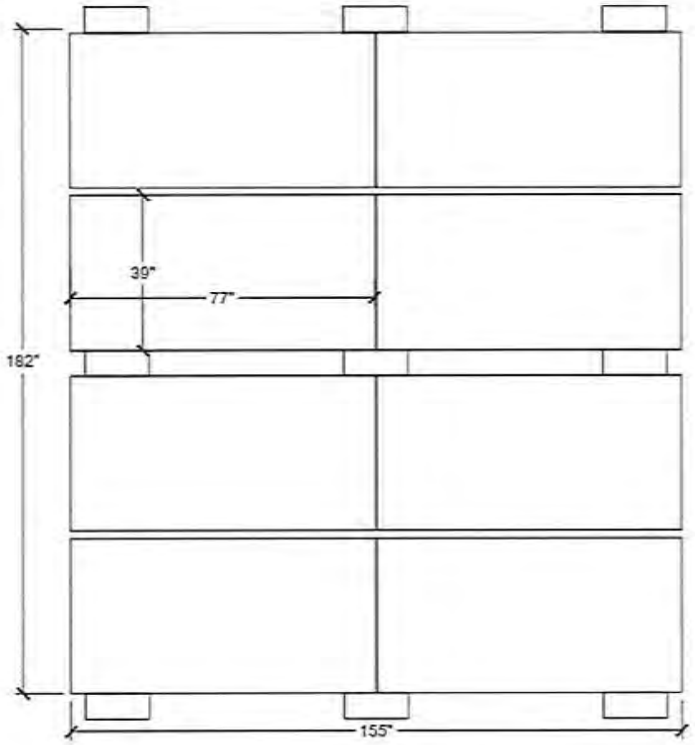
SOLAR PANELS WILL NOT EXCEED 26' FROM THE GROUND



NOTE: ARRAY DIMENSIONS WILL VARY BASED ON MODULE WIDTH AND LENGTH







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NEW MEXICO
18932
PROFESSIONAL ENGINEER

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PROJECT SPECS	
RAFTER SIZE:	2X4"
RAFTER SPACING:	24" O.C.
ROOF TYPE:	Membrane
ATTACHMENT SPACING:	N/A
RAILS / RACKING:	RMDT
MOUNTING:	EAST WEST BALLAST

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UTILITY:
El Paso Electric Co (NM)

DESIGNER:
Richard Velasquez

DATE:
22-12-22

PROJECT #:
P-245555-22

Financier:
Mosaic

JURISDICTION:
Mesilla

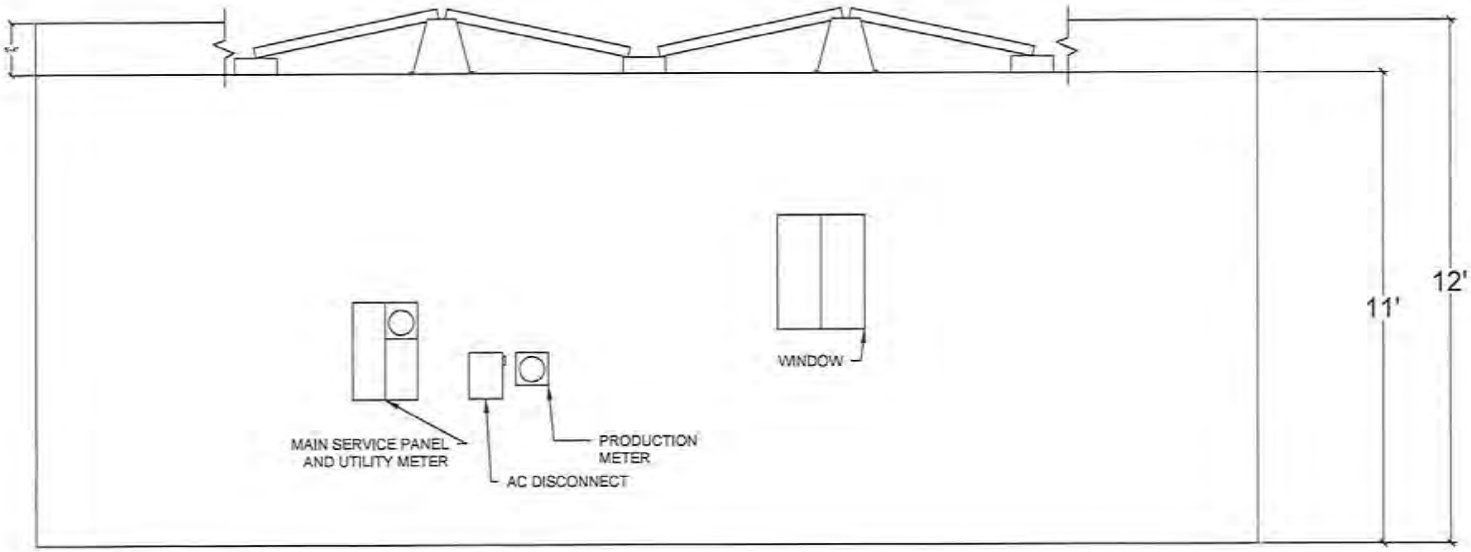
SYSTEM SIZE:
2.96 KW-DC
2 KW-AC

SHEET TITLE:
RACK & RAIL DIAGRAM

VERSION:
3.3.6

SHEET #:
PV06

SOLAR PANELS WILL NOT EXCEED 26' FROM THE GROUND



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DATE:

22-12-22

PROJECT #:

P-245555-22

Financier:

Mosaic

JURISDICTION:

Mesilla

SYSTEM SIZE:

2.96 KW-DC
2 KW-AC

SHEET TITLE:

ELEVATION

VERSION:

3.3.6

SHEET #:

PV07

ZXM6-NH120 Series

ZNSHINESOLAR

Znshinesolar 9BB HALF-CELL Black
Monocrystalline PERC PV Module

360W | 365W | 370W | 375W | 380W

Excellent Cell Efficiency

9BB technology decreases the distance between busbar and finger grid line which is benefit to power increase.

Better Weak Illumination Response

More power output in weak light condition, such as haze, cloudy, and early morning.

Anti PID

Ensured PID resistance through the quality control of cell manufacturing process and raw materials.

Adapt To Harsh Outdoor Environment

Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity environment.

TIER 1

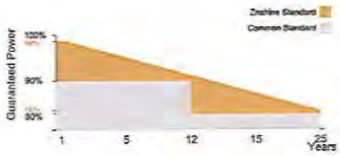
Global,Tier 1 bankable brand,with independently certified state-of-the-art automated manufacturing.

Excellent Quality Managerment System

Warranted reliability and stringent quality assurances well beyond certified requirements.

Improved Aesthetics

Compared to conventional modules,this full black modules have a more uniform appearance and superior aesthetics.



12 years product guarantee
25 years output guarantee

0.5% annual degradation
after the first year

IEC61215/IEC61730/IEC61701/IEC62716/UL61730
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO45001: Occupational Health and Safety Management System

Founded in 1988, ZNShine solar is a world's leading high-tech PV module manufacturer.With the state-of-the-art production lines, the company boasts module capacity of 6GW. Bloomberg has listed ZNShine as a global Tier 1 PV module maker. Today Znshine has distributed its sales to more than 60 countries around the globe.

www.znshinesolar.com

ELECTRICAL CHARACTERISTICS | STC*

Nominal Power Watt Pmax(W)*	360	365	370	375	380
Power Output Tolerance Pmax(%)	0~+3	0~+3	0~+3	0~+3	0~+3
Maximum Power Voltage Vmp(V)	33.80	34.00	34.20	34.40	34.60
Maximum Power Current Imp(A)	10.66	10.74	10.82	10.91	10.99
Open Circuit Voltage Voc(V)	40.60	40.80	41.00	41.20	41.40
Short Circuit Current Isc(A)	11.24	11.33	11.42	11.51	11.60
Module Efficiency (%)	19.76	20.04	20.31	20.59	20.86

*STC (Standard Test Condition): Irradiance 1000W/m², Module Temperature 25℃, AM 1.5
*Measuring tolerance: ± 3%

ELECTRICAL CHARACTERISTICS | NMOT*

Maximum Power Pmax(Wp)	268.50	272.10	275.80	279.80	283.50
Maximum Power Voltage Vmpp(V)	31.40	31.60	31.70	31.90	32.10
Maximum Power Current Impp(A)	8.55	8.62	8.69	8.76	8.83
Open Circuit Voltage Voc(V)	37.90	38.00	38.20	38.40	38.60
Short Circuit Current Isc(A)	9.08	9.15	9.22	9.29	9.37

*NMOT(Nominal module operating temperature) Irradiance 800W/m² Ambient Temperature 20℃ AM 1.5 Wind Speed 1m/s

MECHANICAL DATA

Solar cells	Mono PERC
Cells orientation	120 (6×20)
Module dimension	1755×1038×35 mm(With Frame)
Weight	20.5 kg
Glass	3.2mm, High Transmission, AR Coated Tempered Glass
Junction box	IP 68, 3 diodes
Cables	4 mm², 350 mm
Connectors	MC4-compatible

TEMPERATURE RATINGS

NMOT	44℃ ±2℃
Temperature coefficient of Pmax	-0.36%/℃
Temperature coefficient of Voc	-0.29%/℃
Temperature coefficient of Isc	0.05%/℃

WORKING CONDITIONS

Maximum system voltage	1500 V DC
Operating temperature	-40℃~+85℃
Maximum series fuse	20 A
Maximum load(snow/wind)	5400 Pa / 2400 Pa
Fire Performance	Type 1

*Do not connect Fuse in Combiner Box with two or more strings in parallel connection
*Typical Electrical data in this catalog do not refer to a single module and they are not part of the offer.They only serve for comparison among different module types.

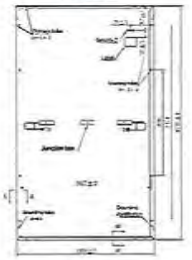
PACKAGING CONFIGURATION

Piece/Box	31
Piece/Container(40HQ)	806
Piece/Container(with additional pallets)	871

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

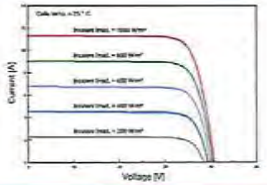
DIMENSIONS(MM)

Front View

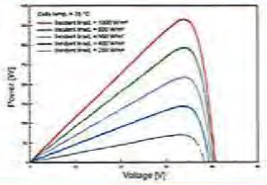


Back View

I-V CURVES OF PV MODULE(365W)



P-V CURVES OF PV MODULE(365W)



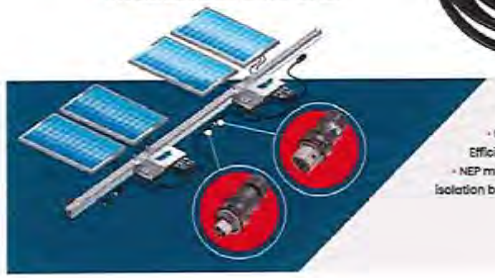
Add : 1#, Zhixi Industrial Zone, Jintanjiangsu 213251, P.R. China Tel: +86 519 6822 0233

NORTHERN ELECTRIC

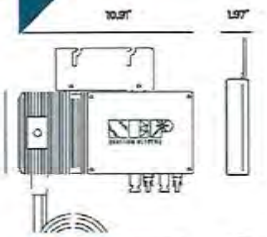
BDM-300X2 MICROINVERTER

Features

- Low cost $/watt micro inverter
- High peak output power up to 580Wac, recommended for dual max 385W solar panel
- High efficiency with 95.5% CEC
- Globally certified for UL1741, SAA, TUV, VDE-AR-N 4105, VDE 0126, G83/2, CEI 021, IEC61727, EN50438, ABNT NBR 6149/16150
- Integrated grounding for easy installation
- NEMA-6/IP-66/IP-67 enclosure rating
- Integrated monitoring and power line communication with RDG-256 gateway
- Can connect with BDM-300 and BDM-250



northernep.com



SAA 152157

Important product information

- NEP is committed to developing Clean, Affordable, Reliable and Efficient (CARE) products for our customers worldwide.
- NEP microinverters have an isolation transformer and basic isolation between the DC input and the AC output network.

NORTHERN ELECTRIC

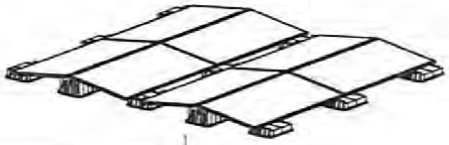
BDM-300X2 MICROINVERTER

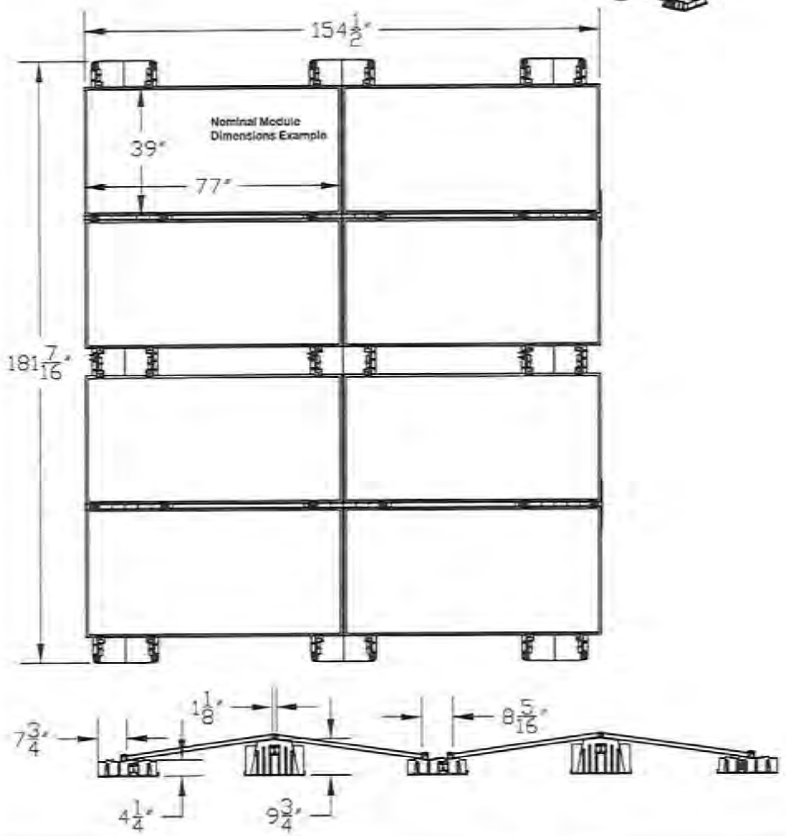
* Grid parameters are configurable through a BDG-256 or BDG-256P3 gateway
* All NEC required adjustment factors have been considered for AC outputs. AC current outputs will not exceed stated values for Rated Output AC Current

COMPLIANCE
*NEC 2020 Section 690.11 DC Arc-Fault Circuit Protection
*NEC 2020 Section 690.12 Rapid Shutdown of PV Systems on Buildings
*NEC 2020 Section 705.12 Point of Connection (AC Arc-Fault Protection)

INPUT(DC)	Recommended Max PV Power (Wp)	450 x 2		
	Max DC Open Circuit Voltage (Vdc)	60		
	Max DC Input Current (Adc)	14 x 2		
	MPPT Tracking Accuracy	>99.5%		
	MPPT Tracking Range (Vdc)	22-55		
	Isc PV (absolute maximum) (Adc)	18 x 2		
	Maximum Inverter Backfeed Current to the Array (Adc)	0		
OUTPUT (AC)	Peak AC Output Power (Wp)	580		
	Rated AC Output Power (Wp)	500		
	Nominal Power Grid Voltage (Vac)	240	208	230
	Allowable Power Grid Voltage (Vac)	211-264*	183-229*	configurable*
	Allowable Power Grid Frequency (Hz)	59.3 - 60.5*		configurable*
	THD	<3% (at rated power)		
	Power Factor (cos phi, fixed)	>0.99 (at rated power)		
	Rated Output Current (Aac)	2.09	2.40	2.17
	Current (Inrush) (Peak and Duration)	24A, 15us		
	Nominal Frequency (Hz)	60		50
	Maximum Output Fault Current (Aac)	2.4Arms for 3 cycles		
	Maximum Output Overcurrent Protection (Aac)	10		
	Maximum Number of Units Per Branch (20A) (All NEC adjustment factors have been considered)	7	8	8
SYSTEM EFFICIENCY	Weighted Averaged Efficiency (CEC)	95.50%		
	Night Time Tare Loss (Wp)	0.11		
PROTECTION FUNCTIONS	Over/Under Voltage Protection	Yes		
	Over/Under Frequency Protection	Yes		
	Anti-Islanding Protection	Yes		
	Over Current Protection	Yes		
	Reverse DC Polarity Protection	Yes		
	Overload Protection	Yes		
	Protection Degree	NEMA-6 / IP-66 / IP-67		
	Ambient Temperature	-40°F to +149°F (-40°C to +65°C)		
	Operating Temperature	-40°F to +185°F (-40°C to +85°C)		
	Display	LED LIGHT		
	Comunications	Power Line		
	Dimension (W-H-D)	10.91"x5.20"x1.97" (277x132x50 mm)		
	Weight	5.4 lbs. (2.9 kg)		
	Environment Category	Indoor and outdoor		
	Wet Location	Suitable		
	Pollution Degree	PD 3		
	Overvoltage Category	II(PV), III (AC MAINS)		
	Product Safety Compliance	UL 1741 CSA C22.2 No. 107.1	IEC/EN 62109-1 IEC/EN 62109-2	
	Grid Code Compliance* (Refer to the label for the detailed grid code compliance)	IEEE 1547	VDE-AR-N 4105* VDE V 0126-1-1(A) G83/2, CEI 021 AS 4777.2 & AS 4777.3 EN50438 ABNT NBR 16149/16150	

NOTE: ARRAY DIMENSIONS WILL VARY BASED ON MODULE WIDTH & LENGTH.





