SCOPE OF WORK

SYSTEM SIZE: 6.66 KW DC, 9.60 KW AC
MODULES: (18) LG LG370N1K-A6
INVERTER(S): (1) LUNAR ENERGY 9.6KW [240V] [W/ L2-ESS-20KWH BATTERY]
OPTIMIZER UNIT(S): (18) LUNAR MAXIMIZER
RACKING: TAMARACK 2.3
ATTACHMENT: TAMARACK L-FOOT

ENERGY STORAGE SYSTEM:
(1) LUNAR ENERGY L2-ESS-20KWH BATTERY
MICROGRID INTERCONNECT DEVICE (MID) OPTIONS:
OPTION A: (1) LUNAR BRIDGE (MID)
OPTION B: (1) CONNECTDER METER SOCKET ADAPTER (MID) W/ LUNAR METER ADAPTER CONTROLLER

WIND EXPOSURE: C
WIND SPEED: 120mph
GROUND SNOW LOAD: 0psf
OCCUPANCY: PRIMARY RESIDENCE
CONSTRUCTION TYPE: RESIDENTIAL
FIRE SPRINKLER: NONE

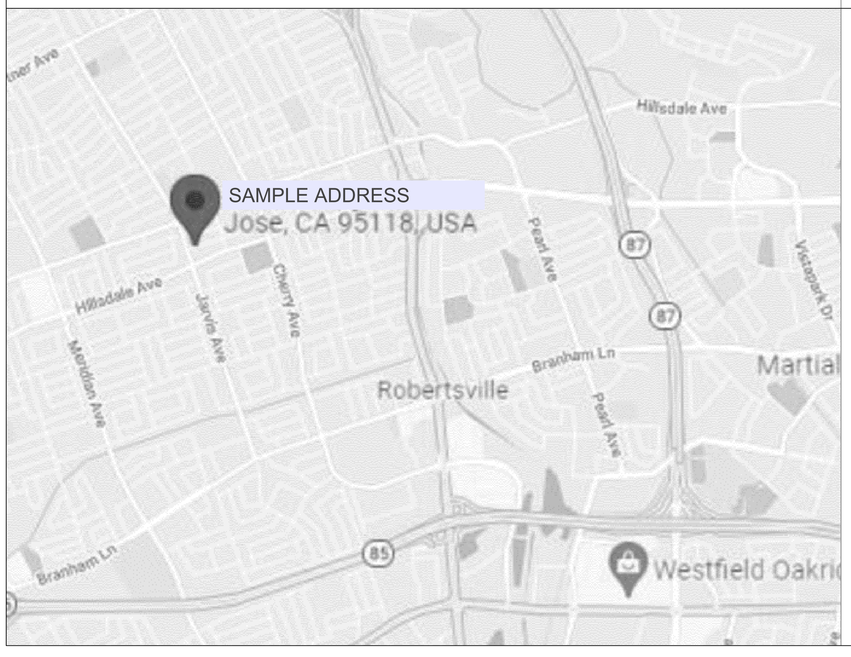
CEC 2025, CBC 2025, 2025 CFC, 2025 CRC

This approval is for compliance to the current adopted building codes for the proposed Solar System only. It is the owner's/applicant's responsibility to ensure that the proposed installation of solar systems and associated equipment is on legally permitted structures. If determined by inspection staff the proposed solar system is installed on non-permitted structures, any required modifications needed for code compliance will be at the owner's/applicant's expense

MASTER FILE FOR LUNAR ENERGY 9.6KW [240V] PV INVERTER & 20KWH BATTERY UNIT

THE PROPOSED STATIONARY STORAGE BATTERY SYSTEM IS LISTED AND LABELED FOR RESIDENTIAL USE IN ACCORDANCE WITH UL 9540 PER SECTION R327 OF THE 2025 CALIFORNIA RESIDENTIAL CODE. UL 9540 REQUIRES AN ENERGY STORAGE SYSTEM TO BE COMPRISED OF A 1973 - CERTIFIED STATIONARY BATTERY USED IN CONJUNCTION WITH A UL 1741 -CERTIFIED INVERTER.

VICINITY MAP



GENERAL NOTES

- **THIS PROJECT SHALL COMPLY WITH LOCAL ORDINANCES**
- **PROPER ACCESS AND WORKING CLEARANCE WILL BE PROVIDED**
- **ALL ELECTRICAL WORK SHOWN ON THESE PLANS WILL BE COMPLETED BY THE UNDERSIGNED**
- **ALL APPLICABLE PV EQUIPMENT LISTED AND COMPLIANT WITH UL2703, UL1741, UL3141, AND UL61730**
- **ALL APPLICABLE ESS EQUIPMENT LISTED AND COMPLIANT WITH UL9540**
- **ALL ROOF PENETRATIONS TO BE SEALED WITH A HIGH PERFORMANCE ROOF SEALANT SUCH AS CHEMLINK M1 ADHESIVE**
- **THE SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND THE UTILITY IS OBTAINED**
- **IF THE EXISTING MAIN PANEL DOES NOT HAVE VERIFIABLE GROUNDING ELECTRODE, IT IS NECESSARY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE**
- **EACH MODULE WILL BE GROUNDED AS PER UL2703 AND/OR UL61730 APPROVED METHOD USING THE SUPPLIED CONNECTION POINTS IDENTIFIED IN THE MODULE AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS**
- **A LADDER SHALL BE IN PLACE FOR THE INSPECTION IN COMPLIANCE WITH CAL-OSHA REGULATIONS**
- **ALL WORK SHALL COMPLY WITH 2025 CEC, 2025 CRC, 2025 CBC MUNICIPAL CODE, AND ALL MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS.**
- **PHOTOVOLTAIC SYSTEM WILL COMPLY WITH 2025 CEC.**
- **PHOTOVOLTAIC SYSTEM INVERTER IS UNGROUNDED, NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER**
- **MODULES CONFORM TO AND ARE LISTED UNDER UL61730.**
- **INVERTER CONFORMS TO AND IS LISTED UNDER UL1741.**
- **ELECTRICAL EQUIPMENT AND MATERIAL TO BE LISTED, LABELED, AND INSTALLED PER THE CEC, THE INSTALLATION STANDARDS/MANUFACTURER'S RECOMMENDATIONS, AND IF REQUIRED A NATIONALLY RECOGNIZED TESTING LABORATORY.**
- **CONDUITS EXPOSED TO SUNLIGHT ON ROOF SHALL BE LOCATED NOT LESS THAN 7/8" ABOVE ROOF SURFACE.**

NOTES FOR INSPECTORS:

1) BATTERY CAN BE INSTALLED INDOORS OR OUTDOORS
2) AVOID INSTALLING IN LOCATIONS WITH FLAMMABLES, HEATING EQUIPMENT, OR WATER NEARBY PER MII'S
3) MUST NOT BE INSTALLED IN HABITABLE SPACE R328.4
4) MUST BE LOCATED OUT OF THE WAY OF VEHICLE PATH OR PROTECTED BY BOLLARDS R328.8
5) FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS (MII'S) FOR INSTALLATION

JURISDICTION APPROVAL STAMP

TABLE OF CONTENTS

PAGE #	DESCRIPTION
PV 1.0	COVER SHEET
PV 2.0	SITE PLAN
PV 2.1	EQUIPMENT LAYOUT
PV 3.0-3.1	STRUCTURE DETAIL LAYOUT
PV 4.0-4.3	ELECTRICAL
PV 6.0-6.4	BATTERY MOUNTING DETAILS

PC 24-102993 MASTER FILE

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

PROJECT NAME:
SAN JOSE BATTERY MASTERFILE

Rev A
DATE:11 June 2026

STAMP SPACE

Reviewed for Code Compliance
City of San Jose, Building Division
☒ Building ☐ Electrical
☐ Plumbing ☐ Mechanical
Kiet Pham (408) 535-7773
No. 24-102993 Date: 07/02/2026

COVER SHEET

PV 1.0

SITE PLAN: SCALE:- 1" = 5.33333'

- FOR PHOTOVOLTAIC ARRAYS OCCUPYING 33% OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A MINIMUM 18" SETBACK IS REQUIRED ON BOTH SIDES OF HORIZONTAL RIDGE. CFC 605.11.2.2 (IRC R324.6.2)
- TOTAL PV AREA: 351.00 SQFT
- TOTAL ROOF AREA: 2202.81 SQFT
- ROOF AREA OCCUPIED BY SOLAR: 15.94%

(N) MICROGRID INTERCONNECT DEVICE (OPTION A)
(E) UTILITY METER W/ (MID_OPTION B)
(E) MAIN SERVICE PANEL, 225A RATED, 240V
(N) 100A BACKUP LOAD PANEL
(N) LUNAR ENERGY 9.6KW [240V] [240V, 11.5kW] INVERTER W/ 20kWh INTEGRATED ESS SYSTEM

MICROGRID INTERCONNECT DEVICE (MID) OPTIONS:
OPTION A: (1) LUNAR BRIDGE (MID)
OPTION B: (1) CONNECTDER METER SOCKET ADAPTER (MID) W/ LUNAR METER ADAPTER CONTROLLER

THE PROPOSED ENERGY STORAGE SYSTEM WILL NOT BE INSTALLED IN HABITABLE SPACE AND BE AWAY FROM FLAMMABLE OR EXPLOSIVES.

THE PROPOSED ENERGY STORAGE SYSTEM MAY PROJECT HORIZONTALLY FOR A DISTANCE OF NOT MORE THAN TWO FEET INTO ANY SETBACK AREA.

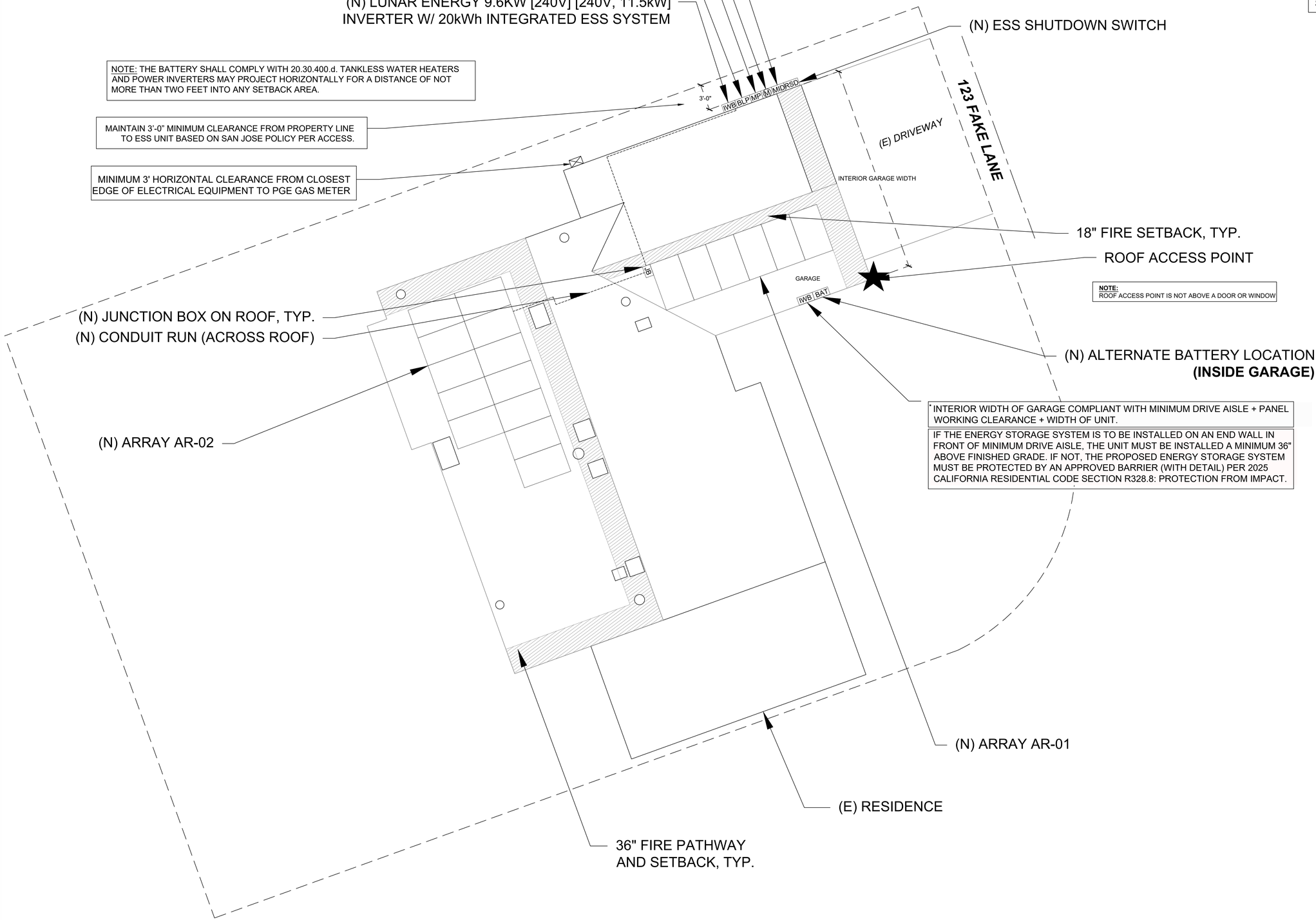
FOR OUTDOOR APPLICATION THE ENERGY STORAGE SYSTEM WILL PLACED IN A SHADED AREA, NOT IN SUNLIGHT.

NOTE: THE BATTERY SHALL COMPLY WITH 20.30.400.d. TANKLESS WATER HEATERS AND POWER INVERTERS MAY PROJECT HORIZONTALLY FOR A DISTANCE OF NOT MORE THAN TWO FEET INTO ANY SETBACK AREA.

MAINTAIN 3'-0" MINIMUM CLEARANCE FROM PROPERTY LINE TO ESS UNIT BASED ON SAN JOSE POLICY PER ACCESS.

MINIMUM 3' HORIZONTAL CLEARANCE FROM CLOSEST EDGE OF ELECTRICAL EQUIPMENT TO PGE GAS METER

(N) ESS SHUTDOWN SWITCH



18" FIRE SETBACK, TYP.

ROOF ACCESS POINT

NOTE:
ROOF ACCESS POINT IS NOT ABOVE A DOOR OR WINDOW

(N) JUNCTION BOX ON ROOF, TYP.
(N) CONDUIT RUN (ACROSS ROOF)

(N) ALTERNATE BATTERY LOCATION **(INSIDE GARAGE)**

* INTERIOR WIDTH OF GARAGE COMPLIANT WITH MINIMUM DRIVE AISLE + PANEL WORKING CLEARANCE + WIDTH OF UNIT.

IF THE ENERGY STORAGE SYSTEM IS TO BE INSTALLED ON AN END WALL IN FRONT OF MINIMUM DRIVE AISLE, THE UNIT MUST BE INSTALLED A MINIMUM 36" ABOVE FINISHED GRADE. IF NOT, THE PROPOSED ENERGY STORAGE SYSTEM MUST BE PROTECTED BY AN APPROVED BARRIER (WITH DETAIL) PER 2025 CALIFORNIA RESIDENTIAL CODE SECTION R328.8: PROTECTION FROM IMPACT.

(N) ARRAY AR-02

(N) ARRAY AR-01

(E) RESIDENCE

36" FIRE PATHWAY AND SETBACK, TYP.