UNIRAC
1411 BROADWAY BLVD NE
ALBUQUERQUE, NM 87102
USA
WWW.UNIRAC.COM

PRODUCT LINE:	RMDT
DRAWING TYPE:	ASSEMBLY
DESCRIPTION:	2x4 LAYOUT
REVISION DATE:	October_2016

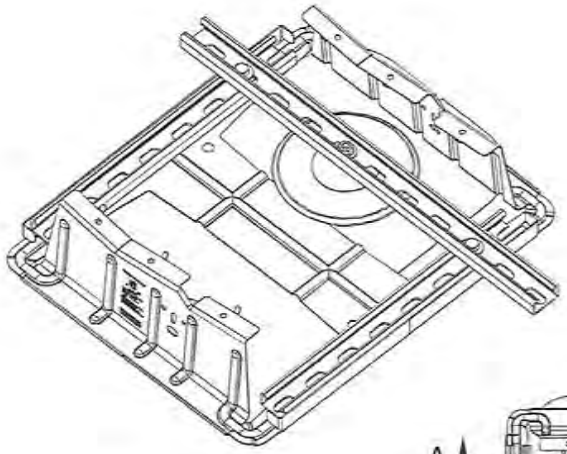
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

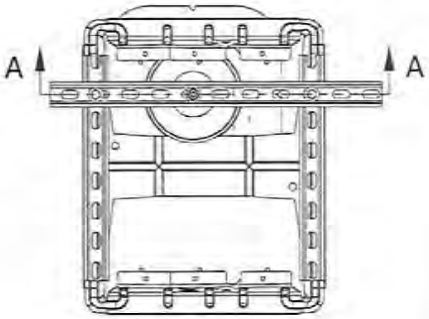
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

LEGAL NOTICE

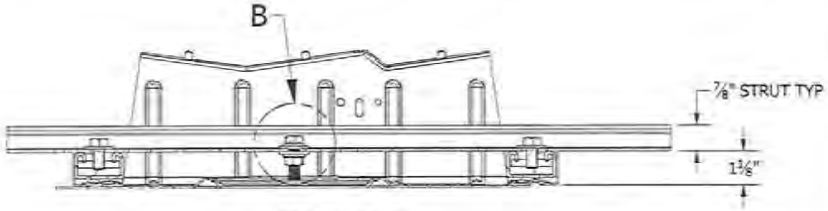
RMDT-A01

SHEET





DETAIL B



SECTION A-A

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	RMDT ROOFMOUNT
DRAWING TYPE:	ASSEMBLY
DESCRIPTION:	VALLEY BAY WITH H-ATTACHMENT
REVISION DATE:	5/12/2020

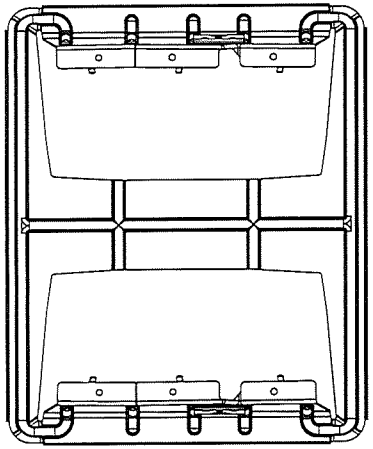
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

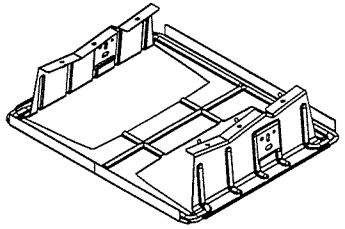
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

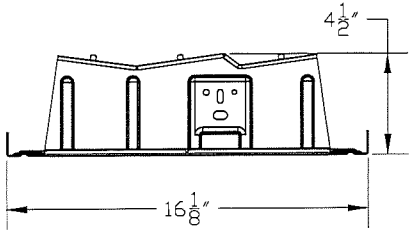
LEGAL NOTICE

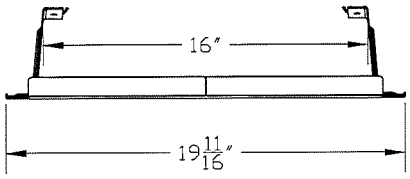
RMDT-A04

SHEET









UNIRAC	
1411 BROADWAY BLVD NE ALBUQUERQUE, NM 87102 USA	
WWW.UNIRAC.COM	

PRODUCT LINE:	RMDT
DRAWING TYPE:	PART
DESCRIPTION:	RMDT VALLEY BAY
REVISION DATE:	October_2016

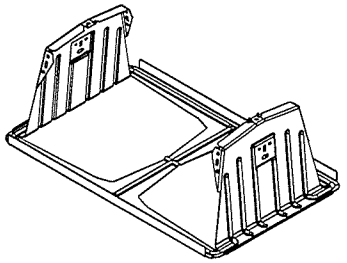
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

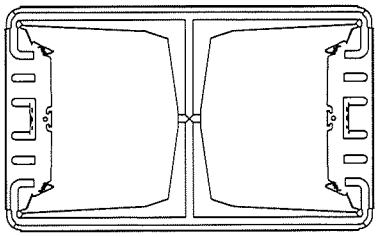
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

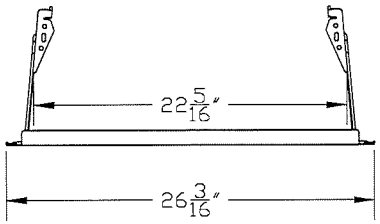
LEGAL NOTICE

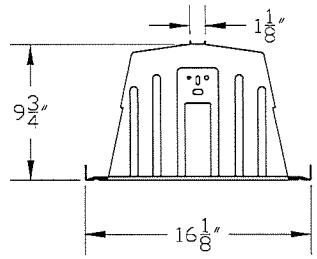
RMDT-P01

SHEET









UNIRAC	
1411 BROADWAY BLVD NE ALBUQUERQUE, NM 87102 USA	
WWW.UNIRAC.COM	

PRODUCT LINE:	RMDT
DRAWING TYPE:	PART
DESCRIPTION:	RMDT RIDGE BAY
REVISION DATE:	October_2016

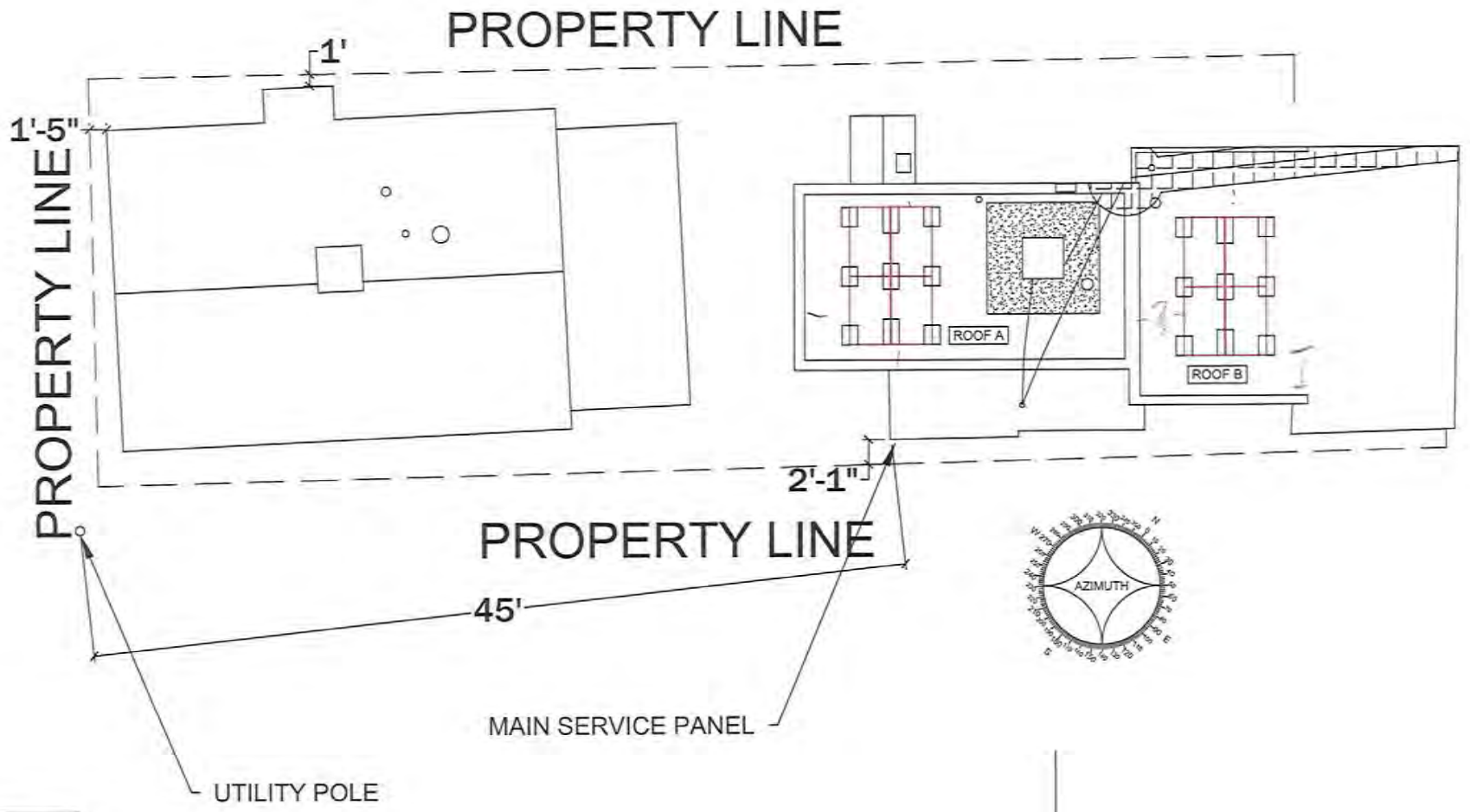
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS

LEGAL NOTICE

RMDT-P02

SHEET



STAMP!!

solcius

REGIONAL OFFICE:

SOLCIUS, LLC
1530 GOODYEAR DR, STE G EL PASO, TX 79936
(844) 357-2258

CUSTOMER:

Eddie Reagan P.O BOX 774 Mesilla NM 88046 (575) 635-6683

UTILITY:

El Paso Electric Co (NM)

DESIGNER:

Altna Energy

DATE:

8/3/2022

PROJECT #:

P-245555-22

Financier:

Mosaic

JURISDICTION:

Mesilla

SYSTEM SIZE:

2.96 KW-DC
2 KW-AC

SHEET TITLE:

PROPERTY PLAN

VERSION:

3.3.6

SHEET #:

PV08

RESIDENTIAL SOLAR INSTALLATION AGREEMENT

This Residential Solar Installation Agreement ("Agreement") is entered effective as of the later date this Agreement is executed by both Buyer and Seller ("Effective Date"). Solcius, LLC (referred to herein as Contractor) is hereby authorized by the undersigned owner(s) of the premises described below (referred to herein as Buyer) to furnish all necessary materials, labor and workmanship to install and construct the Solar System described below, and Buyer hereby agrees to buy the Solar System for the Contract Price described below.

Home Owner Name:	Renee Beltran2
Phone Number:	(575) 635-6683
Job Address:	2525 Calle De Parian A Mesilla, NM 88046

Date Buyer Signed this Agreement: 7/20/2022.

YOU ARE ENTITLED TO A COMPLETELY FILLED IN COPY OF THIS AGREEMENT, SIGNED BY BOTH YOU AND THE CONTRACTOR, BEFORE ANY WORK MAY BE STARTED.

Notice of Cancellation may be sent to Contractor at the following address:

Solcius, LLC
1555 North Freedom Boulevard
Provo, UT 84604
(800) 960-4150
NM Contractor's License No. 396621

Description of the Project and Description of the Significant Materials to be Used and Equipment to be Installed (Scope of Work). Your Solar System includes the installation of all modules/panels, inverters, and racking set forth in the Materials & Equipment List, referenced herein as Exhibit 1, along with all labor associated with property analysis and system design, system engineering, application for building permits and other city and state approvals, and connection to the power grid, all of which is included in the Contract Price described below.

Estimates of annual production levels, availability of tax rebates or credits, and energy offsets provided by Solcius or its dealers or representatives are estimates and may vary from actual results. Soiling, weather and module degradation and other factors will affect annual production. Refer to manufacturer's warranty(s) for warrantied system performance/production. Rebates and tax credits are estimated and may change. For a more detailed description of the basis for any estimates of savings provided to Buyer, please reference Exhibit 5.

BUYER INITIAL: DS **BUYER INITIAL:** _____

Contract Price:	$ 20,732.00
Down Payment:	$ .00

Schedule of Progress Payments: Buyer agrees to pay the entire Contract Price, according to the schedule of progress payments below. All progress payment amounts are due immediately upon completion of associated Milestone by Contractor.

BUYER INITIAL: DS **BUYER INITIAL:** _____

SCHEDULE OF PROGRESS PAYMENTS			
MILESTONE	**ASSOCIATED WORK/SERVICES**	**ASSOCIATED MATERIALS**	**PAYMENT AMOUNT**
Down Payment	Signing of Agreement	None	$ 0.00
System Installation	Installation of all materials and equipment, as provided for above in the Description of the Project and Description of the Significant Materials to be Used and Equipment to be Installed. (See Exhibit 1)	To be detailed on Materials & Equipment List.	$ 20,732.00 [Remaining Balance] • 80% of Remaining Balance due at the time of substantial completion of the installation • 20% of Remaining Balance due upon interconnection of system to utility grid.

Late-Payment Fee/Interest: Payment is due in accordance with the Schedule of Progress Milestones below. Payment is due with or without any invoice or writing from the Contractor. Buyer shall pay a late payment fee of $35.00 or 5% of the amount due, whichever is less, for each week that the balance owed remains unpaid as an ongoing late payment fee. In addition, interest at the rate of 10% per annum shall be due for any amounts due Contractor under this Agreement not paid within 30 days of the due date.

BUYER INITIAL: DS **BUYER INITIAL:** _____

Approximate Completion Date. If not cancelled, the work under this Agreement is estimated to be completed within two hundred and forty (240) days of the Effective Date of this Agreement, which shall be the "Approximate Completion Date." Contractor shall not be liable for any delay or nonperformance caused by an act of God, strikes, unavailability of materials, delays by municipalities, home owners associations or utility companies, or any other causes beyond its reasonable control. Buyer and Contractor agree that the Approximate Completion Date shall not be a definitive completion date and also that it shall not be time of the essence of this Agreement. Preliminary activities on the Project will generally start after the 3-day right to cancel has expired.

Note About Extra Work and Change Orders. Extra Work and Change Orders become part of this Agreement once a Change Order for such work is prepared in writing and signed by the parties prior to the commencement of work covered by the new change order. The Change Order must describe the scope of the extra work or change, the cost to be added or subtracted from the Contract Price, and the effect the order will have on the schedule of progress payments and the Approximate Completion Date.

Buyer may not require the Contractor to perform extra or change-order work without a new Change Order executed by both parties.

Expressed Limited Warranty: Subject to the limitations set forth herein, Contractor hereby gives Buyer an expressed limited 10-year warranty from the date of substantial completion of the installation of the system covering defective workmanship by the Contractor in connection with the installation work of Contractor concerning the Solar System. Separate manufacturer warranties will be provided concerning the components of the system. Buyer shall pursue any warranty claims or other claim, concerning system components with the appropriate manufacturer.

The foregoing expressed limited warranty does not warrant any specific electrical performance of the System, nor does it cover a Solar System defect for any other reason and does not extend past the 10-year limited warranty term. No other warranty is being provided by the Contractor. Any and all implied warranties are excluded.

Specific to roof penetrating System installations, Contractor provides a limited five (5) year warranty for damages to roof structure caused by Contractor during installation for areas within a (3) inch radius of any roof penetrations. The period for this limited warranty for roof damage is only to the extent of the remaining period of any existing warranties at the time of Solar System installation provided by the contractor(s) who installed or built the roof.

Contractor will not remedy, replace or pay for any work done on warranted labor or materials by any parties other than the Contractor. Warranty claims must be filed in writing within the applicable warranty period and can only be made by or on the behalf of the original property owner or person to whom title to the real estate where the system was installed has been transferred.

Further, this Warranty shall not apply to any defect, damage, malfunction, or degradation of the Solar System or the roof of the property arising from: (i) Buyer's or subsequent homeowner's failure to follow Contractor's oral or written instructions as to the storage, commissioning, use or maintenance of the Solar System; (ii) any repair, alteration, or replacement of the Solar System or a component thereof without the prior written approval of Contractor; (iii) the acts or omissions of any person other than Contractor; (iv) unknown defects at the property or residence where the installation occurred; (v) normal wear and tear, including expected degradation of electrical output and foreseen and unforeseen weather events (e.g. falling tree limbs or hail or snow damage); or (vi) a force majeure event (including direct and incidental weather damage).

In addition to Contractor's expressed limited warranty, manufacturer's warranties may be available from the manufacturers of solar modules (Up to 25 years) and inverters (Up to 25 years).

Additional Work: Contractor shall only be responsible for the design of solar power generation system and installation of related solar power generation equipment, as well as any necessary configuration of, improvement to and connection with the home's electrical systems (collectively, the "Contractor Work"). If the Buyer finances the Contractor's Work with a third-party financing company, and wishes to purchase additional products or services to be included in the financing package, (such as a new roof, roof repairs, etc.) ("Additional Work"), then solely as a courtesy to Buyer, such Additional Work may by Change Order be added to this Agreement as follows: (1)

such Additional Work must be work or services for which Contractor has the appropriate New Mexico license; (2) Buyer must approve the subcontractor who will perform the Additional Work who must have the appropriate license for such Additional Work; (3) Buyer will look solely to such subcontractor (and not Contractor) for any warranties or other claims with respect to such Additional Work and shall work directly with the subcontractor on any complaints of poor workmanship, etc.; (4) Buyer will sign off on satisfactory completion of the Additional Work; and (5) Buyer will work with Contractor and subcontractor on coordinating scheduling of the Additional Work.

Site Access: Buyer grants Contractor, and any subcontractors, full permission to enter the project site during the duration of the Solar System installation, and to use reasonable work areas at the site in order to complete the installation. Buyer also grants Contractor permission to access the site after the completion for the purposes of repair, inspection, monitoring, or update of the Solar System.

Existing Conditions: Contractor is not responsible and bears no liability for the malfunctioning of existing electrical equipment at the site, including but not limited to the main electrical service panel, any major electrical devices, or any other fuses or similar devices.

Unforeseen Conditions: Contractor is not responsible for delays or expenses related to unanticipated, unusual, or unforeseen conditions at the site, including but not limited to inclement weather, roof condition and structure, subsurface conditions, underground or aboveground water, gas or severed pipes, electrical or cable lines or transformers, or any other physical or material hindrance to the installation of the Solar System. If the Contractor discovers unforeseen conditions requiring additional cost, Contractor shall present such costs to Buyer through a change order and receive Buyer's written approval before beginning or continuing installation.

Title and Risk of Loss: Upon delivery of any parts of the Solar System to Buyer's property, including PV modules, rails, disconnects, combiner boxes, inverters or any other part of the Solar System, title to such parts shall transfer to the Buyer, and the Buyer shall bear any risk of loss or damage to such parts from any type of physical harm, theft, or any other damage not directly resulting from the actions of the Contractor.

Security Interest; UCC-1 Financing Statement: Buyer hereby grants Contractor a security interest in the Solar System to secure Buyer's obligations hereunder, including but not limited to Buyer's payment obligations. Buyer understands and agrees that Contractor shall be entitled to take all actions to protect and perfect its security interest in the Solar System including but not limited to the filing of UCC-1 financing statements for fixture filings. Contractor shall release its security interest in the Solar System, including the filing of a UCC-3 termination statement if applicable, upon fulfillment of all Buyer's obligations, including Buyer's payment obligations.

Termination and Default: Contractor may terminate this Agreement for any breach of this Agreement, by Buyer, including the failure of the Buyer to timely pay the Contractor any amount

due, for bankruptcy or financial distress of Buyer, or for any hindrance to Contractor in the installation process. If Buyer attempts to cancel this Agreement after the cancellation described in Exhibit 2 and more than five (5) business days after Contractor emails Buyer final design of the Solar System (the "Final Design Acceptance Date"), Contractor will suffer harm that is difficult or impossible to estimate. Therefore, in the event of any default or cancellation by Buyer after the Final Design Acceptance Date, but before installation, Buyer shall pay Contractor a cancellation fee of 15% of the Contract Price. Buyer and Contractor agree that this amount is a reasonable forecast of the damages Contractor will suffer as a result of Buyer's breach. Contractor shall have the right to offset any such amounts against the down payment in addition to any and all other remedies available. Buyer cannot cancel this Agreement after installation has commenced.

BUYER INITIAL:  **BUYER INITIAL:** _____

Privacy/Publicity: Buyer grants Contractor the full rights and permission to publicly use, display, share, and advertise the photographic images, Solar System details, price and any other non-personally identifying information of the Solar System. Contractor shall not knowingly release any personal data about Buyer or, besides the above, any data associating Buyer with the property on which the Solar System is installed. The Buyer shall have the right to opt-out of these publicity rights by communicating such wishes with the Contractor in writing prior to project completion.

Contractor's Right to Stop Work: If any dispute shall arise between Contractor and Buyer regarding performance of the Work, or payment of any amount due, then upon giving 5 days written notice to Buyer, Contractor may stop work until payment is timely received.

ARBITRATION OF DISPUTES: If any dispute, controversy, or claim arising out of, relating to, or in connection with this Agreement should arise it is agreed that Contractor and Buyer shall meet first to review and negotiate in a peaceful manner all disputes per terms and conditions of this Agreement and any approved change orders. If the parties cannot resolve their dispute informally within 15 days of onset of the dispute, either party may initiate arbitration proceedings and the dispute shall be determined by binding arbitration administered pursuant to the American Arbitration Association's Construction Industry Arbitration Rules, including any streamlined Rules and Procedures as determined pursuant to those rules according to the amount in controversy. The parties agree to arbitrate solely on an individual basis, and that this agreement does not permit class arbitration. The determination by the arbitrator(s) shall be final and binding on the Contractor and the Buyer. Judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

NOTICE: BY INITIALING IN THE SPACE BELOW YOU ARE AGREEING TO HAVE ANY DISPUTE ARISING OUT OF THE MATTERS INCLUDED IN THE 'ARBITRATION OF DISPUTES' PROVISION DECIDED BY NEUTRAL ARBITRATION YOU ARE GIVING UP ANY RIGHTS YOU MIGHT POSSESS TO HAVE THE DISPUTE LITIGATED IN A COURT OR JURY TRIAL. BY INITIALING IN THE SPACE BELOW YOU ARE GIVING UP YOUR JUDICIAL RIGHTS TO DISCOVERY AND APPEAL, UNLESS THOSE RIGHTS ARE SPECIFICALLY INCLUDED IN THE 'ARBITRATION OF DISPUTES' PROVISION. IF YOU REFUSE TO SUBMIT TO ARBITRATION AFTER AGREEING TO THIS PROVISION, YOU MAY BE COMPELLED TO ARBITRATE UNDER APPLICABLE LAWS. YOUR

AGREEMENT TO THIS ARBITRATION PROVISION IS VOLUNTARY." "WE HAVE READ AND UNDERSTAND THE FOREGOING AND AGREE TO SUBMIT DISPUTES ARISING OUT OF THE MATTERS INCLUDED IN THE 'ARBITRATION OF DISPUTES' PROVISION TO NEUTRAL ARBITRATION.