LEGEND

M	METER W/ METER COLLAR ADAPTER
MP	MAIN SERVICE PANEL
BLP	BACKUP LOAD PANEL
JB	JUNCTION BOX
IWB	INVERTER W/ BATTERY
MID	MICRO-GRID INTERCONNECTION DEVICE
RSD	RAPID SHUTDOWN SWITCH

CONTRACTOR INSTALLED

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SITE PLAN

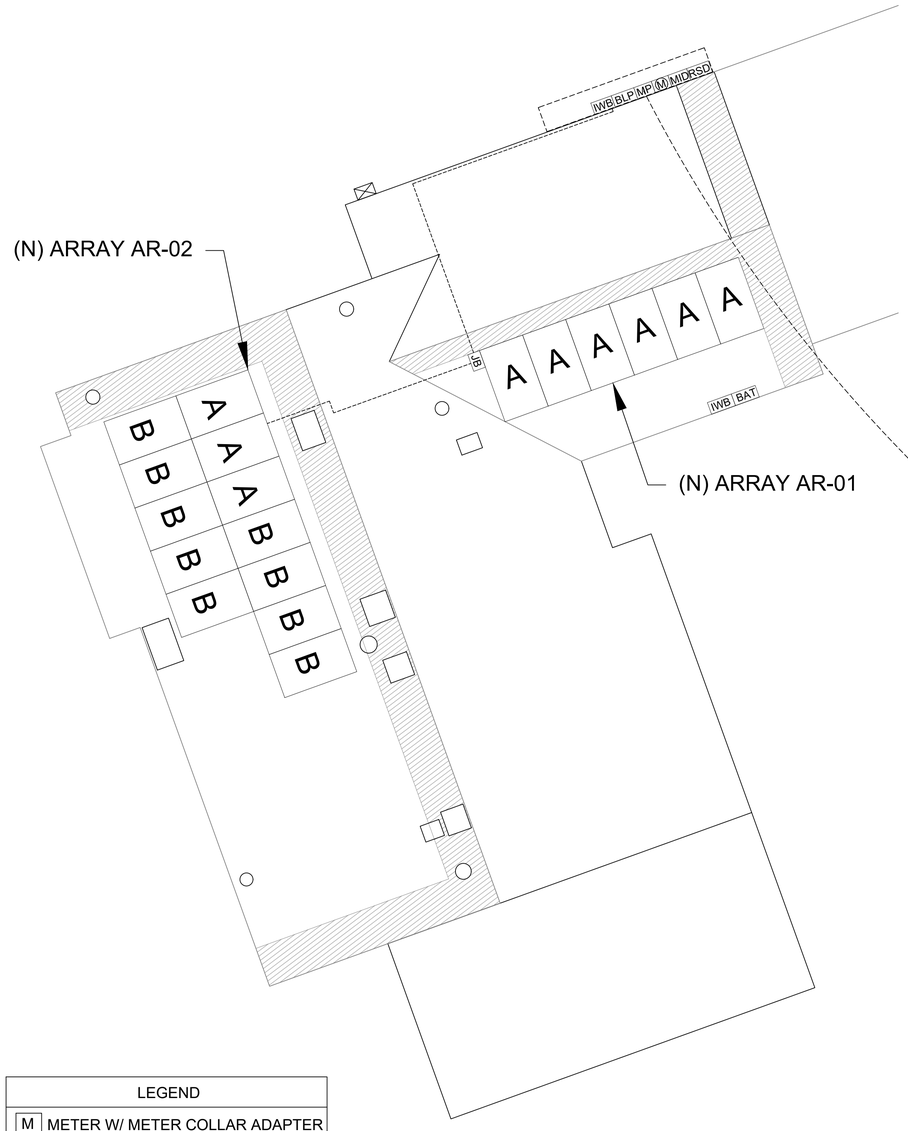
PV 2.0

STRING LAYOUT: SCALE:- 1" = 5.33333'

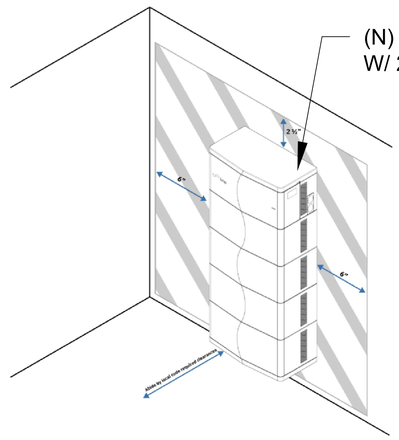
MINIMUM WORKING CLEARANCE

NOTE:
- **MINIMUM 3' FT WORKING CLEARANCE REQUIRED FOR BATTERY FROM DWELLING ENTRANCE (EGRESS WINDOWS OR DOOR) & GAS METER**

MINIMUM CLEARANCE REQUIREMENTS FOR BATTERY UNITS:
- 2.5" FROM TOP
- 6" FROM SIDES

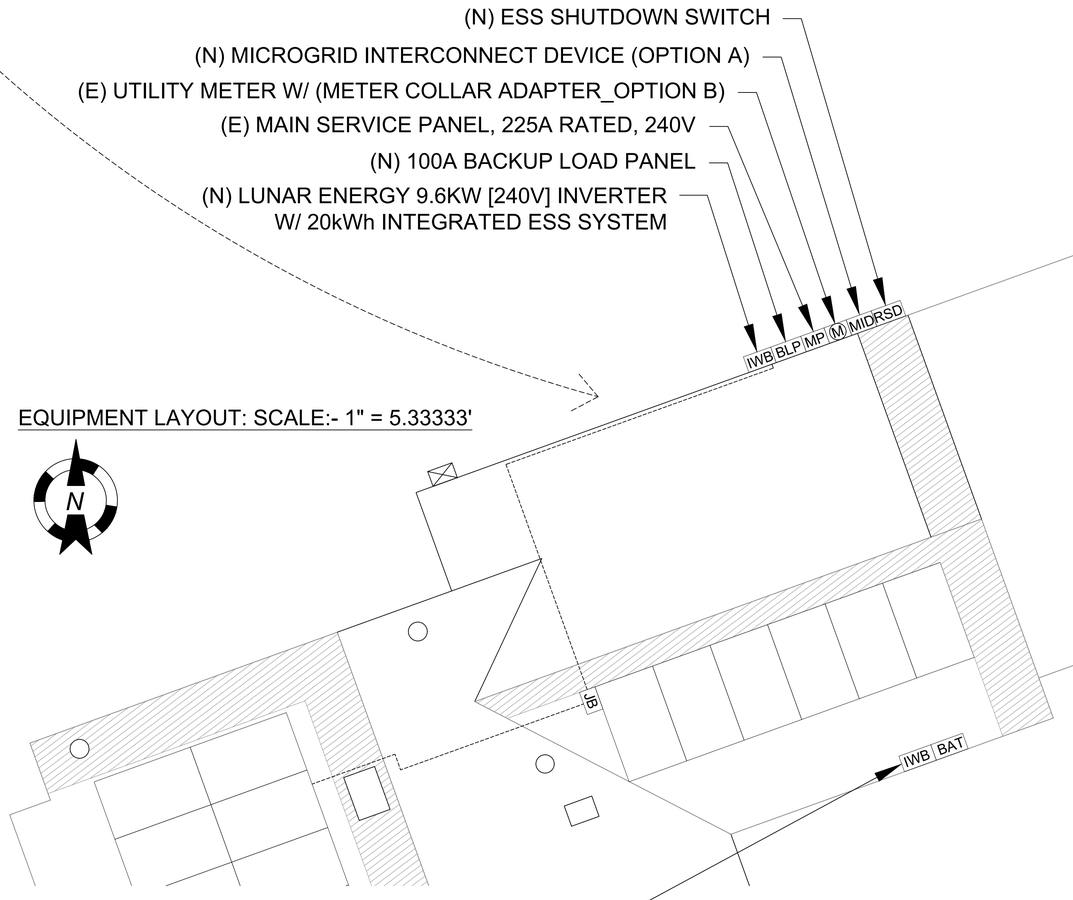


EQUIPMENT ELEVATION DETAIL: SCALE:- NTS



BATTERY MOUNT OPTIONS:
1.) WALL MOUNT

EQUIPMENT LAYOUT: SCALE:- 1" = 5.33333'