BUYER INITIAL: [initials] **BUYER INITIAL:** ____ **CONTRACTOR'S INITIALS:** A.P.

Commercial General Liability Insurance (CGL): This Contractor carries commercial general liability insurance written by Colony Insurance Company. You may call Orion Risk Management Insurance Services, an Alora Group Insurance Agency, LLC at 949-263-8850 to check the Contractor's insurance coverage.

Workers' Compensation Insurance: This Contractor carries workers' compensation insurance for all employees of Contractor.

Governing Law/Venue for Litigation or Arbitration. This Agreement shall be governed by New Mexico law. Venue for any arbitration or litigation shall be in the County where the project is located.

Entire Agreement: This Agreement contains the entire understanding of the Contractor and the Buyer with respect to the subject matter hereof, and supersedes all prior and contemporaneous written or oral understandings, agreements, representations, and warranties with respect to such subject matter.

Severability: If any provision of this Agreement becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, portions of such provision, or such provision in its entirety, to the extent necessary, shall be severed from this Agreement. The balance of this Agreement shall continue to be enforceable in accordance with its terms.

Notice to Contractor/Buyer: Notice to Contractor or Buyer shall be sent by mail or delivered to:

Contractor:

Solcius LLC Attn:	Legal
Address:	1555 North Freedom Boulevard, Provo, UT 84604
Fax:	(801) 396-2839
E-mail:	legal@solcius.com
Phone:	(800) 960-4150

Buyer:

Name:	Renee Beltran2
Property Address:	2525 Calle De Parian A Mesilla, NM 88046
Fax:	
E-mail:	reneebeltran94@gmail.com
Phone:	(575) 635-6683

NM Gross Receipts Tax Deduction for Energy Conservation Equipment. Exhibit 4 to this Agreement contains a written statement regarding the gross receipts deduction for energy conservation equipment, specific to solar energy systems (NM Stat Ann Sec. 7-9-12; NM Stat Ann Sec. 7-9-45).

THE LAW REQUIRES THAT THE CONTRACTOR GIVE YOU A NOTICE EXPLAINING YOUR RIGHT TO CANCEL. INITIAL THE CHECKBOX IF THE CONTRACTOR HAS GIVEN YOU A "NOTICE OF THE THREE-DAY RIGHT TO CANCEL."

BUYER INITIAL: DS **BUYER INITIAL:** _____

If you elect to Cancel this Agreement, and fail to promptly return or make available to Contractor any goods, equipment, etc. Contractor provided, then Buyer is liable for the cost and value thereof plus any expenses or legal costs Contractor incurs to collect on such matters.

CONTRACTOR: Ayleen Pedregon DocuSigned by: **Date:** 7/20/2022

BUYER: Renee Beltran2 D7C1BB4B118246A... **Date:** 7/20/2022

BUYER: _____ **Date:** _____

Exhibit 1

Materials & Equipment List

Module Count:	8
Module Description:	Monocrystalline, Black frame, Black Back Sheet
Inverter:	NEP Microinverter or an Inverter System with Module-Level Electronics

Exhibit 2

Three-Day Right to Cancel

You, the Buyer, have the right to cancel this Agreement within three business days. You may cancel by e-mailing, mailing, faxing, or delivering a written notice to the Contractor at the Contractor's place of business by midnight of the third business day after you received a signed and dated copy of the Agreement that includes this notice. Include your name, your address, and the date you received the signed copy of the Agreement and this notice.

If you cancel, the Contractor must return to you anything you paid within 10 days of receiving the notice of cancellation. For your part, you must make available to the Contractor at your residence, in substantially as good condition as you received them, goods delivered to you under this Agreement or sale. Or, you may, if you wish, comply with the Contractor's instructions on how to return the goods at the Contractor's expense and risk. If you do make the goods available to the Contractor and the Contractor does not pick them up within 20 days of the date of your notice of cancellation, you may keep them without any further obligation.

Buyer's Acknowledgment: By Buyer's signature below, Buyer acknowledges receipt of this notice of Three-Day Right to Cancel.

Date: 7/20/2022 **Buyer:** DocuSigned by: D7C1BB4B118246A...

This notice is accompanied by a completed form in duplicate, captioned "Notice of Cancellation," which is attached to this Agreement as Exhibit 3.

Exhibit 3

NOTICE OF CANCELLATION
Three-Day Notice of Cancellation

7/20/2022
Date of Agreement

1. You may cancel this transaction, without any penalty or obligation, within three business days from the above date.
2. If you cancel, any property traded in, any payments made by you under the contract or sale, and any negotiable instrument executed by you will be returned within 10 days following receipt by the seller of your cancellation notice, and any security interest arising out of the transaction will be canceled.
3. If you cancel, you must make available to the seller at your residence, in substantially as good condition as when received, any goods delivered to you under this contract or sale, or you may, if you wish, comply with the instructions of the seller regarding the return shipment of the goods at the seller's expense and risk.
4. If you do make the goods available to the seller and the seller does not pick them up within 20 days of the date of your notice of cancellation, you may retain or dispose of the goods without any further obligation. If you fail to make the goods available to the seller, or if you agree to return the goods to the seller and fail to do so, then you remain liable for performance of all obligations under the contract."
5. To cancel this transaction, mail or deliver a signed and dated copy of this cancellation notice, or any other written notice, or send a telegram to, Solcius, LLC at 1555 North Freedom Boulevard, Provo, UT 84604, (Fax: (801) 396-2839; E-mail: customerservice@solcius.com) not later than midnight of 7/23/2022 [date three business days from the above date].

I hereby cancel this transaction.

Date

Buyer's Signature

Exhibit 4

NM GROSS RECEIPTS TAX: ENERGY CONSERVATION EQUIPMENT DEDUCTION

Customer Written Statement & Acknowledgement

I HEREBY CONFIRM THAT THE SERVICE AND EQUIPMENT COVERED BY THIS AGREEMENT

1. **WILL BE USED AS A QUALIFIED SOLAR ENERGY SYSTEM;**
2. **ARE ESSENTIAL MACHINES, MECHANISMS, OR COMPONENTS OR FITTINGS, USED DIRECTLY AND EXCLUSIVELY IN THE INSTALLATION OR OPERATION OF THE SOLAR ENERGY SYSTEM; AND**
3. **CAN BE INCLUDED IN THE BASIS OF THE QUALIFIED SOLAR ENERGY SYSTEM**

BUYER: DocuSigned by: D7C1BB4B118246A... **BUYER:** _____

The above Statement & Acknowledgement is intended to meet the requirements of NMAC 3.2.247.8, allowing receipts from the sale and installation of Customer's solar energy system to be deducted from Contractor's gross receipts when calculating its NM Gross Receipts Tax. (NM Stat Ann Sec. 7-9-112) For purposes of the deduction, "solar energy system" means an installation that is used to provide space heat, hot water, or electricity to the property in which it is installed and is:

1. an installation that utilizes solar panels that are not also windows, including the solar panels and all equipment necessary for the installation and operation of the solar panels;
2. a dark-colored water tank exposed to sunlight, including all equipment necessary for the installation and operation of the water tank as a part of the overall water system of the property; **or**
3. a non-vented trombe wall, including all equipment necessary for the installation and operation of the trombe wall.

"Solar energy system" includes components or systems for collecting and storing energy, but does not include components or systems related to the use of energy. (3.2.247.7, NMAC).

Exhibit 5

1. **Description of the Basis for any Estimates of Savings Provided to Buyer:** Any forecasts of savings, financial benefits, or system production provided to Buyer by Contractor or its dealers or representatives ("Estimated Savings") are estimates only and may vary from actual results. Estimated Savings are not guaranteed. The general basis for Estimated Savings is provided below. Additional descriptions of the basis for Estimated Savings may be found in the proposal(s) provided to Buyer ("Proposal").

   1.1. **Estimated Payments to Utility Without the Solar System:** Future estimates of Buyer's utility costs without the Solar System are based on historical electrical usage information provided by Buyer, current utility rates, and potential average annual utility rate increases. Future electrical usage by Buyer may be different than historical usage. Future utility rates and charges may change and cannot be accurately projected. For further information regarding rates, you may contact your local utility or the New Mexico Public Regulation Commission. Estimated Savings are presented in Proposal based on a range of potential annual utility price increases. Actual utility rates could go up or down and could fall outside of the presented range.

   1.2. **Estimated Payments to Utility With the Solar System:** Future estimates of Buyer's utility costs with the Solar System are based on historical electrical usage information provided by Buyer, forecasted electrical production from the Solar System, current utility rates, and potential average annual utility rate increases. The basis of estimates for forecasted electrical production by the Solar System is described below. Future electrical usage by Buyer may be different than historical usage. Future utility rates and charges may change and cannot be accurately projected. Estimated Savings are presented in Proposal based on a range of potential annual utility price increases. Actual utility rates could go up or down and could fall outside of the presented range. The future estimates of Buyer's utility costs with solar is an estimate and does not represent a binding agreement or obligation.

   1.3. **Solar System Payments:** Solar payments presented in Proposal represent anticipated total payments made by Buyer associated with the purchase of the Solar System. If the purchase of the Solar System includes financing arrangements through a third-party financing provider, the quoted financing terms are subject to credit approval by the financing provider and represent a preliminary estimate, and not an approval of financing terms or an offer of credit. The Estimated Savings assume that Potential Incentives (defined below) will be applied toward the purchase price of the Solar System and will be used in full to pay down any loan. If the full amount of Potential Incentives is not received or is not used to pay down the loan, the remaining solar payments will be higher than those used to calculate and will negatively affect the Estimated Savings. The solar payments presented in Proposal is an estimate and does not represent a binding agreement or obligation.

   1.4. **Solar System Incentives:** The Proposal presents the value of potential tax credits, utility rebates, SREC credits, and other potential credits that may be available to Buyer, if any ("Potential Incentives"). However, Contractor does not offer tax or legal advice.

Contractor does not guarantee that Buyer will be able to benefit from any Potential Incentives, as many Potential Incentives are subject to sufficient taxable income, or other qualifying factors. Additionally, Potential Incentives are subject to change or termination by the state or federal government or other third-party entities. Buyer is advised to consult with their tax and/or legal professional(s) to determine the amount of the Potential Incentives that will be available to Buyer.

1.5. **Forecasted Electrical Production by Solar System:** Forecasted electrical production data provided in Proposal was generated based on the forecasting tools of PVWatts, a service of the National Renewable Energy Laboratory (NREL) of the U.S. Department of Energy (www.pvwats.nrel.gov).

Soiling, weather, module degradation, and other factors will affect annual production. Refer to manufacturer's warranty(s) for warrantied system performance/production. The forecasted production data provided is an estimate and does not represent a binding agreement or obligation. Solar System production estimates assume the annual degradation listed above. Buyer is responsible for the ongoing operations and maintenance of the Solar System, which is not included in the purchase of the Solar System. Buyer is solely responsible for any operating and maintenance costs associated with the Solar System.

BUYER INITIAL: DS **BUYER INITIAL:** _____

1555 Freedom Blvd
Provo, UT 84604
Phone: 844.357.2258
Email: solarpermits@solcius.com

Structural Analysis Report

Solar Panel Addition for:
Beltran (Project 2) Residence

2525 Calle De Parian A
Mesilla, NM

I have examined the existing Stick / Conventional framing with 2 x 6 rafters @ 24 inches on center spanning 15 feet that support the roof of this structure. I have performed structural calculations finding the framing to be adequate for gravity and uplift loads applied to the roof by the solar panels, including snow loads applied as point loads to the roof framing, where applicable. The attachments and railing are also adequate without reinforcement for the loads imposed when installed with the attachment spacing shown in the drawings. We recommend the attachments be staggered as shown in the drawings to avoid overloading the rafters.

Solcius Job # P-245555-22
Prepared by Arlo Hulick
September 15, 2022

Digitally sealed by
Arlo Hulick, P.E. on
09/15/2022

Table of Contents

The following reference sheets are attached and inserted behind construction plans.

- Solar Panel Characteristics
- Mounting System Specifications

Drawings

General Notes

1) These structural calculations are not intended to be applicable for non-structural items including, but not limited to, electrical, waterproofing, or drainage.

2) All construction methods and materials shall comply with the building code listed in the design criteria.

Project Data

Project Location Mesilla, NM

Design Criteria:

Building code:	2015 NMRBC & 2015 NMEBC		
Design Specifications:	ASCE 7-10, NDS 2015, AISC 2010		
Roof snow load on solar panel	8.9	psf	See snow load calcs supplement
Roof snow without solar panel	8.9	psf	
Risk category	II		
Basic wind speed V	115	mph	
Wind exposure	C		
Roof angle θ	0.1	deg.	
Roof zone	2		
Interior component GC_{pi}	+/- 0.18		

Seismic design criteria: Lateral analysis is based on percentage of weight added to main force resisting system and is independent of seismic force parameters. Per IEBC §1103.3 existing design does not require retrofitting if added weight is less than 10% of original weight.

Existing residence

Roof area	1000.0	sf	Eave to ridge distance	24	ft
Roof rise	0.0	:12	Ridge height	12.0	ft
Eave height	12	ft	Mean roof height h_r	12.0	ft

Roof structure: Stick / Conventional
Roof material: Membrane

Proposed PV system

Solar panels: ZNShine ZXM6-NH120-370/M
Solar panel rail system: None (rail-less system)
Mounting System: Unirac Ballast System
Attachment screws: Ballast system design per mfr.

Dead Loads

PV Ballast System

Max Bay dead load per mfr	97.0 lbs	
Additional ballast wt	112.9 lbs	
Conductor wt	0.0 lbs	Included in ballast bay dead load
Total weight	209.9 lbs	
Bay Width	60 in.	
Length	69.09 in.	
Ballast bay area	28.8 sf	
Max ballast bay dead load	**7.29 psf**	

Roof	Type	wt	
Covering	Membrane	1.5 psf	
Sheathing	7/16" OSB (See Note)	1.8 psf	assumes weight of heavier
Roof framing		1.0 psf	plywood for purposes of
Roof load		**4.3 psf**	checking the framing
Ceiling Joists		0.0 psf	
Mechanical, Insulation		0.0 psf	
Ceiling	5/8"gypsum	2.8 psf	
Ceiling load		**2.8 psf**	
Total roof and ceiling load		**7.1 psf**	

Floor	Type	wt
Covering	Carpet & pad	2.0 psf
Underlayment	3/4" Plywood	2.5 psf
Framing		10.0 psf
Mechanical / Electrical		2.0 psf
Ceiling	5/8" gypsum	2.8 psf
Other		0.7 psf
Floor dead load		**20.0 psf**

Walls	Type	wt
Covering	Stucco	10.0 psf
Sheathing	3/8" plywood	3.0 psf
Insulation		1.0 psf
Framing	per 1' of rafter	1.4 psf
Interior surface	5/8" gypsum	3.0 psf
Wall dead load		**18.4 psf**

Live Loads

Balanced roof snow load S	8.9 psf	See snow load calculations
Roof live load L_r	20.0 psf	C_d = 1.25
Governing load	20.0 psf	Live load governs, based on max (load/Cd)
Snow load on panel	8.9 psf	See snow load calculations

Gravity Load Increase

Rafters

Rafter length	24 ft.	
Rafter spacing	24 in. on center	
Roof area trib to rafter	48.0 sf	
Original roof load	206 lbs	Dead load only
Panel trib width to rafter	36 in.	
# Panels on rafter (portrait)	2	
# Panels on rafter (landscape)	0	
Panel area trib to rafter	34.5 sf	
Added weight	252 lbs	
% Load increase	122.0%	

FURTHER ANALYSIS REQUIRED (see page 8) IEBC §1103.2

Lateral Force Increase

Roof trib area to MFRS	500 sf	Interior wall trib to MFRS	0 sf
Floor trib area to MFRS	0 sf	Interior wall weight	8 psf
Wall trib area to MFRS	289 sf	Interior wall wt to MFRS	0.0 kips
Roof wt tributary to MFRS	3.6 kips		
Floor wt tributary to MFRS	0.0 kips		
Wall wt tributary to MFRS	5.3 kips		
Original wt to MFRS	8.9 kips		
# PV panels trib to MFRS	8.00 panels		
PV system weight	0.5 kips	Added load adjusted by 0.30 coefficient of friction	
% weight increase	5.7%		

Lateral force increase <10%, existing MFRS is O.K. IEBC §1103.3

Solar Panel Support Frame

Maximum span length	72 in	Rail-less system, Exp. C, 115 mph, zone 2, 08.9 psf
Rail span	72 in	snow

Attachment spacing is O.K.

The mounting system is adequate for the proposed fastener spacing.

Wind uplift on Mounting System

Governing Load Case:	0.6D + 0.6W (ASD Load Case 7, ASCE 7-10 §2.4.1)	
Attachment spacing S_{attach}	72 in.	
Attachment spacing S_{perp}	33 in.	
Mounting point trib area A_{trib}	16.5 sf	$A_{trib} = S_{attach} S_{perp}$
Pressure at h =30' (Pnet30)	-2.2 psf	ASCE 7-10, Figure 30.5-1
Array edge factor γ_E	1.0	N/A, used only in ASCE 7-16
Pressure equal. factor γ_a	1.0	N/A, used only in ASCE 7-16
Velocty Pressure Coeff. (q_h)	1.0	N/A, used only in ASCE 7-16
Array trib area	69.7 sf	= module area * # modules in array
Mean roof height h_r	12.0 ft	
Bldg ht adjust factor λ	1.21	ASCE 7-10, Figure 30.5-1
Topographic factor K_{zt}	1.0	ASCE 7-10, Figure 26.8-1
Adjusted pressure (Pnet)	**0.0 psf**	ASCE 7-10, Eqn. 30.5-1
Dead load	7.3 psf	
Wind load	0.0 psf	
Net Uplift (0.6D + 0.6W)	0.0 psf (upward)	
Uplift on attachment P_{uplift}	**0 lbs**	P_{uplift} = Net Uplift A_{trib}
Attachment screws used:	**Use Ballast system design per mfr.**	
Min. embedment depth	0.00 inches	
Pull-out capacity per inch	0 lbs	
Tensile capacity	**0 lbs**	

Ballast system used, see mfr design

Existing Rafter Analysis

Beam properties, size, spacing and span

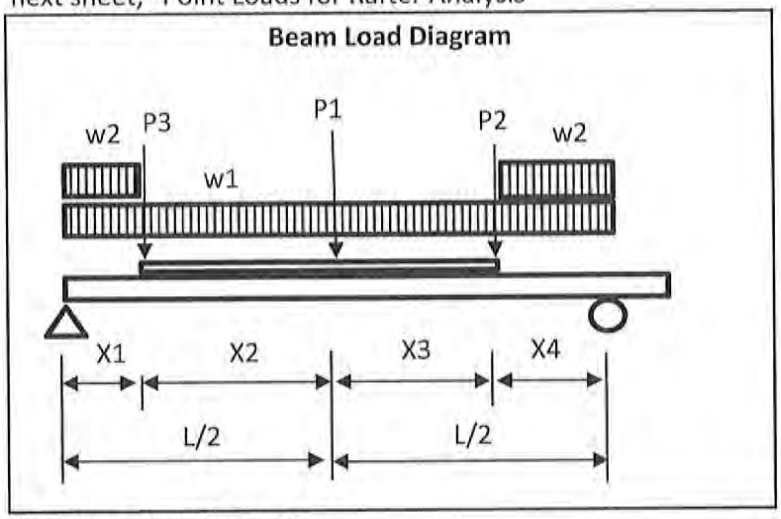
Douglas fir-larch #1 & BTR assumed

Rafter span L	15.00	feet
Rafter spacing	24	inches
Rafter size	2 x 6	
Section modulus	7.56	in^3
Allowable stress F_b	1200	psi
Size factor C_F	1.30	
Repetitive use factor C_r	1.15	

C_d shown for individual load cases below

All other adjustment factors = 1

Additional point loads may be considered - see next sheet, "Point Loads for Rafter Analysis"



Loads on roof and solar panels

Roof dead load	4.3	psf
Panel dead load	7.29	psf
Roof live load	20.0	psf
Wind uplift	-46.5	psf
Wind downforce	16.0	psf
Snow load on panels	8.9	psf
Snow load on roof, no panels	8.9	psf

Assumes slippery panels

Assumes non-slippery roof (except metal roofs)

Loads prior to installation:	**w (plf)**	**Cd**	**w/C_d**
D + Lr	48.6	1.25	38.9
0.6 D + 0.6 W up	-50.6	1.60	-31.7
D + 0.6 W dn	27.8	1.60	17.4
D + S	26.3	1.15	22.9
D + Lr	**48.6**	**1.25**	**38.9**

Point loads from solar not applied prior to install

Governing load case is determined by max w/C_d

Total load before install:	729	lbs	=wL
Rafter end conditions	Continuous at one end		
Moment at center span	1094	ft lbs	= wL^2 / 10

Check member for adequacy prior to install:

Stress (=(M/S)*12"/ft):	1735	psi	**O.K.**
Adjusted allowable stress F'b	2243	psi	= Fb * adjustment factors given above

Loads after install

Point loads applied from solar panels - where the point load is outside the span, load = 0

Points listed as "staggered" are on a different rafter, and therefore have no load applied

Point load	load location on rafter span (ft)	trib (sf)	D + Lr	0.6 D + 0.6 W up	D + 0.6 W	D + S	Moment (ft lbs)
1	7.5	16.5	120.3	-388.2	278.7	266.3	-2911.4
Staggered	10.7	0.0	0.0	0.0	0.0	0.0	0.0
3	2.0	16.5	120.3	-388.2	278.7	266.3	-776.4
Staggered	5.2	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	
Staggered	0.0	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	0.0	0.0	0.0	
Staggered	0.0	0.0	0.0	0.0	0.0	0.0	
9	0.0	0.0	0.0	0.0	0.0	0.0	
Staggered	0.0	0.0	0.0	0.0	0.0	0.0	
11	0.0	0.0	0.0	0.0	0.0	0.0	
Staggered	0.0	0.0	0.0	0.0	0.0	0.0	
13	0.0	0.0	0.0	0.0	0.0	0.0	
Staggered	0.0	0.0	0.0	0.0	0.0	0.0	
15	0.0	0.0	0.0	0.0	0.0	0.0	
Staggered	0.0	0.0	0.0	0.0	0.0	0.0	
Distributed loads on rafter span where not covered by solar panels							
w1	0.4	1.7	40.5	-42.2	23.2	21.9	-17.6
w2	13.4	6.3	153.9	-160.4	88.0	83.3	-2151.5
Roof dead load	7.5	0.0	0.0	0.0	0.0	0.0	0.0
Governing load case	5 D + 0.6 W up						
Total load (lbs)	-979		435	-979	669	638	-5857
Cd	1.60		1.25	1.60	1.60	1.15	
Load/Cd	612		348	612	418	555	

Reaction on right	-390	lbs	= moment / rafter span
Reaction on left	-588	lbs	= total load - reaction on left
Max moment	-1980	ft lbs	= reaction on left * span/2 - sum (moments from point loads left of center)
Reduced moment	-1650	ft lbs	Applies reduction in moment due to continuity.
Stress (=M/S/12"/ft):	2617	psi	**O.K.**
Adjusted allowable stress F'_b	2870	psi	$=F_b$ * adjustment factors above.

Roof Snow Load Calculations

Ground Snow Load P_g	5.0 psf	
Thermal factor C_t	1.1	
Flat Roof Snow Load $P_f = 0.7\ P_g\ C_e\ C_t\ I_s$	3.9 psf	
$P_s = C_s\ P_f$		
Solar panels are assumed cold and slippery:		
C_s (slippery) =	1.00	ASCE 7-10 fig. 7.2b
P_s (solar panels, slippery) =	3.9 psf	$P_s = C_s\ P_f$
Non-metal roof without solar panels is assumed NOT slippery:		
Cs (not slippery) =	1.00	ASCE 7-10 fig. 7.2b
Ps (roof, not slippery) =	3.9 psf	$P_s = C_s\ P_f$

Unbalanced snow load

Pitch:	0:12	
Is pitch < 1/2:12 or > 7:12?	Yes	Unbal. snow load not applied per ASCE 7-10 7.6.1
W (horizontal projection of eave to ridge)	24.0 ft	
Is rafter simply supported?	No	
Snow density γ	14.7 pcf	ASCE 7-10, Eqn. 7.7-1
Unbal. drift ht h_d	0.0 ft	ASCE 7-10 fig. 7-9
Unbalanced drift surcharge	0.0 psf	ASCE 7-10 7.6.1
Length of drift surcharge	0.0 ft	ASCE 7-10 7.6.1
Solar array distance from ridge	3.0 ft	
Unbalanced snow load on rafters	0.0 psf	Unbalanced snow = balanced snow (due to pitch)
Unbalanced snow load on solar panels	0.0 psf	Unbalanced snow = balanced snow (due to pitch)

Drifting/sliding snow on low roof

Balanced snow height h_b	0.3 ft	= balanced snow load / density
Clear ht from bal. snow to high roof h_c	0.0 ft	
Upper roof length l_u		
Lower roof width w_{lower}		
Lower roof drift height h_d	0.0 ft	
Lower roof drift max surcharge p_d	0.0 psf	
Lower roof drift length	0.0 ft	
Solar array distance from upper roof	0.0 ft	
Lower roof drift surcharge $P_{low\ drift}$	0.0 psf	not combined with sliding or rain surcharges
Sliding snow surcharge $P_{sliding}$	0.0 psf	combined with balanced snow only (ASCE 7-10 7.9)
Rain on snow surcharge P_{rain}	5.0 psf	combined with balanced snow only (ASCE 7-10 7.10)

Snow loads used for design, considering unbalanced and/or drifting/sliding snow as needed:

P_s design (solar panels)	8.9 psf
P_s design (roof without solar panels)	8.9 psf

UNIRAC

U-BUILDER PROJECT REPORT

VERSION: 3.1.6

PROJECT TITLE	PROJECT ID	CREATED
ROOFMOUNT RMDT	22DAA46B	Sept. 15, 2022, 10:51 a.m.

NAME	Renee Beltran	Designed by structuralstamps@solcius.com
ADDRESS	2525 Calle De Parian a, Las Cruces, NM 88005, USA	ROOFMOUNT RMDT
CITY, STATE	Las Cruces, NM	Znshinesolar
MODULE	Znshinesolar ZXM6-72 370W	8 - ZXM6-72 370W
		167.46 ft^2
		2.96 KW

NOTE: Installation of the project is intended to happen within the year of project designed in UBuilder. If it's past one year please rerun the design or contact Unirac Engineering Services.

ENGINEERING REPORT

Plan review

AVERAGE PSF	7.29 psf
TOTAL NUMBER OF MODULES	8
TOTAL KW	2.96 KW
TOTAL MODULE AREA	~203 ft^2
TOTAL WEIGHT ON ROOF	1476 lbs
RACKING WEIGHT	119 lbs
MODULE WEIGHT	397 lbs
BALLAST WEIGHT	960 lbs
MAX BAY LOAD (DEAD)	97 lbs

Loads Used for Design

BUILDING CODE	ASCE 7-10
BASIC WIND SPEED	115.00 mph
GROUND SNOW LOAD	0.00 psf
SEISMIC (Ss)	0.287
ELEVATION	3889.00 ft
WIND EXPOSURE	B
MRI	25
RISK CATEGORY	II
VELOCITY PRESSURE, QZ	12.93 psf

Inspection

PRODUCT	ROOFMOUNT RMDT
MODULE MANUFACTURER	Znshinesolar
MODEL	ZXM6-72 370W
MODULE WATTS	370 watts
MODULE LENGTH	77.17"
MODULE WIDTH	39.06"
MODULE THICKNESS	1.57"
MODULE WEIGHT	49.60 lbs
BALLAST BLOCK (CMU) WEIGHT	32.0 lbs
BUILDING HEIGHT	15.00 ft
LONGEST BUILDING LENGTH	24.00 ft
ROOF TYPE	MINERAL_CAP
LONGEST BUILDING LENGTH	24.00 ft
PARAPET HEIGHT	<= 1/2 Array Height (<= 5 inches)

Roof Area 1 - Array 1

AVERAGE PSF	7.29 psf
TOTAL NUMBER OF MODULES:	4
TOTAL KW:	1.48 KW
TOTAL AREA:	101 ft^2
TOTAL WEIGHT ON ROOF:	738 lbs
RACKING WEIGHT:	60 lbs
MODULE WEIGHT:	198 lbs
BALLAST WEIGHT:	480 lbs

MINIMUM SEISMIC SEPARATION (UNATTACHED ARRAYS) *	
ARRAY TO ARRAY:	3.0"
TO FIXED OBJECT ON ROOF:	6.0"
TO ROOF EDGE WITH QUALIFYING PARAPET:	6.0"
TO ROOF EDGE WITHOUT QUALIFYING PARAPET:	9.0"
MAX ARRAY (SEISMIC) (FOR UNATTACHED ARRAYS) *	
MAX NUMBER OF NORTH-SOUTH ROWS:	29
MAX NUMBER OF EAST-WEST COLUMNS:	36

*In jurisdictions that follow SEAOC PV-1 methodology.

Roof Area 1 - Array 2

AVERAGE PSF	7.29 psf
TOTAL NUMBER OF MODULES:	4
TOTAL KW:	1.48 KW
TOTAL AREA:	101 ft^2
TOTAL WEIGHT ON ROOF:	738 lbs
RACKING WEIGHT:	60 lbs
MODULE WEIGHT:	198 lbs
BALLAST WEIGHT:	480 lbs

MINIMUM SEISMIC SEPARATION (UNATTACHED ARRAYS) *	
ARRAY TO ARRAY:	3.0"
TO FIXED OBJECT ON ROOF:	6.0"
TO ROOF EDGE WITH QUALIFYING PARAPET:	6.0"
TO ROOF EDGE WITHOUT QUALIFYING PARAPET:	9.0"
MAX ARRAY (SEISMIC) (FOR UNATTACHED ARRAYS) *	
MAX NUMBER OF NORTH-SOUTH ROWS:	29
MAX NUMBER OF EAST-WEST COLUMNS:	36

*In jurisdictions that follow SEAOC PV-1 methodology.

RMDT U-BUILDER PRODUCT ASSUMPTIONS

RMDT – Ballasted Flat Roof Systems

Limitations of Responsibility: It is the user's responsibility to ensure that inputs are correct for your specific project.
Unirac is not the solar, electrical, or building engineer of record and is not responsible for the solar, electrical, or building design for this project.

Building Assumptions

1. Risk Category III
2. Building Height ≤ 50 ft
3. Building Height > 50 ft: only where (longest length of building x building height)^0.5 ≤ 100 ft
4. Roof Slope ≥ 0° (0:12) and ≤ 3° (5/8:12) for Seismic Design Category C, D, E and F. For low seismic regions Seismic Design Category A and B (provided Array Importance factor = 1.0), Roof Slope ≥ 0° (0:12) and ≤ 7° (1 1/2:12).
5. Roofing Material Types: EDPM, PVC, TPO, or Mineral Cap
6. Surrounding Building Grade: Level

Ballast Blocks

The installer is responsible for procuring the ballast blocks (Concrete Masonry Units – CMU) and verifying the required minimum weight needed for this design. CMU should comply with ASM standard specification for concrete roof pavers designation (C1491 or C90 with an integral water repellant suitable for the climate it is placed. It is recommended that the blocks are inspected periodically for any signs of degradation. If degradation of the block is observed, the block should immediately be replaced.
The CMU ballast block should have nominal dimensions of 4"x8"x16". The actual block dimensions are 3/8" less than the nominal dimensions. Ballast blocks should have a weight as specified for the project in the "Inspection" section of this report.

Design Parameters

1. Risk Category I to III
2. Wind Design
    a. Basic Wind Speed: 110-150 mph (ASCE 7-10)/90-180 mph (ASCE 7-16)
    b. Exposure: B or C (ASCE 7-10/ASCE 7-16)
    c. 25 year Design Life/50 year Design Life for ASCE 7-16
    d. Elevation: Insertion of the project at - grade elevation can result in a reduction of wind pressure. If your project is in a special case study region or in an area where wind studies have been performed, please verify with your jurisdiction to ensure that elevation effects have not already been factored into the wind speed. If elevation effects have been included in your wind speed, please select 0 ft as the project site elevation.
    e. Wind Tunnel Testing: Wind tunnel testing coefficients have been utilized for design of the system.
3. Snow Design
    a. Ground Snow Load: 0-80 psf (ASCE 7-10/ASCE 7-16)
    b. Exposure Factor: 0.9
    c. Thermal Factor: 1.2
    d. Roof Snow Load: Calculation per Section 7.3 (ASCE 7-10/ASCE 7-16)
    e. Unbalanced/Drifting/Sliding: Results are based on the uniform snow loading and do not consider unbalanced, drifting, and sliding conditions
4. Seismic Design
    a. Report *SEAOC PV1-2012/ASCE 7-16 SECTION 13.6.12 – Structural Seismic Requirements and Commentary for Rooftop Solar Photovoltaic Arrays*
    b. Seismic Site Class: A, B, C, or D (ASCE 7-10/ASCE 7-16)
    c. Importance Factor Array (Ip): 1.0
    d. Importance Factor Building (Ie): 1.0
    e. Site Class: D

Properties

1. Ridge Bay Weight: ~7.7 lbs
2. Valley Bay Weight: ~5.6 lbs
3. Module Gaps (N/S) = 0.25 in
4. Bays: East and west column bays overhang the module by ~7.9 inches.

Testing

1. Coefficient of Friction
2. Wind Tunnel
3. UL 2703
4. Component Testing (Bay and Clamp)

Setbacks

For the wind tunnel recommendations in U-Builder to apply, the following setbacks should be observed/followed for U-Builder wind design:

1. Modules should be placed a minimum of 3 feet from the edge of the building in any direction.
2. If the array is located near an obstruction that is 3.5 feet wide and 3.5 feet high or larger, the nearest module of the array must be located a distance from the obstruction that is greater than or equal to the height of the obstruction. Exception: When using ASCE 7-16 Building Code and using the obstruction feature in the module editor to accurately model the size and location of obstruction.
3. Installations within the setbacks listed above require site specific engineering[2]
4. The setbacks above are for wind. High seismic areas, fire access isles, mechanical equipment, etc., may require larger setbacks than listed above for wind.

Site Specific Engineering

Conditions listed below are beyond the current capabilities of U-Builder. Site specific engineering is required.

1. Wind designs for a project design life exceeding 25 years[1]/ASCE 7-16
2. Building assumptions and design parameters outside of U-Builder assumptions[2]
3. Attachments[2]
4. Risk Category III or IV projects (U-Builder can be adjusted for the correct wind, but not the seismic or snow design)[2]
5. Wind tunnel testing reduction factors are not permitted by the Authority Having Jurisdiction (AHJ)[3]
6. Seismic designs that fall outside SEAOC PV1-2012/ASCE 7-16 SECTION 13.6.12 recommendations (>3% roof slope, or AHJ's that require shake table testing or non-linear site-specific response history analysis)[3]
7. Signed and sealed site-specific calculations, layouts, and drawings[3]
8. Building that is not enclosed and categorized as open structures, carport or others

Notes:

[1] Please contact info@unirac.com.
[2] Please contact EngineeringServices@unirac.com for more information.

UNIRAC

U-BUILDER PROJECT REPORT

VERSION: 3.1.6

PROJECT TITLE	PROJECT ID	CREATED
ROOFMOUNT RMDT	22DAA46B	Sept. 15, 2022, 10:51 a.m.

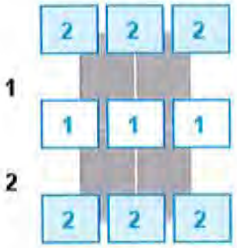
NAME	Renee Beltran	Designed by structuralstamps@solcius.com
ADDRESS	2525 Calle De Parian a, Las Cruces, NM 88005, USA	ROOFMOUNT RMDT
CITY, STATE	Las Cruces, NM	Znshinesolar
MODULE	Znshinesolar ZXM6-72 370W	8 - ZXM6-72 370W
		167.46 ft^2
		2.96 KW

NOTE: Installation of the project is intended to happen within the year of project designed in UBuilder. If it's past one year please rerun the design or contact Unirac Engineering Services.

INSTALLATION AND DESIGN PLAN

Roof Area 1

Roof Area 1 / Roof Area 1 - Array 1



LEGEND

Module

1 Standard corner bay with CMU block count

4 Supplemental bay with CMU block count

NOTE

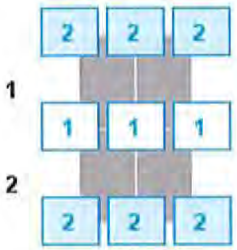
Bays in the space beside modules are supplemental bays. You can fit a maximum of 2 blocks in valley bays, and 5 blocks in ridge bays. If the number in these bays is greater, you will need to add an additional supplemental bay.

Layout Dimensions

NS DIMENSION	~ 12.88 ft
EW DIMENSION	~ 7.85 ft

ROW	MODULES	BAYS	BALLAST BLOCKS (CMU)	BALLAST WEIGHT (LBS)
1	2	3	6	192
2	2	3	3	96
3	0	3	6	192

Roof Area 1 / Roof Area 1 - Array 2



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1	2	3	6	192
2	2	3	3	96
3	0	3	6	192

BOARD ACTION FORM

AGENDA DATE:

PZHAC: January 3, 2023 **BOT:**

ITEM:

PZHAC Case #061504 – 1583 Paisano Rd, submitted by Gabriel Garcia, to install 20 roof-mounted solar panels and 2 energy storage systems (batteries). Zoned: Rural Farm

BACKGROUND AND ANALYSIS:

It is determined that the proposed application is acceptable and meets all applicable Town codes, the application should continue.

MUNICIPAL TOWN CODE:

This application falls under the ordinance MTC Chapter 18.35.060.

SUPPORTING INFORMATION:

- Application
- Pictures
- Site Plans
- Specs

PZHAC ACTION:

The PZHAC may:

1. Recommend approval of this case with findings stated above.
2. Recommend approval of this case with findings stated above and conditions.
3. Deny the application.

BOT OPTIONS:

TOWN OF MESILLA

APPLICATION FOR BUILDING PERMIT

Permit Fee $ 280
Review Fee $ 45
Total Fee $ 325

2231 Avenida de Mesilla, P.O. Box 10, Mesilla, NM 88046 (575) 524-3262 ext. 104

CASE NO. 061504 ZONE: RE CODE: _____ APPLICATION DATE: 12/9/22

Gabriel Garcia — Name of Property Owner
575-642-4286 — Property Owner's Telephone Number
1583 Paisano — Property Owner's Mailing Address
Las Cruces — City
NM — State
88005 — Zip Code
lovegabrielhate@yahoo.com — Property Owner's E-mail Address
TESLA ENERGY OPERATIONS, INC — Contractor's Name & Address (If none, indicate Self)
915-248-8038 — Contractor's Telephone Number
_____ — Contractor's Tax ID Number
379590 — Contractor's License Number

Address of Proposed Work: 1583 Paisano Rd

Description of Proposed Work: Installation of (20) roof-mounted solar panels and (2) energy storage systems (batteries)

THIS APPLICATION SHALL INCLUDE ALL OF THE FOLLOWING **Plan sheets are to be no larger than 11 x 17 inches or shall be submitted electronically.**

1. ___ Plot plan with legal description to show existing structures, adjoining streets, driveway(s), improvements & setbacks. Verification shall show that the lot was **LEGALLY** subdivided through the Town of Mesilla or that the lot has been in existence prior to February 1972.
2. ___ Site Plan with dimensions and details.
3. ___ Foundation plan with details.
4. ___ Floor plan showing rooms, their uses, and dimensions.
5. ___ Cross section of walls.
6. ___ Roof and floor framing plan.
7. ___ Proof of legal access to the property.
8. ___ Drainage plan.
9. ___ Details of architectural style and color scheme (checklist included for Historical zones) – diagrams and elevations.
10. ___ Proof of sewer service or a copy of septic tank permit; proof of water service (well permit or statement from the Public Utility providing water services).
11. ___ Proof of legal access to the property.
12. ___ Other information as necessary or required by the Town Code or Community Development Department.

$22,140 — Estimated Cost
Kristine Cano — Signature of Applicant
12/09/22 — Date

Application Fee is due at time of submittal. Apart from administrative approvals, all permit requests must undergo a review process from staff, PZHAC and/or BOT before issuance of a building permit. All Building permits expire after one year from date issued.