LEGEND	
M	METER W/ METER COLLAR ADAPTER
MD	MAIN SERVICE DISCONNECT
MDP	MAIN DISTRIBUTION PANEL
JB	JUNCTION BOX
IWB	INVERTER W/ BATTERY
SB	SUB PANEL
MID	MICRO-GRID INTERCONNECTION DEVICE
BAT	BATTERY
RSD	RAPID SHUTDOWN SWITCH
aHB	aHUB PANEL
CB	COMBINER PANEL

CONTRACTOR INSTALLED

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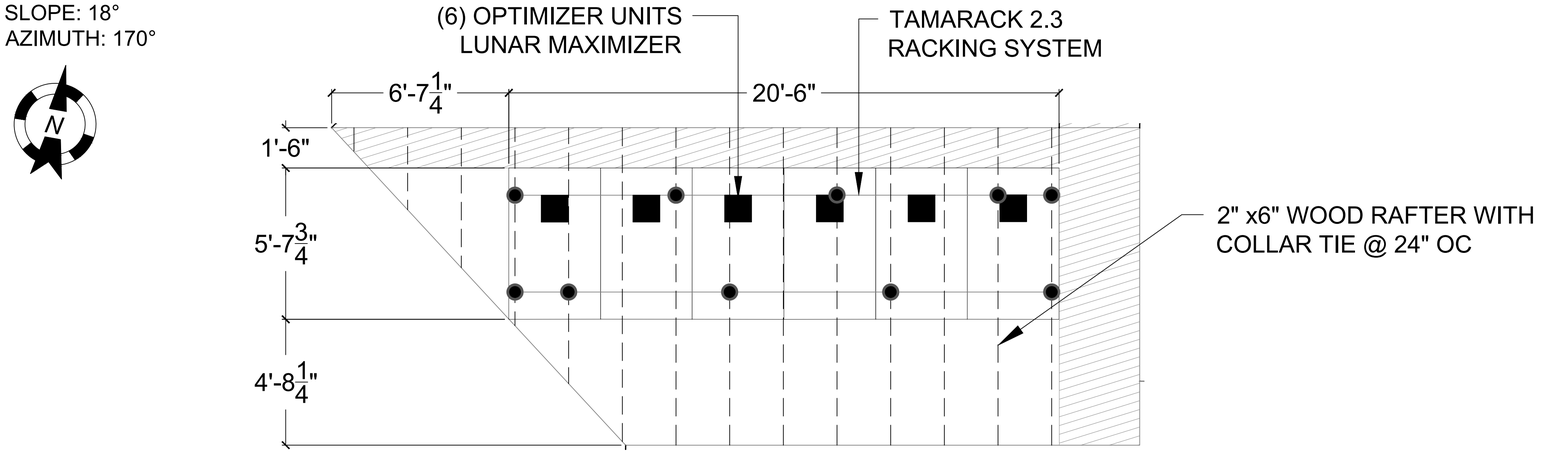
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STRNG AND EQUIPMENT LAYOUT

PV 2.1

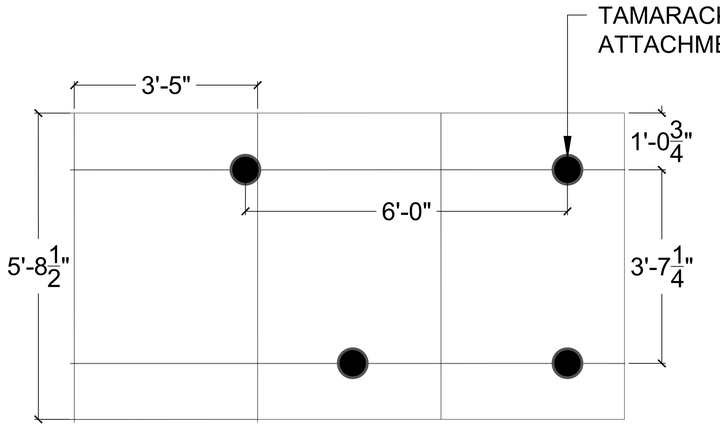
	# MODULES PER ARRAY	ROOF TYPE	ATTACHMENT	ROOF HEIGHT	FRAME MATERIAL	FRAME TYPE	FRAME SIZE	OC SPACING
AR-01	6	COMP SHINGLE	TAMARACK L-FOOT	ONE STORY	WOOD	WOOD RAFTER WITH COLLAR TIE	2" x6"	24" O.C.
AR-02	12	COMP SHINGLE	TAMARACK L-FOOT	ONE STORY	WOOD	WOOD RAFTER WITH COLLAR TIE	2" x6"	24" O.C.

AR-01 - SCALE:1" = 2.66667'
SLOPE: 18°
AZIMUTH: 170°



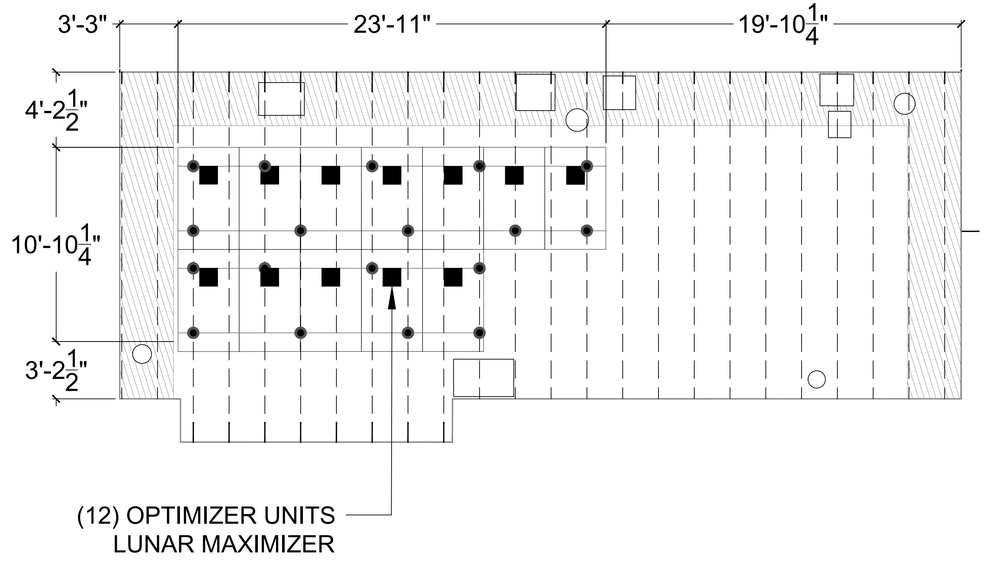
DESIGN CRITERIA

MODULES:
18
MAX DISTRIBUTED LOAD: 3 PSF
SNOW LOAD: 0 PSF
WIND SPEED:
120 MPH 3-SEC GUST.
LAG SCREWS:
5/16"x 2.5" MIN EMBEDMENT
NOTE:
INSTALLERS TO VERIFY RAFTER SIZE, SPACING AND SLOPED SPANS, AND NOTIFY E.O.R. OF ANY DISCREPANCIES BEFORE PROCEEDING.



NOTE: MAX. ATTACHMENT SPACING IS 6'-0"

AR-02 - SCALE:1" = 4'
SLOPE: 18°
AZIMUTH: 260°



POINT LOAD CALCULATION PER ARRAY			
ITEM	#OR LIN FT	WEIGHT PER (lbs)	TOTAL WEIGHT (lbs)
MODULES	18	41.00	738.00
RAILS	109.69	0.4	47.8
ATTACHMENTS	29	0.65	18.85
TILT LEGS	0	3.5	0
OPTIMIZER UNITS	18	1.6	28.8
TOTAL WEIGHT			833.5 lbs
MODULE DIMENSION (LxW)	68.5" x 41.0"=		19.50 sq.ft
WEIGHT PER MOUNT	833.5 / 29 =		28.7 **lbs/Mount**
WEIGHT PER SQ FT	833.5 / 351.00 sq.ft.=		**2.4 lbs/sq.ft.**

CONTRACTOR INSTALLED

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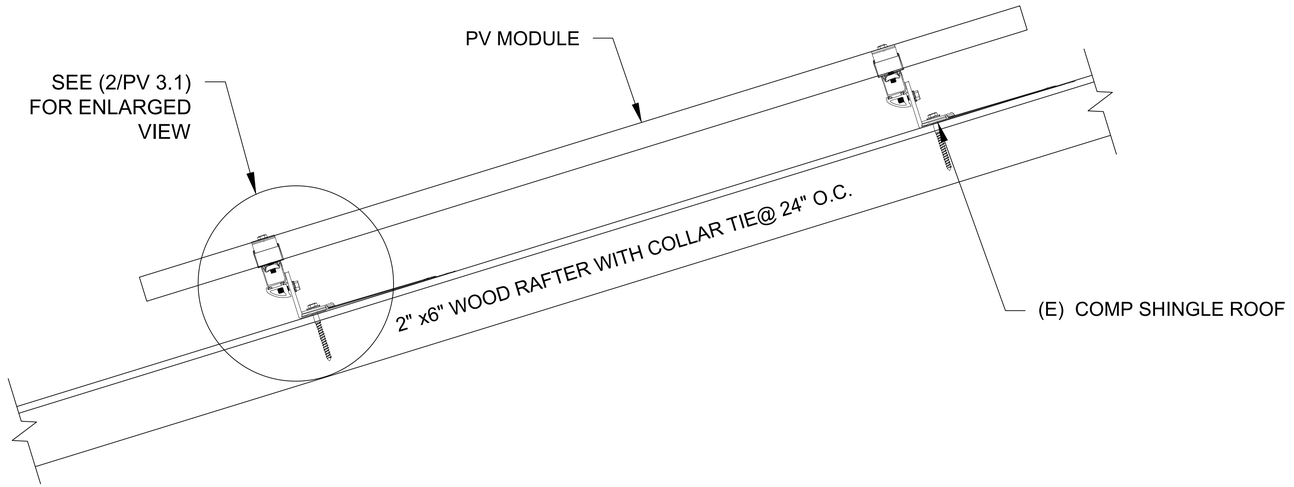
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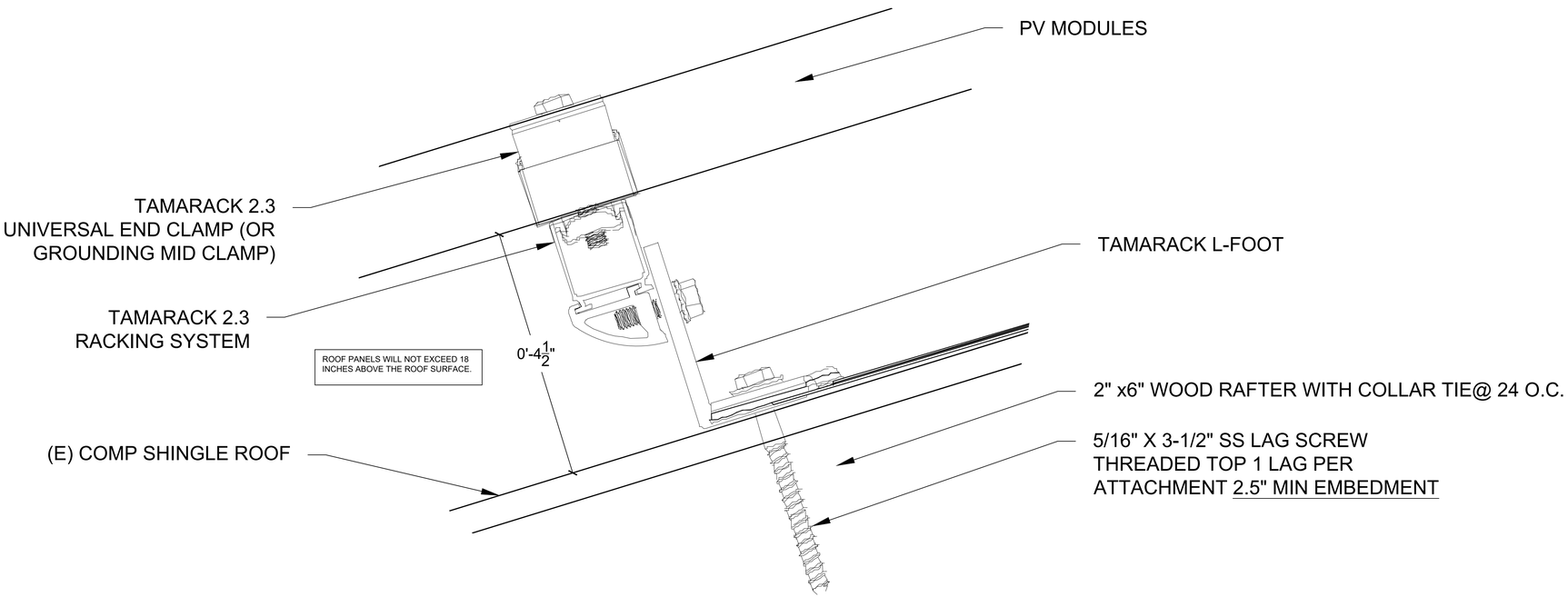
DETAIL LAYOUT

PV 3.0



1 ATTACHMENT DETAIL

PV-3.1 SCALE: NTS



2 ATTACHMENT DETAIL (section view)

PV-3.1

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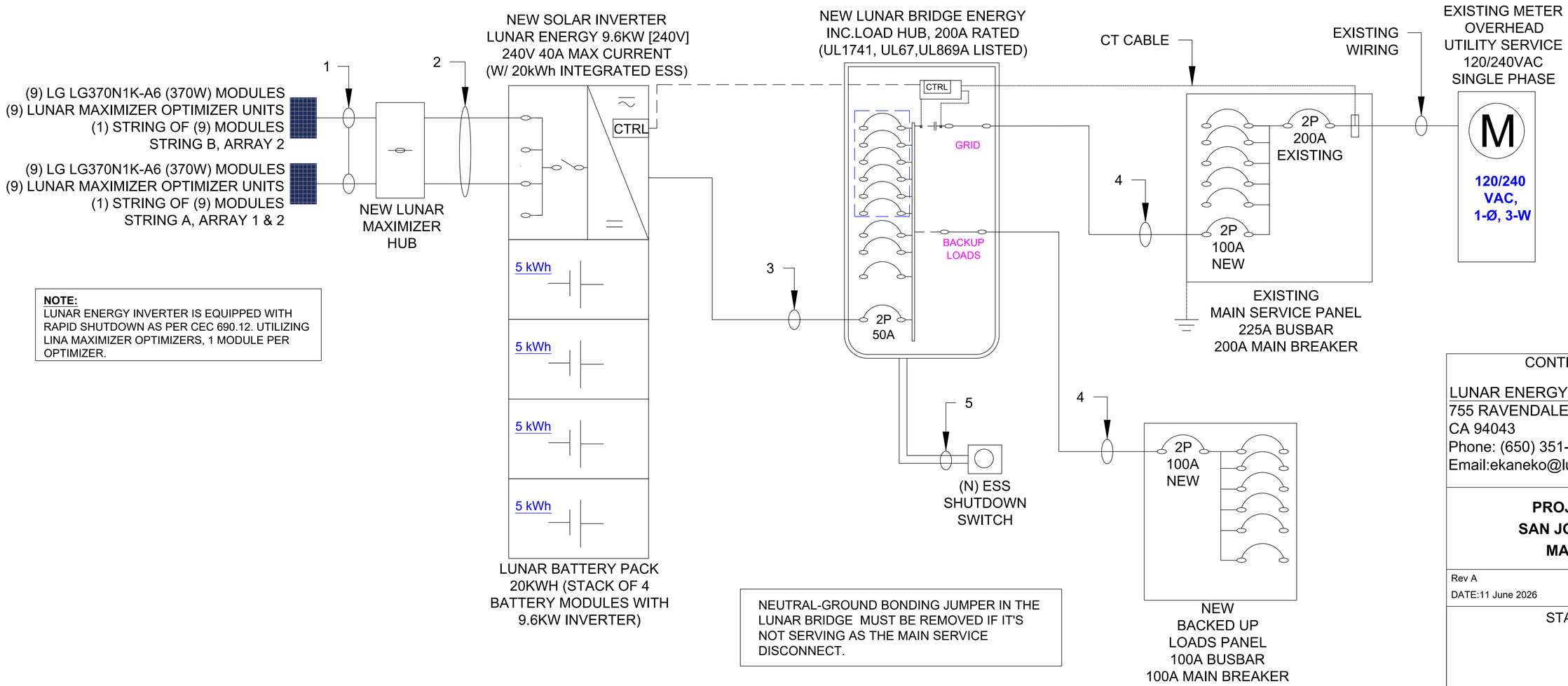
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MOUNTING LAYOUT