FOR OFFICIAL USE ONLY

PZHAC ☐ Administrative Approval
☐ Approved Date: _____
☐ Disapproved Date: _____
☐ Approved with conditions

BOT ☐ Approved Date: _____
☐ Disapproved Date: _____
☐ Approved with Conditions

PZHAC APPROVAL REQUIRED: X YES ___ NO
BOT APPROVAL REQUIRED: ___ YES X NO
CID PERMIT/INSPECTION REQUIRED: ___ YES ___ NO ___ SEE CONDITIONS
CONDITIONS: _____

PERMISSION ISSUED / DENIED BY: _____ ISSUE DATE: _____

Rev 05.27.22


1583 Paisano Rd, Las Cruces, NM 88005

ABBREVIATIONS

A AMPERE AC ALTERNATING CURRENT BLDG BUILDING CONC CONCRETE DC DIRECT CURRENT EGC EQUIPMENT GROUNDING CONDUCTOR (E) EXISTING EMT ELECTRICAL METALLIC TUBING FSB FIRE SET-BACK GALV GALVANIZED GEC GROUNDING ELECTRODE CONDUCTOR GND GROUND HDG HOT DIPPED GALVANIZED I CURRENT Imp CURRENT AT MAX POWER Isc SHORT CIRCUIT CURRENT kVA KILOVOLT AMPERE kW KILOWATT LBW LOAD BEARING WALL MIN MINIMUM (N) NEW NEUT NEUTRAL NTS NOT TO SCALE OC ON CENTER PL PROPERTY LINE POI POINT OF INTERCONNECTION PV PHOTOVOLTAIC SCH SCHEDULE S STAINLESS STEEL STC STANDARD TESTING CONDITIONS TYP TYPICAL UPS UNINTERRUPTIBLE POWER SUPPLY V VOLT Vmp VOLTAGE AT MAX POWER Voc VOLTAGE AT OPEN CIRCUIT W WATT 3R NEMA 3R, RAINTIGHT

ELECTRICAL NOTES

1. THIS SYSTEM IS GRID-INTERTIED VIA A UL-LISTED POWER-CONDITIONING INVERTER.
2. A NATIONALLY - RECOGNIZED TESTING LABORATORY SHALL LIST ALL EQUIPMENT IN COMPLIANCE WITH ART. 110.3.
3. WHERE ALL TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A SIGN WILL BE PROVIDED WARNING OF THE HAZARDS PER ART. 690.17.
4. EACH UNGROUNDED CONDUCTOR OF THE MULTIWIRE BRANCH CIRCUIT WILL BE IDENTIFIED BY PHASE AND SYSTEM PER ART. 210.5.
5. CIRCUITS OVER 250V TO GROUND SHALL COMPLY WITH ART. 250.97, 250.92(B).
6. DC CONDUCTORS EITHER DO NOT ENTER BUILDING OR ARE RUN IN METALLIC RACEWAYS OR ENCLOSURES TO THE FIRST ACCESSIBLE DC DISCONNECTING MEANS PER ART. 690.31(E).
7. ALL WIRES SHALL BE PROVIDED WITH STRAIN RELIEF AT ALL ENTRY INTO BOXES AS REQUIRED BY UL LISTING.
8. MODULE FRAMES SHALL BE GROUNDED AT THE UL - LISTED LOCATION PROVIDED BY THE MANUFACTURER USING UL LISTED GROUNDING HARDWARE.
9. MODULE FRAMES, RAIL, AND POSTS SHALL BE BONDED WITH EQUIPMENT GROUND CONDUCTORS.

JURISDICTION NOTES

LICENSE

MODULE GROUNDING METHOD: ZEP SOLAR

AHJ: Mesilla Town

UTILITY: El Paso Electric Company (New Mexico)

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE 2003 IBC AND 2003 IRC. 2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2017 NATIONAL ELECTRIC CODE.

VICINITY MAP

INDEX

REV	BY	DATE	COMMENTS
REV A	DG	11/01/22	Increased System Size
REV B	DG	12/02/22	Updated TLD
-	-	-	-
-	-	-	-
-	-	-	-

JOB NUMBER: JB-8801051 00

MOUNTING SYSTEM: ZS Ramp Foot

MODULES: (20) Tesla # T400H

INVERTER: Powerwall+ [240V] #1850000-00-C / PVI Assy. 1538000-35-F

CUSTOMER:
Gabriel Garcia
1583 Paisano Rd
Las Cruces, NM 88005

5756424286

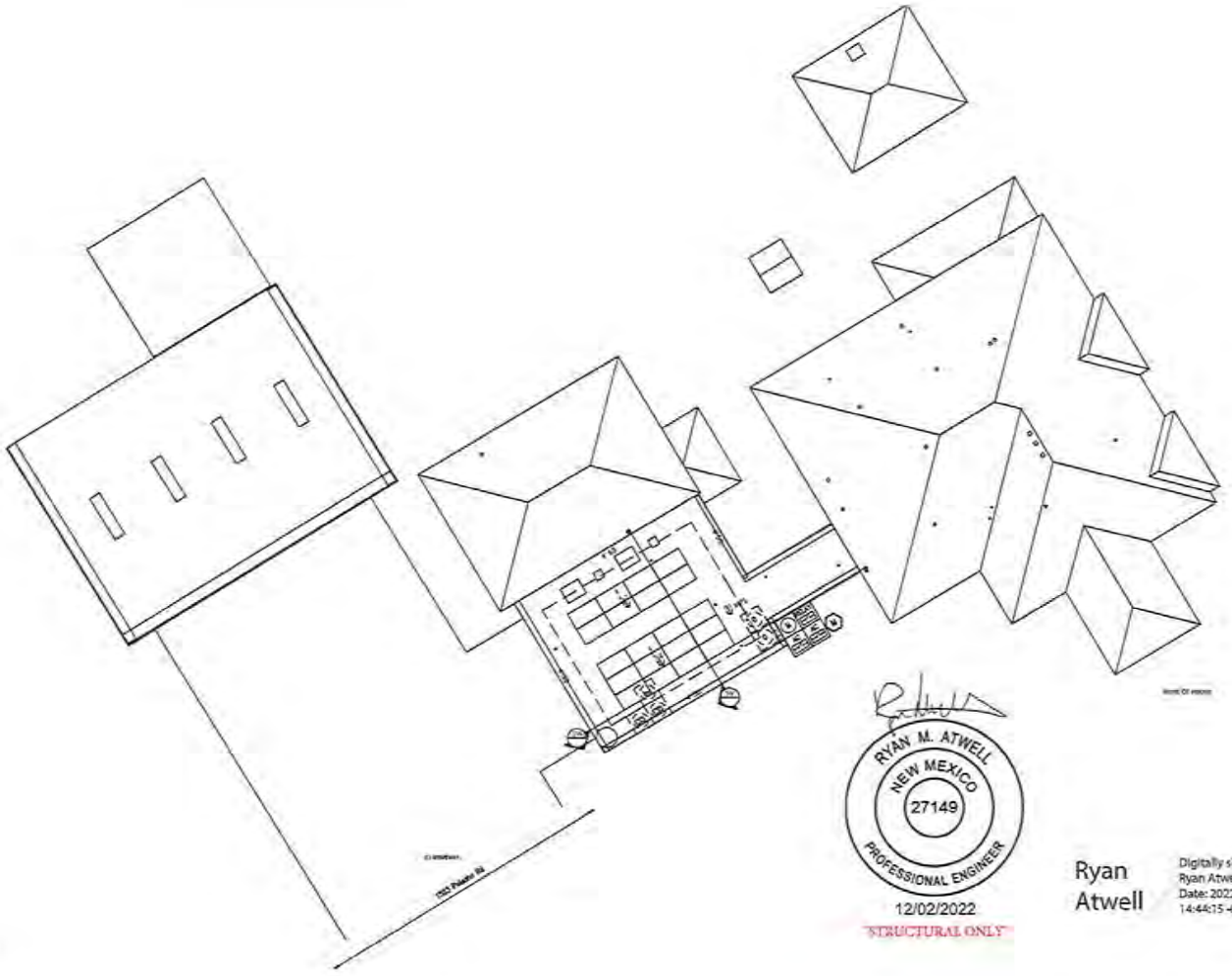
DESCRIPTION:
8 KW PV ARRAY
7.6 KW (AC NAMEPLATE) PV ARRAY
27 KWH ENERGY STORAGE SYSTEM

PAGE NAME:
COVER SHEET

DESIGN:
David Gutierrez

SHEET: 1 REV: B DATE: 12/2/2022

TESLA



MP1	PITCH: 0° (0:12)	ARRAY PITCH: 5° (1:12)
	AZIMUTH: 149	ARRAY AZIMUTH: 149
	MATERIAL: Mod Bit	STORY: 2 Stories

LEGEND

(M)	(E) UTILITY METER & WARNING LABEL
(INV)	INVERTER W/ INTEGRATED DC DISCO & WARNING LABELS
(RELAY)	AUTOMATIC RELAY
(DC)	DC DISCONNECT & WARNING LABELS
(AC)	AC DISCONNECT & WARNING LABELS
(J)	DC JUNCTION/COMBINER BOX & LABELS
(ESS)	ENERGY STORAGE SYSTEM FOR STAND ALONE OPERATION
(D)	DISTRIBUTION PANEL & LABELS
(LC)	LOAD CENTER & WARNING LABELS
(M)	DEDICATED PV SYSTEM METER
(RSD)	RAPID SHUTDOWN
	STANDOFF LOCATIONS
	CONDUIT RUN ON EXTERIOR
	CONDUIT RUN ON INTERIOR
	GATE/FENCE
	HEAT PRODUCING VENTS ARE RED
	INTERIOR EQUIPMENT IS DASHED

RYAN M. ATWELL
NEW MEXICO
27149
PROFESSIONAL ENGINEER

12/02/2022
STRUCTURAL ONLY

Ryan Atwell

Digitally signed by Ryan Atwell
Date: 2022.12.02 14:44:15 -06'00'

SITE PLAN

Scale: 3/32" = 1'

0 1' 10' 21'

N W E S

JOB NUMBER: JB–8801051 00
MOUNTING SYSTEM: ZS Ramp Foot
MODULES: (20) Tesla # T400H
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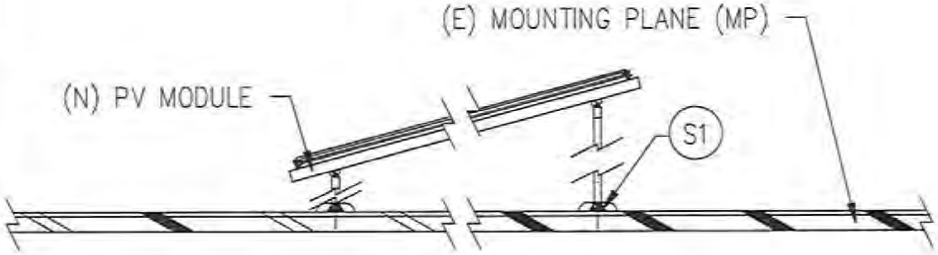
SITE PLAN

DESIGN:
David Gutierrez

SHEET: 2 REV: B DATE: 12/2/2022

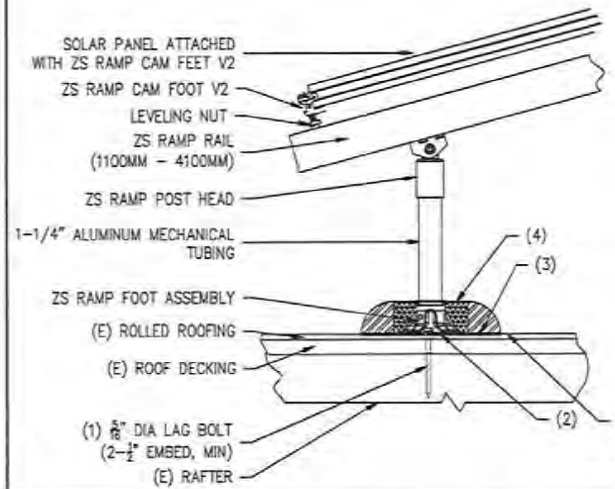
TESLA



SV TYPICAL PV SIDE VIEW

NTS

S1



INSTALLATION ORDER	
(1)	CLEAN ROOF DECK.
(2)	APPLY M1 SEALANT BENEATH FOOT ASSEMBLY AND ON PIPE CONNECTION TO FOOT ASSEMBLY. MOUNT FOOT WITH LAG, INSTALL VERTICAL PIPE, AND POST HEAD.
(3)	M-1 STRUCTURAL SEALANT AT BASE OF SEALING RINGS AND AROUND PENETRATION.
(4)	1 PART POURABLE SEALANT.

S1 STANDOFF

Scale: 1 1/2" = 1'

RYAN M. ATWELL
NEW MEXICO
27149
PROFESSIONAL ENGINEER

12/02/2022

"STRUCTURAL ONLY"

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27 KWH ENERGY STORAGE SYSTEM

PAGE NAME: STRUCTURAL VIEWS

DESIGN: David Gutierrez

SHEET: 3 REV: B DATE: 12/2/2022

TESLA

Jobsite Specific Design Criteria			
Design Code		ASCE 7-05	
Risk Category		II	
Ultimate Wind Speed	V-Ult	90	Fig. 1609A
Exposure Category		C	Section 26.7
Ground Snow Load	pg	5	Table 7-1
Edge Zone Width	a	14.6 ft	Fig. 30.4-2A to 30.4-2C

MP Specific Design Information	
MP Name	MP1
Roofing	Mod Bit
Standoff	ZS Ramp Foot
Pitch	0
SL/RLL: PV	10.0
SL/RLL: Non-PV	20.0

Standoff Spacing and Layout	
MP Name	MP1
Landscape X-Spacing	72
Landscape X-Cantilever	24
Landscape Y-Spacing	72
Landscape Y-Cantilever	24
Portrait X-Spacing	DQ
Portrait X-Cantilever	DQ
Portrait Y-Spacing	DQ
Portrait Y-Cantilever	DQ
Layout	Not Staggered
X and Y are maximums that are always relative to the structure framing that supports the PV. X is across rafters and Y is along rafters.	

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12/02/2022

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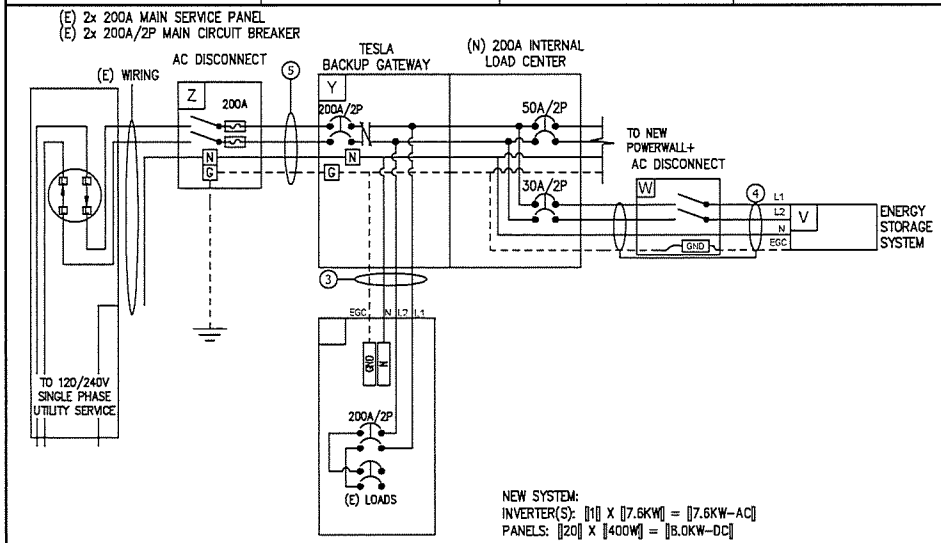
PAGE NAME:
UPLIFT CALCULATIONS

DESIGN:
David Gutierrez

SHEET: 4 REV: B DATE: 12/2/2022

TESLA

MAIN PANEL SPECS	GENERAL NOTES			LICENSE
Panel Number: NoLabel Meter Number: 1105275436 Underground Service Entrance	*			



NEW SYSTEM:
INVERTER(S): [1] X [7.6KW] = [7.6KW-AC]
PANELS: [20] X [400W] = [8.0KW-DC]

TOTAL SYSTEM:
INVERTER(S): [7.6KW-AC]
PANELS: [8.0KW-DC]

BACKUP GATEWAY RATED AS SERVICE EQUIPMENT.

POI — (1) Ground Rod 5/8" x 8', Copper

Z — (1) Eaton # DH224NRK Heavy Duty Disconnect; 200A, 240Vac, Fusible, NEMA 3R, 2P, 3W, for Class J fuses
— (2) Bussmann # LPJ-200SP Class J Fuse; 200A, 600Vac, must be installed in Heavy Duty disconnect

Y — (1) Tesla # 1232100-00-G Back-up Gateway 2.0 NA for AC PW 2.0
— (1) Eaton # CSR2200N 200A MB ONLY; 2-Pole, 120V/240V, 25kAIC, Batt On
— (1) CUTLER-HAMMER # BR230 Breaker; 30A/2P, 2 Spaces
— (1) CUTLER-HAMMER # BR250 Breaker; 50A/2P, 2 Spaces
— (1) Panelboard Accessory Kit for GW 2.0 NA 200A, 8sp/12cir, 120/240V, 1PH

X — (1) UL 508 Emergency Stop Device – NEMA 4X

W — (1) CUTLER-HAMMER # DG030NB Ground/Neutral Kit; 30A, General Duty (DG)
— (1) CUTLER-HAMMER # DG221URB Disconnect; 30A, 240Vac, Non-Fusible, NEMA 3R

V — (1) AC Powerwall 3012170-05-B ASY,AC POWERWALL2.1,5KW,13.5KWH,M48

AC

③ — (3) AWG #2/0, THWN-2, Black
(1) AWG #6, THWN-2, Green
(1) Conduit 2" PVC; Schedule 80

④ — (1) AWG #10, THWN-2, White
(1) AWG #10, THWN-2, Red
(1) AWG #10, THWN-2, Black
(1) AWG #10, THWN-2, Green — (1) Conduit Kit; 3/4" EMT

⑤ — (3) AWG #2/0, THWN-2, Black
(1) AWG #6, THWN-2, Green
(1) Conduit 2" PVC; Schedule 80

JOB NUMBER: JB-8801051 00
MOUNTING SYSTEM: ZS Ramp Foot
MODULES: (20) Tesla # T400H
INVERTER: Powerwall+ [240V] #1850000-00-C / PVI Assy. 1538000-35-F

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27 KWH ENERGY STORAGE SYSTEM

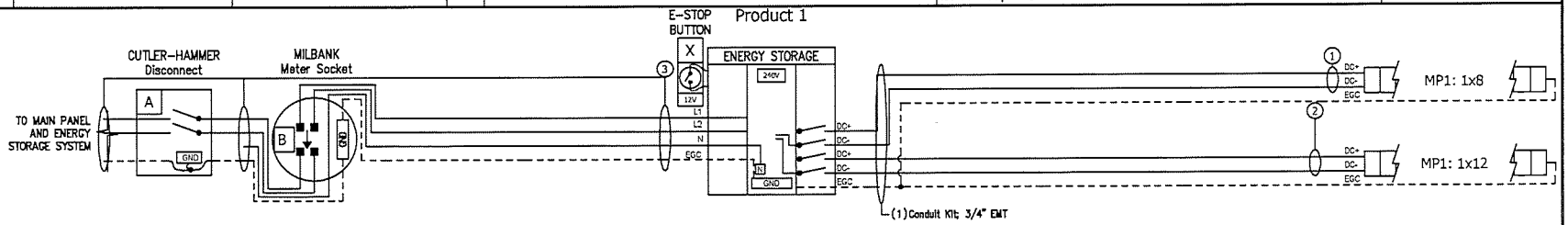
PAGE NAME:
THREE LINE DIAGRAM

DESIGN:
David Gutierrez

SHEET:	REV:	DATE:
5	B	12/2/2022

TESLA

		GENERAL NOTES	PRODUCT SPECS		MODULE SPECS	LICENSE
		Inv 1: DC Ungrounded	1	– (1) Powerwall+ [240V] #1850000–00–C / PVI Assy. 1538000–35–F	– (20) Tesla # T400H PV Module, 400W, 371.5 PTC, 40MM, Black Frame, MC4/MC4–EVO2, ZEP, 1000V Voc: 45.3 Vpmax: 37.13 Isc AND Imp ARE SHOWN IN THE DC STRINGS IDENTIFIER	
			2			
			3			



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TOTAL SYSTEM:
INVERTER(S): [7.6KW–AC]
PANELS: [8.0KW–DC]

BACKUP GATEWAY RATED AS SERVICE EQUIPMENT.