PV 3.1

MID OPTION A- LUNAR BRIDGE

SYSTEM SIZE: 6660W DC, 9600W AC & ESS 20 kWh



NOTE:
LUNAR ENERGY INVERTER IS EQUIPPED WITH RAPID SHUTDOWN AS PER CEC 690.12. UTILIZING LINA MAXIMIZER OPTIMIZERS, 1 MODULE PER OPTIMIZER.

NEUTRAL-GROUND BONDING JUMPER IN THE LUNAR BRIDGE MUST BE REMOVED IF IT'S NOT SERVING AS THE MAIN SERVICE DISCONNECT.

GROUNDING NOTES:

A. SIZE EGC PER 250.122
B. SIZE GEC FROM PANEL GROUND BAR TO GROUND
C. ROD/UFER PER 250.52

EXCEPTION: WHEN ESTABLISHING NEW GROUND AT THE MAIN PANEL, GEC WILL BE SIZED AS #6 AWG CU PER 250.66 (A)
ALL CONDUCTORS AND TERMINATIONS SHALL BE LISTED FOR 75 DEGREES.

NOTE: PRODUCERS STORAGE DEVICE(S) WILL NOT CAUSE THE HOST LOAD TO EXCEED ITS NORMAL PEAK DEMAND. NORMAL PEAK DEMAND IS DEFINED AS THE HIGHEST AMOUNT OF POWER REQUIRED FROM THE DISTRIBUTION SYSTEM BY PRODUCERS COMPLETE FACILITIES WITHOUT THE INFLUENCE OR USE OF THE ENERGY STORAGE DEVICE(S)

CONDUIT SCHEDULE *ALL WIRE ASSUMED TO BE CU UNLESS OTHERWISE SPECIFIED

				GROUND	
#	CONDUIT	CONDUCTOR (RED/BLACK)	NEUTRAL (WHITE)	(GREEN)	(BARE COPPER)
1	NONE	(2) 10 AWG PV WIRE	NONE	NONE	(1) 6 AWG
2	¾" EMT	(4) 10 AWG THHN/THWN-2	NONE	(1) 10 AWG THHN/THWN-2	NONE
3	¾" EMT	(2) 8 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2	(1) 10 AWG THHN/THWN-2	NONE
4	1" EMT	(2) 3 AWG THHN/THWN-2	(1) 3 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2	NONE
5	1/2" EMT	(2) 18 AWG THHN/THWN-2	NONE	NONE	NONE

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
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ELECTRICAL

PV 4.0

MID OPTION A- LUNAR BRIDGE

CONDUCTOR SIZING CALCULATIONS								
CIRCUIT DESCRIPTION	CURRENT	Imax (690.8(A)(3))	Icont (690.8(B)(1) calc	SPECIFIED CONDUCTOR	AMPACITY @ 90c	AMBIENT TEMP c	CURRENT CARRYING COND.	COND. OF USE APPLIED (690.8(B)(2) calc
PV SOURCE CIRCUIT STRING A-B	16A	16A	16A x 1.25 = 20A	#10 THWN-2	40A	31-35	4-6	40A x 0.96 (am b. temp) x 0.8 (raceway fill) = 30.72A > Imax
INVERTER AC OUTPUT	40A	40A	40A Imax x 1.25 = 50A	#8 THWN-2	55A	31-35	1-3	55A x 0.96 (am b. temp.) x1 (raceway fill) = 52.8A>Imax
LUNAR HUB GRID IN/OUT	100A	100A	100A	#3 THWN-2	115A	31-35	1-3	115A x 0.96(am b. temp.) x1 (raceway fill) = 110.4A>100A

INVERTERS RATING	
MAKE	LUNAR ENERGY
MODEL	9.6KW [240V] [SI1-SB]
MAX INPUT CURRENT	37.5A
MAX POWER (AC)	9600W
NOM. AC VOLTAGE	240V
MAX AC CURRENT	40A
CEC EFFICIENCY	95.5%

TERMINAL TEMPERATURE RATING CONSIDERATIONS					
CIRCUIT DESCRIPTION	CURRENT	Icont	TERMINAL TEMP RATING	SPECIFIED CONDUCTOR	AMPACITY @ TERMNAL TEMP. RATING
PV SOURCE CIRCUIT STRING A-B	16A	16A x 1.25 = 20A	75C	#10	35A
INVERTER AC OUTPUT	40A	40A Imax x 1.25 = 50A	75C	#8	50A
LUNAR HUB GRID IN/OUT	100A	100A	75C	#3	100A

BATTERY RATINGS	
MAKE	LUNAR ENERGY
MODEL	L2-ESS-20KWH
Total Energy [kWh]	20
Max Load Start Capability	134LRA

VOLTAGE DROP CALCULATIONS					
LENGTH	I	Ohms/kFt	V	CALC	Vdrop
50Ft	16A	0.9989	450V	50' x 16A x 2 x 0.9989/1000'/450V=	0.36%
50Ft	16A	0.9989	450V	50' x 16A x 2 x 0.9989/1000'/450V=	0.36%
30Ft	40A	0.6282	240V	30' x 40A x 2 x 0.6282/1000'/240V=	0.63%

MODULE AND ARRAY RATINGS: (18) MODULES)				
SOLAR MODULE RATINGS (STC)			STRING A	STRING B
MAKE	LG	SERIES	9	9
MODEL	LG370N1K-A6	PARALLEL	1	1
Imp	10.43A	Imp	7.4A	7.4A
Vmp	35.5V	Vmp	450V	450V
Isc	10.96A	Isc	16A	16A
Voc	41.9V	Voc	450V	450V
Pmax	370W	Pmax	3330W	3330W
%Voc/C	-0.26%			

CONDUIT SCHEDULE *ALL WIRE ASSUMED TO BE CU UNLESS OTHERWISE SPECIFIED					
				GROUND	
#	CONDUIT	CONDUCTOR (RED/BLACK)	NEUTRAL (WHITE)	(GREEN)	(BARE COPPER)
1	NONE	(2) 10 AWG PV WIRE	NONE	NONE	(1) 6 AWG
2	¾" EMT	(4) 10 AWG THHN/THWN-2	NONE	(1) 10 AWG THHN/THWN-2	NONE
3	¾" EMT	(2) 8 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2	(1) 10 AWG THHN/THWN-2	NONE
4	1" EMT	(2) 3 AWG THHN/THWN-2	(1) 3 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2	NONE
5	1/2" EMT	(2) 18 AWG THHN/THWN-2	NONE	NONE	NONE

CONTRACTOR INSTALLED

LUNAR ENERGY
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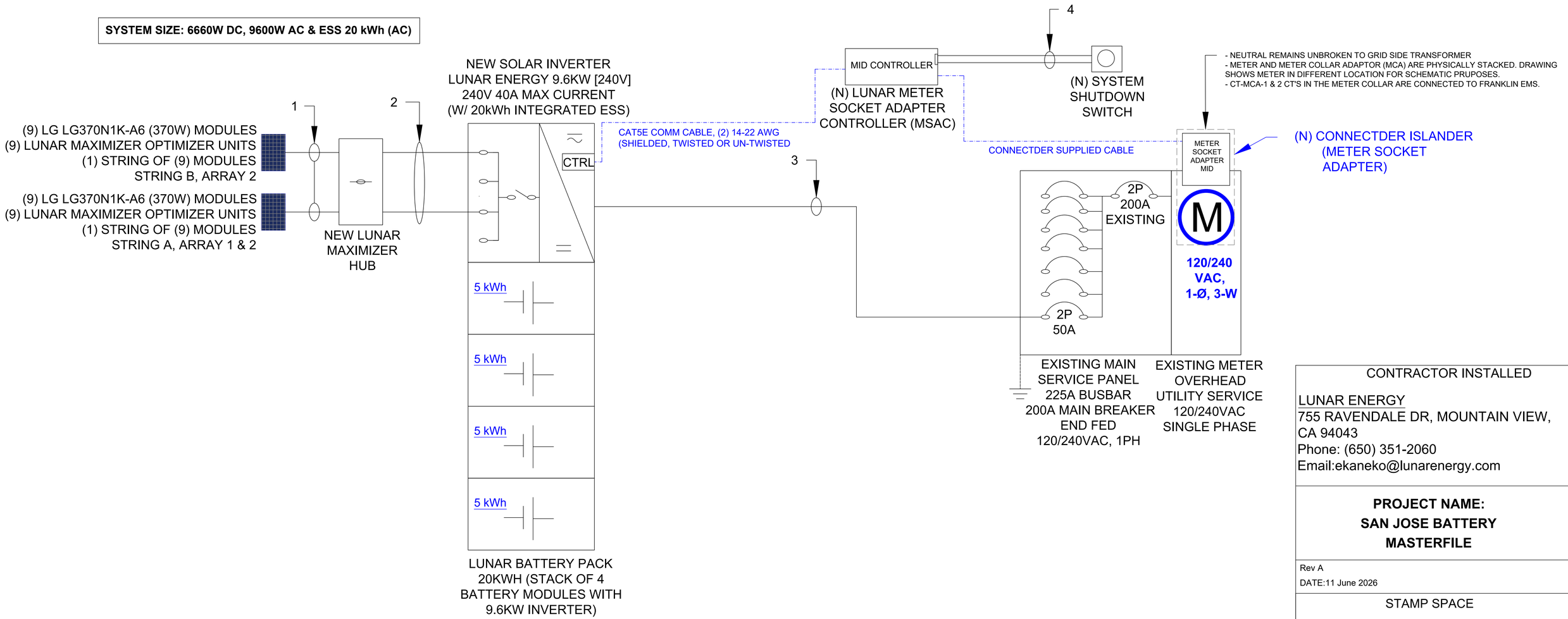
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ELECTRICAL

PV 4.1

MID OPTION B- LUNAR CONNECTDER

SYSTEM SIZE: 6660W DC, 9600W AC & ESS 20 kWh (AC)



NOTE:
LUNAR ENERGY INVERTER IS EQUIPPED WITH RAPID SHUTDOWN AS PER CEC 690.12 .

GROUNDING NOTES:

A. SIZE EGC PER 250.122
B. SIZE GEC FROM PANEL GROUND BAR TO GROUND
C. ROD/UFER PER 250.52

EXCEPTION: WHEN ESTABLISHING NEW GROUND AT THE MAIN PANEL, GEC WILL BE SIZED AS #6 AWG CU PER 250.66 (A)
ALL CONDUCTORS AND TERMINATIONS SHALL BE LISTED FOR 75 DEGREES.

NOTE: PRODUCERS STORAGE DEVICE(S) WILL NOT CAUSE THE HOST LOAD TO EXCEED ITS NORMAL PEAK DEMAND. NORMAL PEAK DEMAND IS DEFINED AS THE HIGHEST AMOUNT OF POWER REQUIRED FROM THE DISTRIBUTION SYSTEM BY PRODUCERS COMPLETE FACILITIES WITHOUT THE INFLUENCE OR USE OF THE ENERGY STORAGE DEVICE(S)

CONDUIT SCHEDULE *ALL WIRE ASSUMED TO BE CU UNLESS OTHERWISE SPECIFIED

				GROUND	
#	CONDUIT	CONDUCTOR (RED/BLACK)	NEUTRAL (WHITE)	(GREEN)	(BARE COPPER)
1	NONE	(2) 10 AWG PV WIRE	NONE	NONE	(1) 6 AWG
2	¾" EMT	(4) 10 AWG THHN/THWN-2	NONE	(1) 10 AWG THHN/THWN-2	NONE
3	¾" EMT	(2) 8 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2	(1) 10 AWG THHN/THWN-2	NONE
4	1/2" EMT	(2) 18 AWG THHN/THWN-2	NONE	NONE	NONE

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

PROJECT NAME:
SAN JOSE BATTERY
MASTERFILE

Rev A
DATE:11 June 2026

STAMP SPACE

Reviewed for Code Compliance
City of San Jose, Building Division
☒ Building ☐ Electrical
☐ Plumbing ☐ Mechanical
Kiet Pham (408) 535-7773
No. 24-102993 Date: 07/02/2026

ELECTRICAL

PV 4.2

MID OPTION B- LUNAR CONNECTDER

INVERTERS RATING	
MAKE	LUNAR ENERGY
MODEL	9.6KW [240V] [SI1-SB]
MAX INPUT CURRENT	37.5A
MAX POWER (AC)	9600W
NOM. AC VOLTAGE	240V
MAX AC CURRENT	40A
CEC EFFICIENCY	95.5%

BATTERY RATINGS	
MAKE	LUNAR ENERGY
MODEL	L2-ESS-20KWH
Total Energy [kWh]	20
Max Load Start Capability	134LRA

CONDUCTOR SIZING CALCULATIONS								
CIRCUIT DESCRIPTION	CURRENT	Imax (690.8(A)(3))	Icont (690.8(B)(1) calc	SPECIFIED CONDUCTOR	AMPACITY @ 90c	AMBIENT TEMP c	CURRENT CARRYING COND.	COND. OF USE APPLIED (690.8(B)(2) calc
PV SOURCE CIRCUIT STRING A-B	16A	16A	16A x 1.25 = 20A	#10 THWN-2	40A	31-35	4-6	40A x 0.96 (am b. temp) x 0.8 (raceway fill) = 30.72A > Imax
INVERTER AC OUTPUT	40A	40A	40A Imax x 1.25 = 50A	#8 THWN-2	55A	31-35	1-3	55A x 0.96 (am b. temp.) x1 (raceway fill) = 52.8A>Imax

TERMINAL TEMPERATURE RATING CONSIDERATIONS					
CIRCUIT DESCRIPTION	CURRENT	Icont	TERMINAL TEMP RATING	SPECIFIED CONDUCTOR	AMPACITY @ TERMNAL TEMP. RATING
PV SOURCE CIRCUIT STRING A-B	16A	16A x 1.25 = 20A	75C	#10	35A
INVERTER AC OUTPUT	40A	40A Imax x 1.25 = 50A	75C	#8	50A

VOLTAGE DROP CALCULATIONS					
LENGTH	I	Ohms/kFt	V	CALC	Vdrop
50Ft	16A	0.9989	450V	50' x 16A x 2 x 0.9989/1000'/450V=	0.36%
50Ft	16A	0.9989	450V	50' x 16A x 2 x 0.9989/1000'/450V=	0.36%
30Ft	40A	0.6282	240V	30' x 40A x 2 x 0.6282/1000'/240V=	0.63%