Voc* = MAX VOC AT MIN TEMP

GD — Please see MCI wiring detail page for more information

AC

A — (1) CUTLER–HAMMER # DG222URB
Disconnect; 60A, 240Vac, Non–Fusible, NEMA 3R
– (1) CUTLER–HAMMER # DG100NB
Ground/Neutral Kit; 60–100A, General Duty (DG)

B — (1) MILBANK # U5934–XL
4 Terminal Single Position

③ THWN–2 — (1) AWG #8, THWN–2, Black
(1) AWG #8, THWN–2, Red
(1) AWG #10, THWN–2, Green EGC Vmp = 240 VAC Imp= 32 AAC
– (1) Conduit Kit; 3/4" EMT

DC

PV — (7) Tesla MCI, 650V, 12A

① THWN–2 — (2) PV Wire, AWG 10 Voc* = 395.67 VDC Isc = 11.14 ADC
(1) AWG #10, THHN/THWN–2, Green EGC Vmp = 297.04 VDC Imp= 10.77 ADC
(1) Conduit Kit; 3/4" EMT

② THWN–2 — (2) PV Wire, AWG 10 Voc* = 593.5 VDC Isc = 11.14 ADC
(1) AWG #10, THHN/THWN–2, Green EGC Vmp = 445.56 VDC Imp= 10.77 ADC
(1) Conduit Kit; 3/4" EMT

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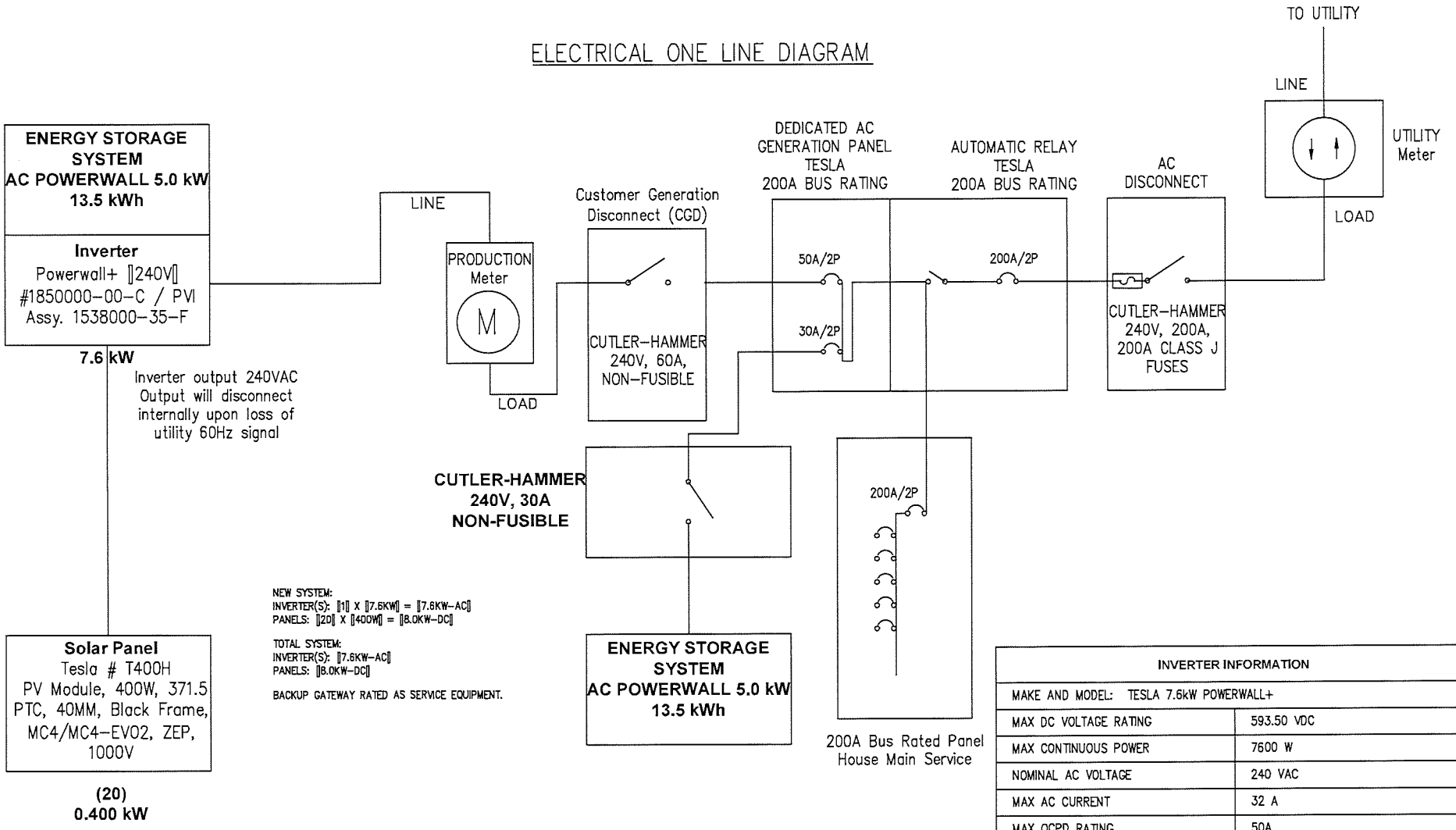
PAGE NAME:
THREE LINE DIAGRAM CONT.

DESIGN:
David Gutierrez

SHEET: 6 REV: B DATE: 12/2/2022

TESLA

ELECTRICAL ONE LINE DIAGRAM



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TOTAL SYSTEM:
INVERTER(S): [7.6KW-AC]
PANELS: [8.0KW-DC]

BACKUP GATEWAY RATED AS SERVICE EQUIPMENT.

INVERTER INFORMATION	
MAKE AND MODEL: TESLA 7.6kW POWERWALL+	
MAX DC VOLTAGE RATING	593.50 VDC
MAX CONTINUOUS POWER	7600 W
NOMINAL AC VOLTAGE	240 VAC
MAX AC CURRENT	32 A
MAX OCPD RATING	50A

JOB NUMBER: JB-8801051 00
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PAGE NAME:
ONE LINE DIAGRAM

DESIGN:
David Gutierrez

SHEET: 7 REV: B DATE: 12/2/2022

TESLA

WARNING: PHOTOVOLTAIC POWER SOURCE

Label Location:
(C)(CB)(JB)
Per Code:
NEC 690.31.G.3

DC PHOTOVOLTAIC DISCONNECT

Label Location:
(DC)(INV)
Per Code:
NEC 690.13.B

MAXIMUM VOLTAGE
MAXIMUM CIRCUIT CURRENT
MAX RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

Label Location:
(DC) (INV)
Per Code:
NEC 690.53

AC PHOTOVOLTAIC DISCONNECT

Label Location:
(AC)(POI)
Per Code:
NEC 690.13.B

MAXIMUM AC OPERATING CURRENT ___ A
MAXIMUM AC OPERATING VOLTAGE ___ V

Label Location:
(AC) (POI)
Per Code:
NEC 690.54

⚠ WARNING

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION

Label Location:
(AC)(POI)
Per Code:
690.13.B

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

Label Location:
(INV)
Per Code:
NEC 690.56.C.3

⚠ WARNING

INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE

Label Location:
(POI)
Per Code:
NEC 705.12.D.2

⚠ WARNING

THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVER CURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

Per Code:
690.64

PHOTOVOLTAIC POINT OF INTERCONNECTION
WARNING: ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION. FOR SERVICE DE-ENERGIZE BOTH SOURCE AND MAIN BREAKER
PV POWER SOURCE
MAXIMUM AC OPERATING CURRENT ___ A
MAXIMUM AC OPERATING VOLTAGE ___ V

Label Location:
(POI)
Per Code:
CEC 690.13.B

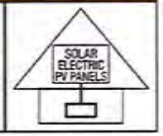
SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT

Label Location:
ABB/Delta Solivia Inverter
Per Code:
690.56(C)(1)(b)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



Label Location:
SolarEdge and,Delta M-Series and,Telsa Inverter
Per Code:
690.56(C)(1)(a)

⚠ WARNING

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

Label Location:
(DC) (INV)
Per Code:
NEC 690.35(F)
TO BE USED WHEN INVERTER IS UNGROUNDED

(AC): AC Disconnect
(C): Conduit
(CB): Combiner Box
(D): Distribution Panel
(DC): DC Disconnect
(IC): Interior Run Conduit
(INV): Inverter With Integrated DC Disconnect
(LC): Load Center
(M): Utility Meter
(POI): Point of Interconnection

	Label Set		

BACKUP LOAD CENTER

Label Location:
(BLC)
Per Code:
NEC 408.4

CAUTION
DO NOT ADD NEW LOADS

Label Location:
(BLC)
Per Code:
NEC 220

CAUTION
THIS PANEL HAS SPLICED FEED-THROUGH CONDUCTORS.
LOCATION OF DISCONNECT AT ENERGY STORAGE BACKUP LOAD PANEL

Label Location:
(MSP)
Per Code:
NEC 312.8.A(3)

CAUTION
DUAL POWER SOURCE
SECOND SOURCE IS ENERGY STORAGE SYSTEM

Label Location:
(MSP)
Per Code:
NEC 705.12(B)(3)

ENERGY STORAGE SYSTEM ON SITE
LOCATED WITHIN LINE OF SIGHT

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED ON ADJACENT WALL

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED ON OPPOSITE WALL

Label Location:
(MSP)
Per Code:

ENERGY STORAGE SYSTEM ON SITE
LOCATED INSIDE

Label Location:
(MSP)
Per Code:

CAUTION
TRI POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
THIRD SOURCE IS ENERGY STORAGE SYSTEM

Label Location:
(MSP)
Per Code:
NEC 705.12(B)(3)

WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVER CURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

Label Location:
(MSP)
Per Code:
NEC 705.12.B.2.3.c

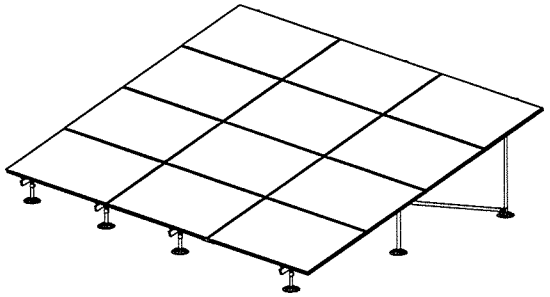
NOMINAL ESS VOLTAGE: 120/240V
MAX AVAILABLE SHORT-CIRCUIT FROM ESS: 32A
ARC FAULT CLEARING TIME FROM ESS: 67ms
DATE OF CALCULATION:

Label Location:
(MSP)
Per Code:
Per 706.7(D) label to be marked in field

(AC): AC Disconnect
(BLC): Backup Load Center
(MSP): Main Service Panel

	Label Set		

ZS Ramp
for residential low-slope roofs



ZS Ramp Array

Description

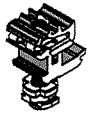
- PV Mounting Solution for Residential Low-Slope Roofs

Specifications

- Tilt Angle: 0-15 degrees
- Designed for low slope roofs
- Corrosion resistant materials (Aluminum, Stainless Steel)
- ZS Ramp has a UL 1703 Class "A" system level fire rating when installed with modules from any manufacturer with a Type 1 or Type 2 fire classification.
- UL listed to UL 2703

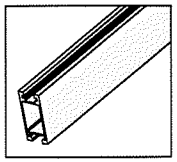
Components

Cam Foot V2



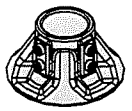
Part No. 850-1564
UL listed to UL 2703

Rail



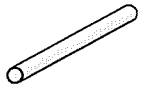
Part No. 850-1568
850-1567
850-1566
and 850-1565
UL listed to UL 2703

Base Foot



Part No. 850-1563
UL listed to UL 2703

Mechanical Tubing (MT)



Part No. 850-1583
UL listed to UL 2703
1.51" Outer Diameter

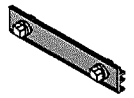
Post Mount

Part No. 850-1561
UL listed to UL 2703

Cross Brace Assembly

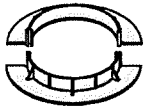
Part No. 850-1636
UL listed to UL 2703

Interlock



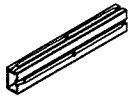
Part No. 850-1388 or 850-1613
UL listed to UL 2703

Sealant Ring



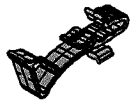
Part No. 850-1638

Splice Assembly, Ramp



Part No. 850-1635
UL listed to UL 2703

DC Wire Clip



Part No. 850-1509
UL listed to UL 1565

Home Run Wire Clip

Part No. 850-1510
UL listed to UL 1565

Ground Zep

Part No. 850-1511
UL listed to UL 467 and UL 2703

This document does not create any express warranty by Zep Solar or about its products or services. Zep Solar's sole warranty is contained in the written product warranty for each product. The end-user documentation shipped with Zep Solar's products constitutes the sole specifications referred to in the product warranty. The customer is solely responsible for verifying the suitability of Zep Solar's products for each use. Specifications are subject to change without notice. Patents and Apps: zspats.com.

POWERWALL

Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, time-based control, and backup.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.

PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240 V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Total Energy*	14 kWh
Usable Energy*	13.5 kWh
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10s, off-grid/backup)	7.2 kVA (charge and discharge)
Load Start Capability	98 - 105 A LRA†
Maximum Supply Fault Current	10 kA
Maximum Output Fault Current	29 A
Overcurrent Protection Device	30 A
Imbalance for Split-Phase Loads	100%
Power Factor Output Range	+/- 1.0 adjustable
Power Factor Range (full-rated power)	+/- 0.85
Internal Battery DC Voltage	50 V
Round Trip Efficiency	90%†
Warranty	10 years

*Values provided for 25°C (77°F), 3.3 kW charge/discharge power.
†Load start capability may vary.
‡AC to battery to AC, at beginning of life.

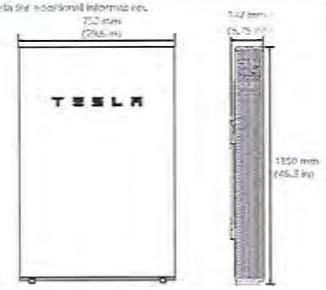
COMPLIANCE INFORMATION

Certifications	UL 1642, UL 1741, UL 1973, UL 9540, IEC 62477, UN 38.3
Grid Connection	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)
Fire Testing	Meets the unit level performance criteria of UL 9540A

MECHANICAL SPECIFICATIONS

Dimensions	1150 mm x 753 mm x 147 mm (45.3 in x 29.6 in x 5.75 in)*
Weight	114 kg (251.3 lbs)*
Mounting options	Floor or wall mount

*Dimensions and weights differ slightly if manufactured before March 2015. Contact Tesla for additional information.



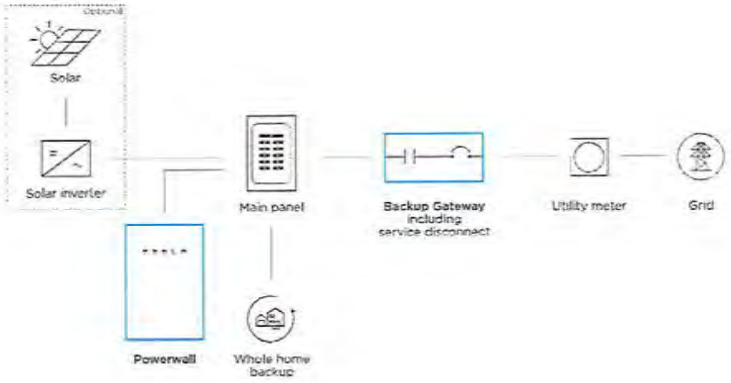
ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)‡
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	-20°C to 30°C (-4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9842 ft)
Environment	Indoor and outdoor NEMA
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring Compartment)
Wet Location Rating	Yes
Noise Level @ 1m	< 40 dBA @ 20°C (68°F)

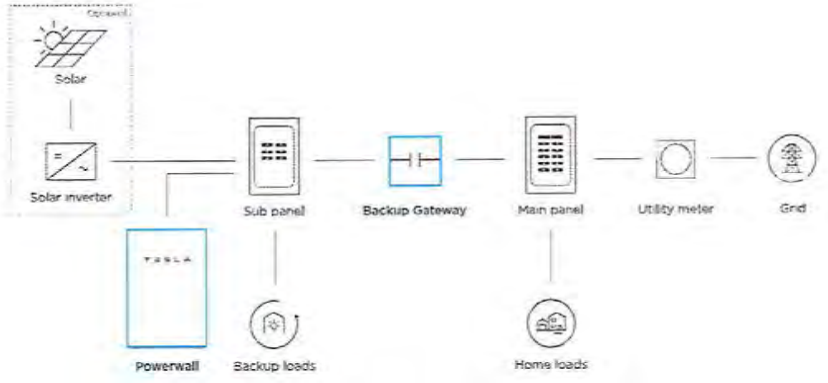
‡Performance may be derated at operating temperatures below -10°C (14°F) or greater than 47°C (117°F).

TYPICAL SYSTEM LAYOUTS

WHOLE HOME BACKUP



PARTIAL HOME BACKUP



POWERWALL
Backup Gateway 2

The Backup Gateway 2 for Tesla Powerwall provides energy management and monitoring for solar self-consumption, time-based control, and backup.

The Backup Gateway 2 controls connection to the grid, automatically detecting outages and providing a seamless transition to backup power. When equipped with a main circuit breaker, the Backup Gateway 2 can be installed at the service entrance. When the optional internal panelboard is installed, the Backup Gateway 2 can also function as a load center.

The Backup Gateway 2 communicates directly with Powerwall, allowing you to monitor energy use and manage backup energy reserves from any mobile device with the Tesla app.

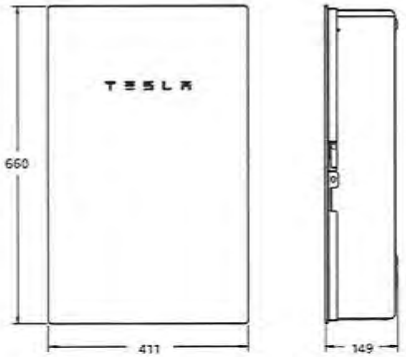
PERFORMANCE SPECIFICATIONS

Model Number	1232100-xx-y
AC Voltage (Nominal)	120/240V
Feed-in Type	Split Phase
Grid Frequency	60 Hz
Current Rating	200 A
Maximum Input Short Circuit Current	10 kA
Overcurrent Protection Device	100-200A, Service Entrance Rated*
Overvoltage Category	Category IV
AC Meter	Revenue accurate (+/- 0.2 %)
Primary Connectivity	Ethernet, Wi-Fi
Secondary Connectivity	Cellular (3G, LTE/4G)†
User Interface	Tesla App
Operating Modes	Support for solar self-consumption, time-based control, and backup
Backup Transition	Automatic disconnect for seamless backup
Modularity	Supports up to 10 AC-coupled Powerwalls
Optional Internal Panelboard	200A 6-space / 12 circuit Eaton BR Circuit Breakers
Warranty	10 Years

* When protected by Class J fuses, Backup Gateway 2 is suitable for use in circuits capable of delivering not more than 200A symmetrical amperes.
† The customer is required to provide internet connectivity for Backup Gateway 2; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 149 mm (26 in x 16 in x 6 in)
Weight	20.4 kg (45 lb)
Mounting options	Wall mount, Semi-flush mount



COMPLIANCE INFORMATION

Certifications	UL 67, UL 869A, UL 916, UL 1741 PCS, CSA 22.2 0.19, CSA 22.2 205
Emissions	FCC Part 15, ICES 003

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Operating Humidity (RH)	Up to 100%, condensing
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R

MCI WIRING DETAIL

GENERAL NOTES

- DRAWING OF STANDARD MCI WIRING DETAIL FOR ANY GIVEN STRING LENGTH
- IF INITIATED, RAPID SHUTDOWN OCCURS WITHIN 30 SECONDS OF ACTIVATION AND LIMITS VOLTAGE ON THE ROOF TO NO GREATER THAN 165V (690.12.B.2.1)
- MID CIRCUIT INTERRUPTER (MCI) IS A UL 1741 PVRSE CERTIFIED RAPID SHUTDOWN DEVICE (RSD)

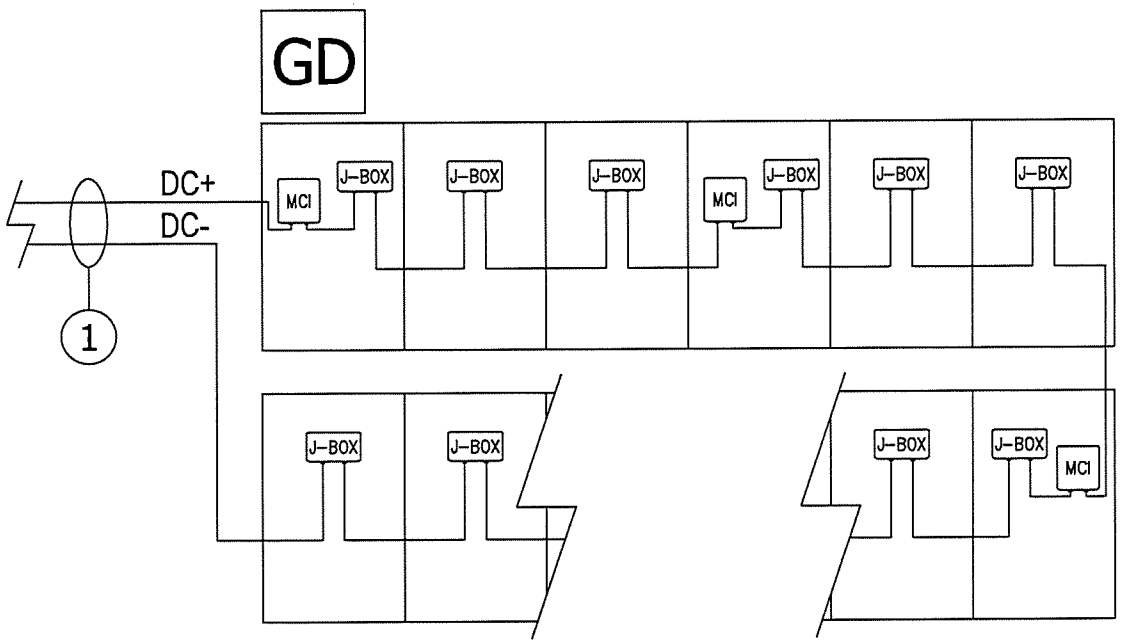
RETROFIT PV MODULES

- MCIS ARE LOCATED AT ROOF LEVEL, JUST UNDER THE PV MODULES IN ACCORDANCE WITH 690.12 REQUIREMENTS
- THE QUANTITY OF MCIS PER STRING IS DETERMINED BY STRING LENGTH
  - NUMBER OF MODULES BETWEEN MCI UNITS = 0-3
  - MAXIMUM NUMBER OF MODULES PER MCI UNIT = 3
  - MINIMUM NUMBER MCI UNITS = MODULE COUNT/3

*Exception: Tesla (Longi) modules installed in locations where the max Voc for 3 modules at low design temperature exceeds 165V shall be limited to 2 modules between MCIs.

PLEASE REFER TO MCI CUTSHEET AND PVRSA INSERT FOR MORE INFORMATION

TESLA



1 (2) AWG, PV Wire, 600V, Black

DC

MCI WIRING DETAIL

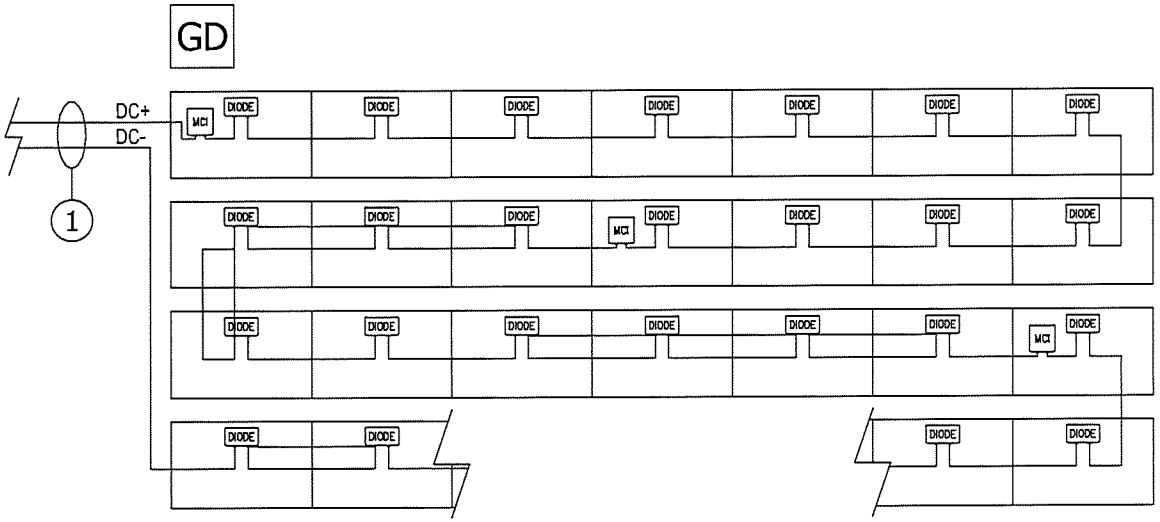
GENERAL NOTES

- DRAWING OF STANDARD MCI WIRING DETAIL FOR ANY GIVEN STRING LENGTH
- IF INITIATED, RAPID SHUTDOWN OCCURS WITHIN 30 SECONDS OF ACTIVATION AND LIMITS VOLTAGE ON THE ROOF TO NO GREATER THAN 165V (690.12.B.2.1)
- MID CIRCUIT INTERRUPTER (MCI) IS A UL 1741 PVRSE CERTIFIED RAPID SHUTDOWN DEVICE (RSD)

SOLAR ROOF TILES

- MCIS ARE LOCATED AT DECK LEVEL, JUST UNDER THE TILES IN ACCORDANCE WITH 690.12 REQUIREMENTS
- THE QUANTITY OF MCIS PER STRING IS DETERMINED BY STRING LENGTH
  - NUMBER OF TILES BETWEEN MCI UNITS = 0–10
  - MAXIMUM NUMBER OF TILES PER MCI UNIT = 10
  - MINIMUM NUMBER MCI UNITS = TILE COUNT/10

PLEASE REFER TO MCI CUTSHEET AND PVRSA INSERT FOR MORE INFORMATION



1 (2)AWG, PV Wire, 600V, Black

DC

POWERWALL+

Powerwall+ is an integrated solar battery system that stores energy from solar production. Powerwall+ has two separate inverters, one for battery and one for solar, that are optimized to work together. Its integrated design and streamlined installation allow for simple connection to any home, and improved surge power capability brings whole home backup in a smaller package. Smart system controls enable owners to customize system behavior to suit their renewable energy needs.

KEY FEATURES

- Integrated battery, inverter, and system controller for a more compact install
- A suite of application modes, including self-powered, time-based control, and backup modes
- Wi-Fi, Ethernet, and LTE connectivity with easy over-the-air updates

PHOTOVOLTAIC (PV) AND BATTERY ENERGY STORAGE SYSTEM (BESS) SPECIFICATIONS

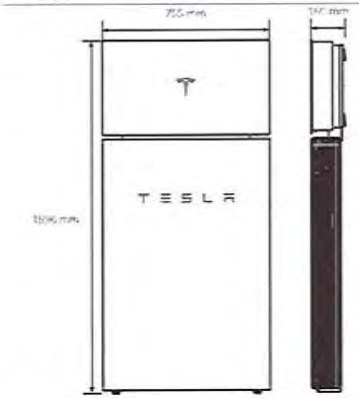
Powerwall+ Model Number	1850000-xx-y
Solar Assembly Model Number	1538000-xx-y
Nominal Battery Energy	13.5 kWh
Nominal Grid Voltage (Input / Output)	120/240 VAC
Grid Voltage Range	211.2 - 264 VAC
Frequency	60 Hz
Phase	240 VAC, 2W+N+GND
Maximum Continuous Power On-Grid	7.6 kVA full sun / 5.8 kVA no sun
Maximum Continuous Power Off-Grid	5.5 kW full sun / 7 kW no sun[1]
Peak Off-Grid Power (10 s)	22 kW full sun / 10 kW no sun
Maximum Continuous Current On-Grid	32 A output
Maximum Continuous Current Off-Grid	40 A output
Load Start Capability	98 - 118 A LRA[2]
PV Maximum Input Voltage	600 VDC
PV DC Input Voltage Range	60 - 550 VDC
PV DC MPPT Voltage Range	60 - 480 VDC
MPPTs	4
Input Connectors per MPPT	1+2+1+2
Maximum Current per MPPT (I_{mp})	13 A[3]
Maximum Short Circuit Current per MPPT (I_{sc})	17 A[3]
Allowable DC/AC Ratio	1.7
Overcurrent Protection Device	50 A breaker
Maximum Supply Fault Current	10 kA
Output Power Factor Rating	+/- 0.8 to 1[4]
Round Trip Efficiency	90%[5]
Solar Generation CEC Efficiency	97.5% at 208 V 98.0% at 240 V
Customer Interface	Tesla Mobile App
Internet Connectivity	Wi-Fi, Ethernet, Cellular LTE/4G[6]
PV AC Metering	Revenue grade (1/4% CT)
Protections	Integrated arc fault circuit interrupter (AFCI) PV Rapid Shutdown
Warranty	10 years

COMPLIANCE INFORMATION

PV Certifications	UL 1699B, UL 1741, UL 3741, UL 1741 SA, UL 1998 (US), IEEE 1547, IEEE 1547.1
Battery Energy Storage System Certifications	UL 1642, UL 1741, UL 1741 PCS, UL 1741 SA, UL 1973, UL 9540, IEEE 1547, IEEE 1547.1, UN 38.3
Grid Connection	United States
Emissions	FCC Part 15 Class B
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

MECHANICAL SPECIFICATIONS

Dimensions	1596 x 755 x 169 mm (62.8 x 29.7 x 6.3 in)
Total Weight	130 kg (276 lb)[7]
Battery Assembly	116 kg (251 lb)
Solar Assembly	22 kg (49 lb)
Mounting options	Floor or wall mount



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)[8]
Recommended Temperature	0°C to 35°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	-20°C to 30°C (-4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	Type 3R
Solar Assembly Ingress Rating	IP56 (Wiring Compartment)
Battery Assembly Ingress Rating	IP56 (Wiring Compartment) IP67 (Battery & Power Electronics)
Noise Level @ 1 m	< 40 dB(A) typical. < 50 dB(A) maximum

[1] Values reported for 25°C (77°F).
[2] Load start capability may vary.
[3] Where the DC input current exceeds an MPPT rating, jumpers can be used to allow a single MPPT to enable additional DC current up to 26 A I_{mp} / 34 A I_{sc}.
[4] Power factor varies at maximum power.
[5] AC to battery to AC, at beginning of life.
[6] Cellular connectivity subject to network service coverage and signal strength.
[7] The total weight does not include the Powerwall+ bracket, which weighs an additional 9 kg (20 lb).
[8] Performance may be derated at operating temperatures below -10°C (50°F) or greater than 43°C (109°F).

TESLA.COM/POWERWALL

SOLAR SHUTDOWN DEVICE

The Tesla Solar Shutdown Device is a Mid-Circuit Interrupter (MCI) and is part of the PV system rapid shutdown (RSD) function in accordance with Article 690 of the applicable NEC. When paired with Powerwall+, solar array shutdown is initiated by pushing the System Shutdown Switch if one is present.

ELECTRICAL SPECIFICATIONS

Model Number	MCI-1
Nominal Input DC Current Rating (I_{mp})	12 A
Maximum Input Short Circuit Current (I_{sc})	15 A
Maximum System Voltage	600 V DC

RSD MODULE PERFORMANCE

Maximum Number of Devices per String	6
Control	Power Line Excitation
Passive State	Normally open
Maximum Power Consumption	7 W
Warranty	25 years

COMPLIANCE INFORMATION

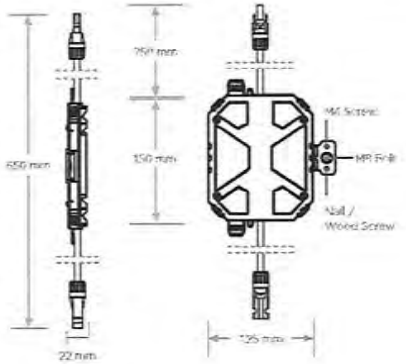
Certifications	UL 1741 PVRSE, UL 3741, PVRSA (Photovoltaic Rapid Shutdown Array)
RSD Initiation Method	External System Shutdown Switch
Compatible Equipment	See Compatibility Table below

ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature	-40°C to 50°C (-40°F to 122°F)
Storage Temperature	-30°C to 60°C (-22°F to 140°F)
Enclosure Rating	NEMA 4 / IP65

MECHANICAL SPECIFICATIONS

Electrical Connections	MC4 Connector
Housing	Plastic
Dimensions	325 mm x 150 mm x 22 mm (13 in x 6 in x 1 in)
Weight	550 g (1.22 lb)
Mounting Options	ZEP Home Run Clip M4 Screw (#10) M8 Bolt (5/16") Nail / Wood Screw



UL 3741 PV HAZARD CONTROL (AND PVRSA) COMPATIBILITY

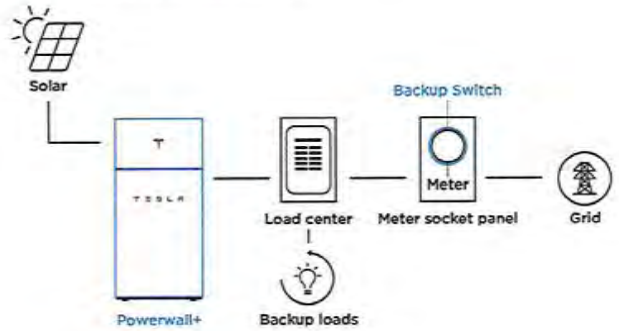
Tesla Solar Roof and Tesla Solar 2S Arrays using the following modules are certified to UL 3741 and UL 3741 PVRSA when installed with the Powerwall+ and Solar Shutdown Devices. See the Powerwall+ Installation Manual for detailed instructions and for guidance on installing Powerwall+ and Solar Shutdown Devices with other modules.

Brand	Model	Required Solar Shutdown Devices
Tesla	Solar Roof V3	1 Solar Shutdown Device per 10 modules
Tesla	Tesla Tuxedo (where xxx = 405 to 450 W, increments of 5)	1 Solar Shutdown Device per 2 modules*
Tesla	Tesla Tuxedo (where xxx = 395 to 415 W, increments of 5)	1 Solar Shutdown Device per 3 modules
Hanwha	Q.PEAK DUO BLK-G5	1 Solar Shutdown Device per 3 modules
Hanwha	Q.PEAK DUO BLK-G6+	1 Solar Shutdown Device per 3 modules

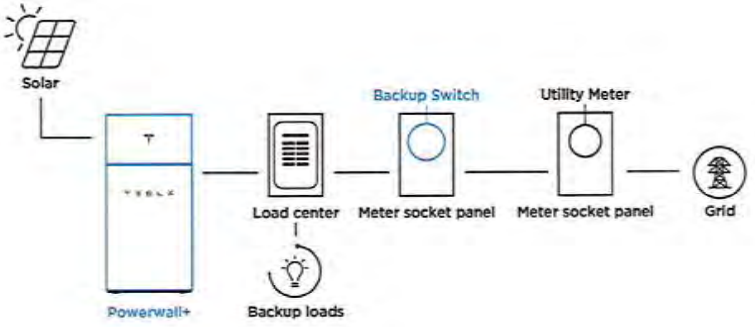
Exception: Tesla solar modules installed in locations where the max Voc (at their modules' low design temperature) exceeds 350 V shall be limited to two modules between Solar Shutdown Devices.

SYSTEM LAYOUTS

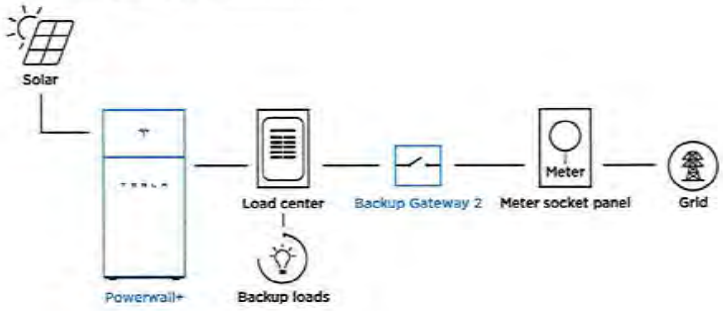
Powerwall+ with Backup Switch Installed Behind Utility Meter



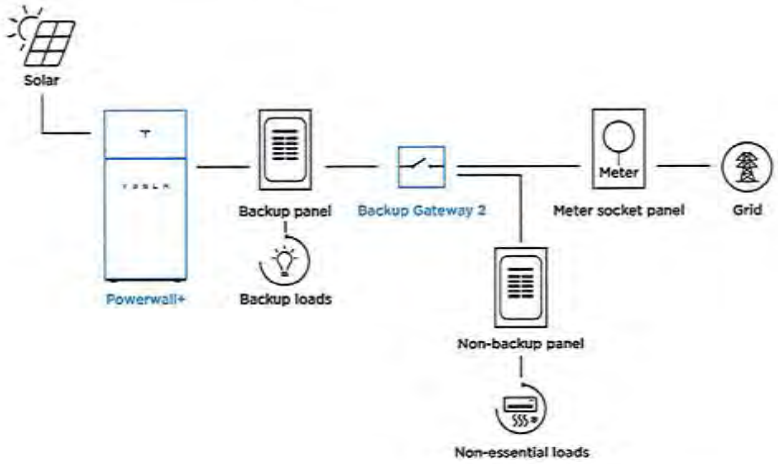
Powerwall+ with Backup Switch Installed Downstream of Utility Meter



Powerwall+ with Backup Gateway 2 for Whole Home Backup



Powerwall+ with Backup Gateway 2 for Partial Home Backup



Tesla Photovoltaic Module

T395H, T400H, and T405H

—

The Tesla module is one of the most powerful residential photovoltaic modules available and exceeds industry engineering and quality standards. Featuring our proprietary Zep Groove design, the all-black module mounts close to your roof for a minimalist aesthetic. Modules are certified to IEC / UL 61730 - 1, IEC / UL 61730 - 2 and IEC 61215.

TESLA

Module Specifications

Electrical Characteristics

Power Class	T395H		T400H		T405H	
Test Method	STC	NMOT	STC	NMOT	STC	NMOT
Max Power P_{max} (W)	395	296.7	400	300.3	405	304.0
Open Circuit Voltage V_{oc} (V)	45.27	42.65	45.20	42.72	45.34	42.76
Short Circuit Current I_{sc} (A)	11.10	8.85	11.14	8.87	11.17	9.00
Max Power Voltage V_{mp} (V)	36.64	33.50	37.01	33.86	37.39	33.46
Max Power Current I_{mp} (A)	10.77	8.86	10.77	8.87	10.82	8.87
Module Efficiency (%)	≥ 20.0		≥ 20.4		≥ 20.6	
STC	1000 W/m² 25°C AM1.5					
NOCT	800 W/m² 20°C AM1.5 wind speed 1 m/s					

Mechanical Loading

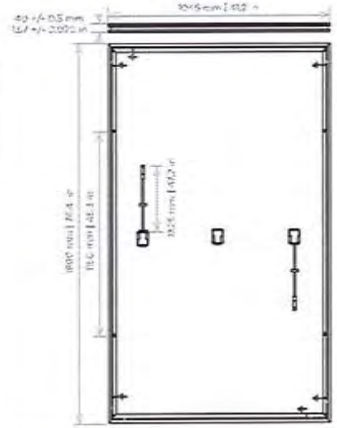
Front Side Test Load	5120 Pa | 106 lb/ft²	Refer to module and system installation manuals for allowable design loads, rail spacings, and certified specifications.
Rear Side Test Load	5120 Pa | 106 lb/ft²	
Front Side Design Load	4000 Pa | 83 lb/ft²	
Rear Side Design Load	4000 Pa | 83 lb/ft²	
Hail Test	25 mm at 23.2 m/s	

Temperature Rating (STC)

Temperature Coefficient of I_{sc}	+0.04% / °C
Temperature Coefficient of V_{oc}	-0.27% / °C
Temperature Coefficient of P_{max} (W)	-0.34% / °C

Mechanical Parameters

Cell Orientation	132 (6 × 22)
Junction Box	IP68, 3 diodes
Cable	4 mm² | 12 AWG, 1235 mm | 48.6 in, Length
Connector	Staubli MC4
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass
Frame	Black Anodized Aluminum Alloy
Weight	20.5 kg | 51.8 lb
Dimension	1692 mm x 1046 mm x 40 mm 66.4 in x 41.2 in x 1.57 in



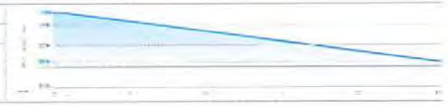
Operation Parameters

Operational Temperature	-40°C up to +85°C
Power Output Tolerance	+5 / -5 W
V_{mp} & I_{mp} Tolerance	+/- 5%
Max System Voltage	DC 1000 V (IEC/UL)
Max Series Fuse Rating	20 A
NOCT	45.7 °C ± 2 °C
Safety Class	Class II
Fire Rating	UL 61730 Type 2

Linear Power Warranty

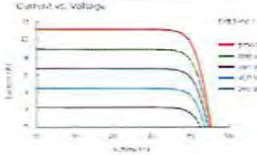
Materials and Processing	25 years
Extra Linear Power Output	25 years

At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

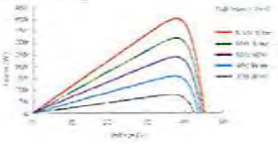


IV Curves

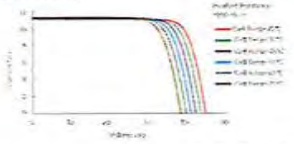
Current vs. Voltage



Power vs. Voltage



Current vs. Voltage



TESLA

PV HAZARD CONTROL SYSTEM | ZS PVHCS

UL 3741 REPORT DATE 10-20-21 (APPLICABLE TO ZS COMP, ZS SPAN, ZS RAMP, AND ZS SEAM)
PV RAPID SHUTDOWN ARRAY, UL 1741 CATEGORY QIJR

WARNING: To reduce the risk of injury, read all instructions.

PV HAZARD CONTROL EQUIPMENT AND COMPONENTS

Function	Manufacturer	Model No.	Firmware Versions and Checksums	Certification Standard
PVRSE Mid Circuit Interrupter (MCI)	Tesla	MCI-1	N/A	UL 1741 PVRSE
Inverter or Powerwall+	Tesla	7.6 kW: 1538000 [1] 3.8 kW: 1534000 [1] 7.6 kW: 1850000 [1]	V4, CEA4F802 V4, FF7BE4E1 V4, CEA4F802	UL 1741, 1998 PVRSS/PVRSE
PV Module	Hanwha/ Q-CELLS Tesla	Q.PEAK DUO BLK-G5/SC310-320 Q.PEAK DUO BLK G6+/SC330-345 Tesla TxxxS (xxx = 405 to 450) Tesla TxxxH (xxx = 395 to 415)	N/A	UL 1703 UL 61730
PVHCS Initiator (PV Inverter)	Dedicated PV system AC circuit breaker or AC disconnect switch, labeled per NEC 690.12 requirements.			N/A
PVHCS Initiator (Powerwall+)	Emergency stop device (NISD)- Listed "Emergency Stop Button" or "Emergency Stop Device" or "Emergency Stop Unit".			UL 508 or UL 60947 Parts 1, 5-1 and 5-5

[1] Applies to variations of this part number with suffix of two numbers and one letter.

Note: PVHCS installation requirements may reduce the effective equipment and component ratings below the individual equipment and component PVRSE ratings in order to achieve PVHCS shock hazard reduction requirements.

PVHCS INSTALLATION REQUIREMENTS

Max System Voltage	600 VDC
PVHCS Maximum Circuit Voltage (Array Internal Voltage After Actuation)	165 VDC (cold weather open circuit)
Max Series-Connected Modules Between MCIs: *Exception: Tesla S-Series (TxxxS) modules installed in locations where the max VOC for 3 modules at low design temperature exceeds 165V shall be limited to 2 modules between MCIs.	3*

OTHER INSTALLATION INSTRUCTIONS

1. An MCI must be connected to one end of each series string or mounting plane sub-array string.

2. Verification that MCIs are installed with 3 or fewer modules between MCIs shall be documented for inspection, by voltage measurement logs and/or as-built string layout diagrams.

3. For PV Inverter: The PVHCS initiator (AC breaker or switch) shall be sized and installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings.

4. For Powerwall+: The PVHCS emergency stop initiator shall have the following minimum ratings: Outdoor (Type 3R or higher), 12V, 1A, and shall be installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings. Refer to the Powerwall+ installation manual for further details.

PV HAZARD CONTROL SYSTEM PVHCS | CERTIFICATION

UL 3741 REPORT DATE 8-12-21
PV RAPID SHUTDOWN ARRAY, UL 1741 CATEGORY QIJR, REPORT DATE: 2021-06-11 (REV 8-10-21)

WARNING: To reduce the risk of injury, read all instructions.

PV HAZARD CONTROL EQUIPMENT AND COMPONENTS

Function	Manufacturer	Model No.	Firmware Versions and Checksums	Certification Standard
PVRSE Mid Circuit Interrupter (MCI)	Tesla	MCI-1 1550379[1]	N/A	UL 1741 PVRSE
Inverter or Powerwall+	Tesla	7.6 kW: 1538000 [1] 3.8 kW: 1534000 [1] 7.6 kW: 1850000 [1]	V4, CEA4F802 V4, FF7BE4E1 V4, CEA4F802	UL 1741, 1998 PVRSS/PVRSE
PV Module	Tesla	SR60T1, SR72T1 SR72T2	N/A	UL 61730
Diode Harness (Not applicable to SR72T2)	Tesla	SRDTH	N/A	UL 9703
PV Wire Jumper(s)	Tesla	SR-BJ2X, SR-BJ3X, SR-BJ4X, SR-BJMini	N/A	UL 9703
Pass-Through Box	Tesla	SRPTB-4	N/A	UL 1741
PVHCS Initiator : (PV Inverter)	Dedicated PV system AC circuit breaker or AC disconnect switch, labeled per NEC 690.12 requirements.			N/A
PVHCS Initiator : (Powerwall+)	Emergency stop device (NISD)- Listed "Emergency Stop Button" or "Emergency Stop Device" or "Emergency Stop Unit"			UL 508 or UL 60947 Parts 1, 5-1 and 5-5

[1] Applies to variations of this part number with suffix of two numbers and one letter.

Note: PVHCS installation requirements may reduce the effective equipment and component ratings below the individual equipment and component PVRSE ratings in order to achieve PVHCS shock hazard reduction requirements.

PVHCS INSTALLATION REQUIREMENTS

Max System Voltage	600 VDC
PVHCS Maximum Circuit Voltage (Array Internal Voltage After Actuation)	165 VDC (cold weather open circuit)
Max Series-Connected Panels between MCIs	10

OTHER INSTALLATION INSTRUCTIONS

1. An MCI must be connected to one end of each series string or mounting plane sub-array string.

2. Verification that MCIs are installed with 10 or fewer modules between MCIs shall be documented for inspection, by voltage measurement logs and/or as-built string layout diagrams.

3. For PV Inverter: The PVHCS initiator (AC breaker or switch) shall be sized and installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings.

4. For Powerwall+: The PVHCS emergency stop initiator shall have the following minimum ratings: Outdoor (Type 3R or higher), 12V, 1A, and shall be installed in accordance with NEC requirements. The specific part shall be identified on the as-built system drawings. Refer to the Powerwall+ installation manual for further details.

BOARD ACTION FORM

AGENDA DATE:

PZHAC: January 3, 2023 **BOT:**

ITEM:

PZHAC Case #061505 – 2840 Teresita, submitted by Jacquie Porter, to repair stucco, add color coat, trim paint, replace windows on back porch, and rain gutters under canals. Zoned: Historical Residential (HR)

BACKGROUND AND ANALYSIS:

It is determined that the proposed application is acceptable and meets all applicable Town codes, the application should continue based on finding stated below.

MUNICIPAL TOWN CODE:

This application falls under the ordinance MTC Chapter 18.35.050.

SUPPORTING INFORMATION:

- Application
- Site Plan w/ Dimensions

PZHAC ACTION:

The PZHAC may:

1. Recommend approval of this case with findings stated above.
2. Recommend approval of this case with findings stated above and conditions.
3. Deny the application.

BOT OPTIONS:

TOWN OF MESILLA

APPLICATION FOR BUILDING PERMIT

Permit Fee $ 400
Review Fee $ 58.50
Total Fee $ 458.50

2231 Avenida de Mesilla, P.O. Box 10, Mesilla, NM 88046 (575) 524-3262 ext. 104

CASE NO. 061505 ZONE: HR CODE: _____ APPLICATION DATE: 12/22/22

JACQUIE PORTER — 575-644-5340
Name of Property Owner — Property Owner's Telephone Number

5505 TRES SENDAS LAS CRUCES NM 88005
Property Owner's Mailing Address — City — State — Zip Code

jporter@nmsu.edu
Property Owner's E-mail Address

JOHN ENGEL 7090 CAMINO BLANCO, LCNM 88007
Contractor's Name & Address (If none, indicate Self) 85-1473922 FED

575-644-5615 — state 03-527178-00-7 — 402334
Contractor's Telephone Number — Contractor's Tax ID Number — Contractor's License Number

Address of Proposed Work: 2840 TERESITA

Description of Proposed Work: STUCCO repair AND COLOR COAT, TRIM PAINT; replacement WINDOWS ON BACK PORCH, ROLLIN GUTTERS UNDER CANALS.

THIS APPLICATION SHALL INCLUDE ALL OF THE FOLLOWING **Plan sheets are to be no larger than 11 x 17 inches or shall be submitted electronically.**

1. ___ Plot plan with legal description to show existing structures, adjoining streets, driveway(s), improvements & setbacks. Verification shall show that the lot was **LEGALLY** subdivided through the Town of Mesilla or that the lot has been in existence prior to February 1972.
2. ___ Site Plan with dimensions and details.
3. ___ Foundation plan with details.
4. ___ Floor plan showing rooms, their uses, and dimensions.
5. ___ Cross section of walls.
6. ___ Roof and floor framing plan.
7. ___ Proof of legal access to the property.
8. ___ Drainage plan.
9. ___ Details of architectural style and color scheme (checklist included for Historical zones) – diagrams and elevations.
10. ___ Proof of sewer service or a copy of septic tank permit; proof of water service (well permit or statement from the Public Utility providing water services).
11. ___ Proof of legal access to the property.
12. ___ Other information as necessary or required by the Town Code or Community Development Department.

$ 32 000 — John Engel — 12/20/22
Estimated Cost — Signature of Applicant — Date

Application Fee is due at time of submittal. Apart from administrative approvals, all permit requests must undergo a review process from staff, PZHAC and/or BOT before issuance of a building permit. All Building permits expire after one year from date issued.

FOR OFFICIAL USE ONLY

PZHAC
- ☐ Administrative Approval
- ☐ Approved Date: _____
- ☐ Disapproved Date: _____
- ☐ Approved with conditions

BOT
- ☐ Approved Date: _____
- ☐ Disapproved Date: _____
- ☐ Approved with Conditions

PZHAC APPROVAL REQUIRED: ___YES ___NO BOT APPROVAL REQUIRED: ___YES ___NO

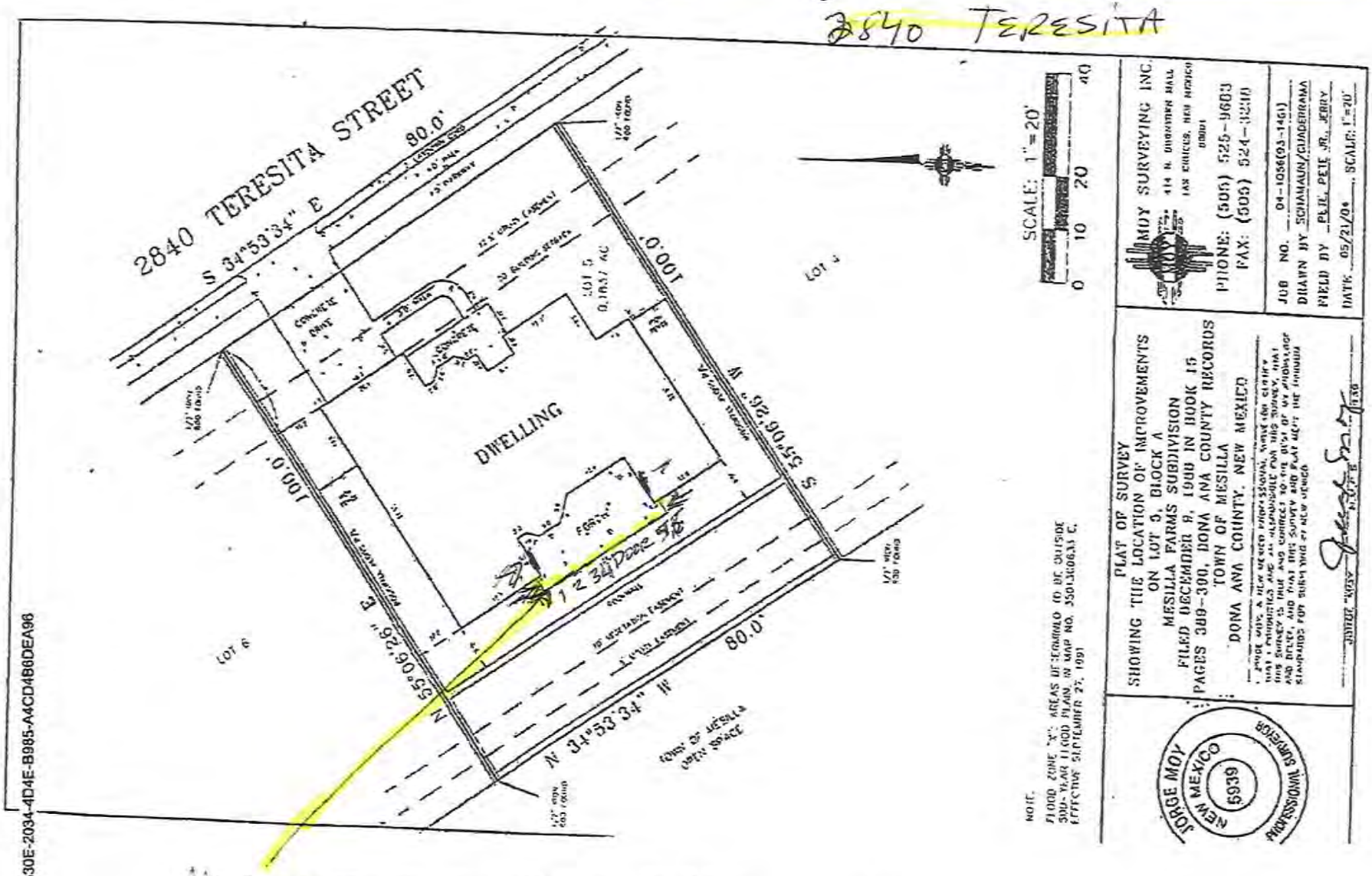
CID PERMIT/INSPECTION REQUIRED: ___YES ___NO ___SEE CONDITIONS

CONDITIONS: _____

PERMISSION ISSUED / DENIED BY: _____ ISSUE DATE: _____

Rev 05.27.22

For bldg permit for Jacque Porter
2840 Teresita



New windows on back porch

6 of them are 3050 size (3' wide, 5' tall) on back wall
2 are 1550 (18" wide, 5' tall) on side wall
1 door 6068 or 6 ft wide by 6'8" tall on back wall

DS JMP

BOARD ACTION FORM

AGENDA DATE:

PZHAC: January 3, 2023 **BOT:**

ITEM:

PZHAC Case #061506 – 2001 Avenida De Mesilla, submitted by Jimmy Nevarez for a sign permit. Zoned: Historical Commercial (HC)

BACKGROUND AND ANALYSIS:

It is determined that the proposed application is acceptable and meets all applicable Town codes, the application should continue.

MUNICIPAL TOWN CODE:

This application falls under the ordinance MTC Chapter 18.65.060.

SUPPORTING INFORMATION:

- Application
- Picture

PZHAC ACTION:

The PZHAC may:

1. Recommend approval of this case with findings stated above.
2. Recommend approval of this case with findings stated above and conditions.
3. Deny the application.

BOT OPTIONS:

Town of Mesilla
P.O. BOX 10
MESILLA, NM 88046
PHONE: (575) 524-3262 FAX (575) 541-6327

SIGN PERMIT

Application Date: 12-15-22

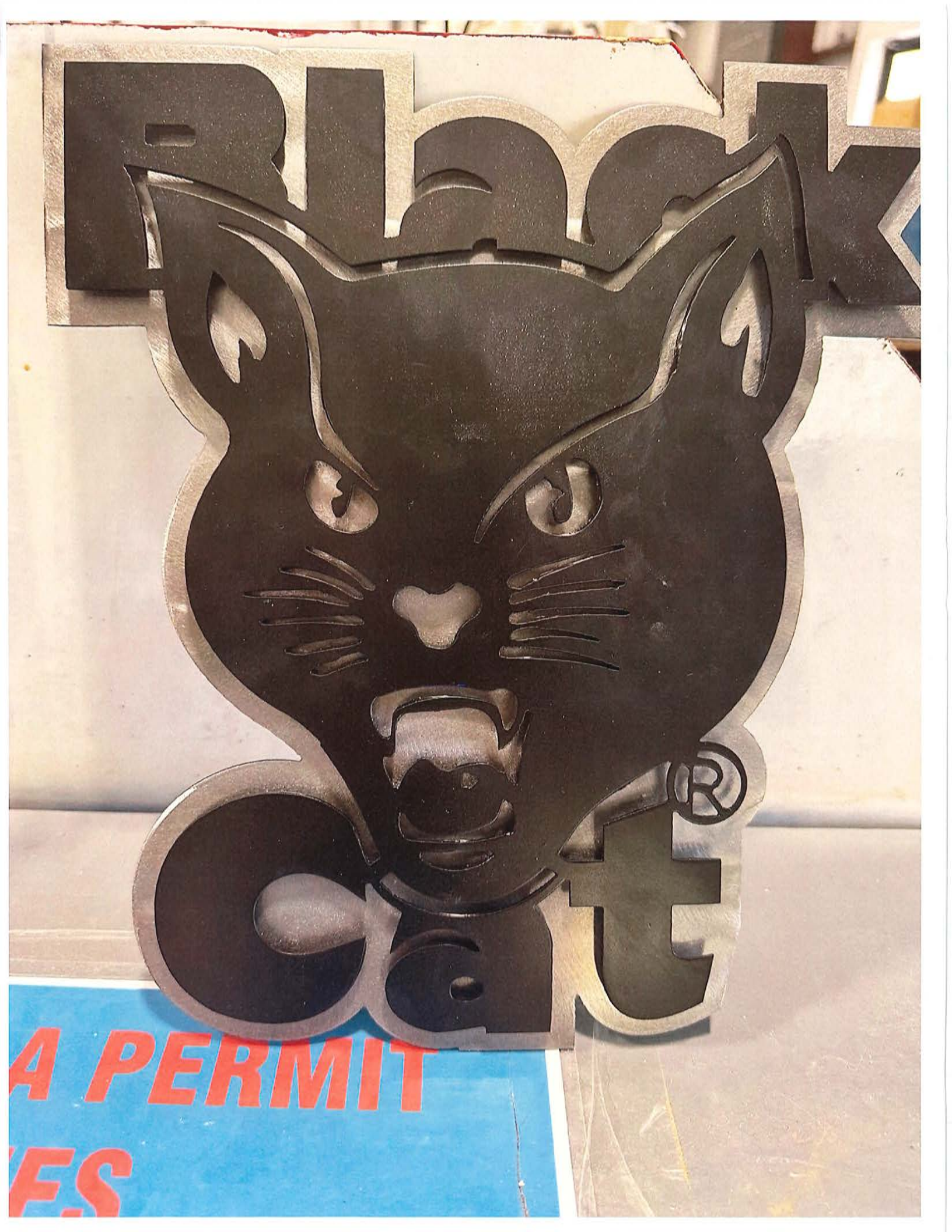
Nevarez Plaza Name of Business	Jimmy Nevarez Name of Applicant
2001 Avenida De Mesilla Address of Business	1000 Lopez Rd Address of Applicant
Mesilla NM 88046 City State Zip	Las Cruces NM 88007 City State Zip
576-640-9511 Telephone Number	575-640-8322 Alternate Telephone Number

Location and description of Sign:
(include dimensions, lettering, shape, material, texture, colors, and/or finish to be used. Attach a drawing of the location of the sign, including any other advertising structures on the building or lot.)

First sign installed on center top building by 12-25-22. Black Cat logo with words "Fireworks". Sign made out of black metal and backlit. Photo of location attached. Second sign Old Jim's jerky on left side 4'x4' installed in January and made of same material as first. Third sign on right 4'x8' installed in January and made of same material as first sign. Photos attached.

For Office Use Only

Administrative Approval:_____	Permit Fee:_____
PZHAC Approval:_____	Date of Payment:_____
BOT Approval:_____	CASE NUMBER: 061506


Black
Cat®
A PERMIT
FES