MODULE AND ARRAY RATINGS: (18) MODULES)				
SOLAR MODULE RATINGS (STC)			STRING A	STRING B
MAKE	LG	SERIES	9	9
MODEL	LG370N1K-A6	PARALLEL	1	1
Imp	10.43A	Imp	7.4A	7.4A
Vmp	35.5V	Vmp	450V	450V
Isc	10.96A	Isc	16A	16A
Voc	41.9V	Voc	450V	450V
Pmax	370W	Pmax	3330W	3330W
%Voc/C	-0.26%			

CONDUIT SCHEDULE *ALL WIRE ASSUMED TO BE CU UNLESS OTHERWISE SPECIFIED					
				GROUND	
#	CONDUIT	CONDUCTOR (RED/BLACK)	NEUTRAL (WHITE)	(GREEN)	(BARE COPPER)
1	NONE	(2) 10 AWG PV WIRE	NONE	NONE	(1) 6 AWG
2	¾" EMT	(4) 10 AWG THHN/THWN-2	NONE	(1) 10 AWG THHN/THWN-2	NONE
3	¾" EMT	(2) 8 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2	(1) 10 AWG THHN/THWN-2	NONE
4	1/2" EMT	(2) 18 AWG THHN/THWN-2	NONE	NONE	NONE

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

PROJECT NAME:
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No. 24-102993 Date: 07/02/2026

ELECTRICAL

PV 4.3

INSTALL ON THE UTILITY METER

WARNING

THIS SERVICE METER
IS ALSO SERVED BY A
PHOTOVOLTAIC SYSTEM

INSTALL ON THE MAIN BREAKER PANEL

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING VOLTAGE 240 VOLTS
OPERATING CURRENT 48 AMPS

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

INSTALL ON THE PV AC DISCONNECT

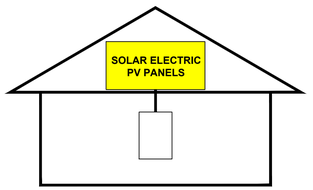
PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING VOLTAGE 240 VOLTS
OPERATING CURRENT 48 AMPS

RAPID SHUTDOWN
SWITCH FOR
SOLAR PV SYSTEM

INSTALL ON THE INVERTER

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.

INSTALL ON THE INVERTER

PHOTOVOLTAIC SYSTEM
DC DISCONNECT

OPERATING VOLTAGE	426.00 VDC
OPERATING CURRENT	20.86 AMPS
MAX SYSTEM VOLTAGE	600 VDC
SHORT CIRCUIT CURRENT	21.92 AMPS
CHARGE CONTROLLER MAX	N/A AMPS

WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

INSTALL TO BE INSTALLED ON EVERY 10 FEET ON ALL EXTERIOR CONDUIT. INSTALL WITHIN 12 INCHES OF EXTERIOR CONDUIT BENDS

WARNING: PHOTOVOLTAIC
POWER SOURCE

INSTALL ON THE ESS DISCONNECT

ENERGY STORAGE
SYSTEM DISCONNECT

NOMINAL ESS AC VOLTAGE 240 VOLTS

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW,
CA 94043
Phone: (650) 351-2060
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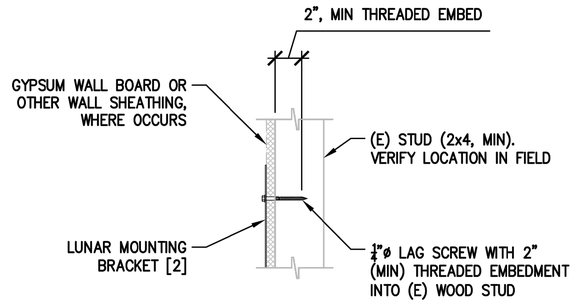
Rev A
DATE:11 June 2026

STAMP SPACE

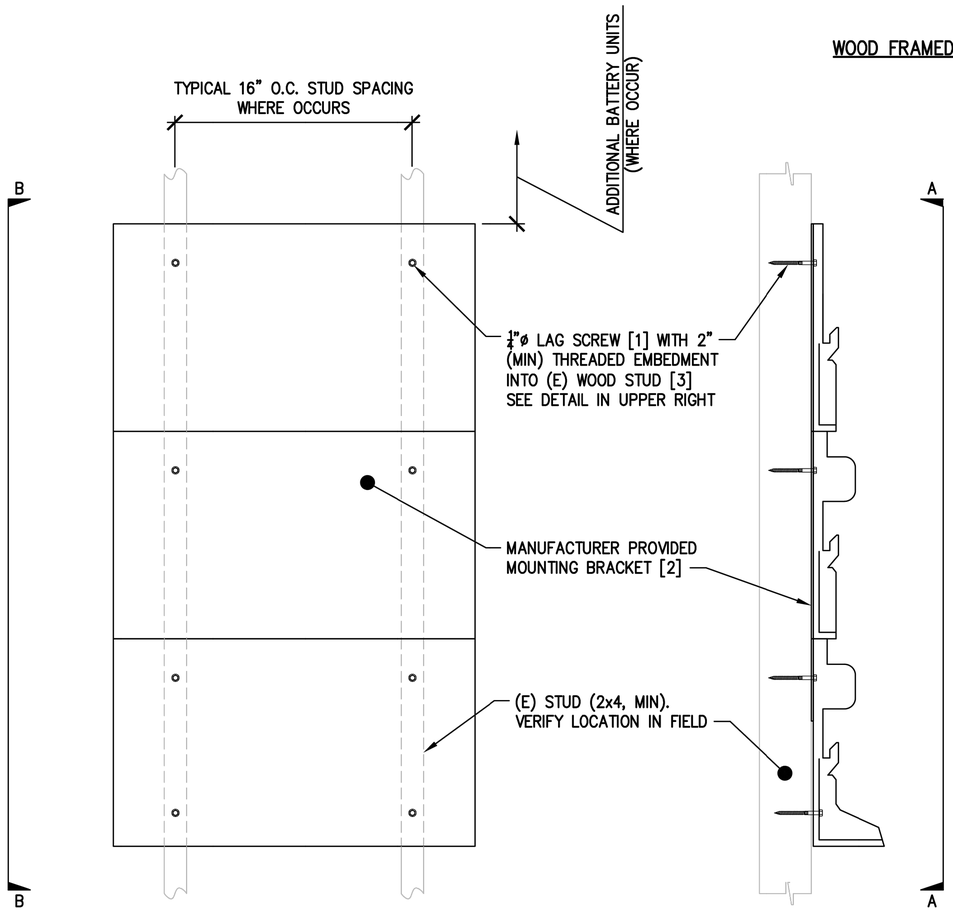
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No. 24-102993 **Date:** 07/02/2026

WARNING LABELS

PV 5.0



WOOD FRAMED WALL MOUNTING APPLICATION



ELEVATION A–A

SECTION B–B

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
WOOD STUD WALL MOUNTING DETAIL

DATE:
2/11/26

SHEET NUMBER:
S1.0

REGISTERED PROFESSIONAL ENGINEER ANDREW OESTERREICHER No. C 81428 CIVIL STATE OF CALIFORNIA

STAMPED AND SIGNED FOR STRUCTURAL ONLY

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

PROJECT NAME:
SAN JOSE BATTERY MASTERFILE

Rev A
DATE:11 June 2026

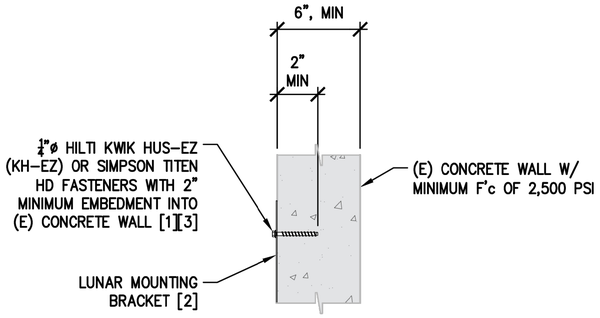
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Reviewed for Code Compliance
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No. 24-102993 Date: 07/02/2026

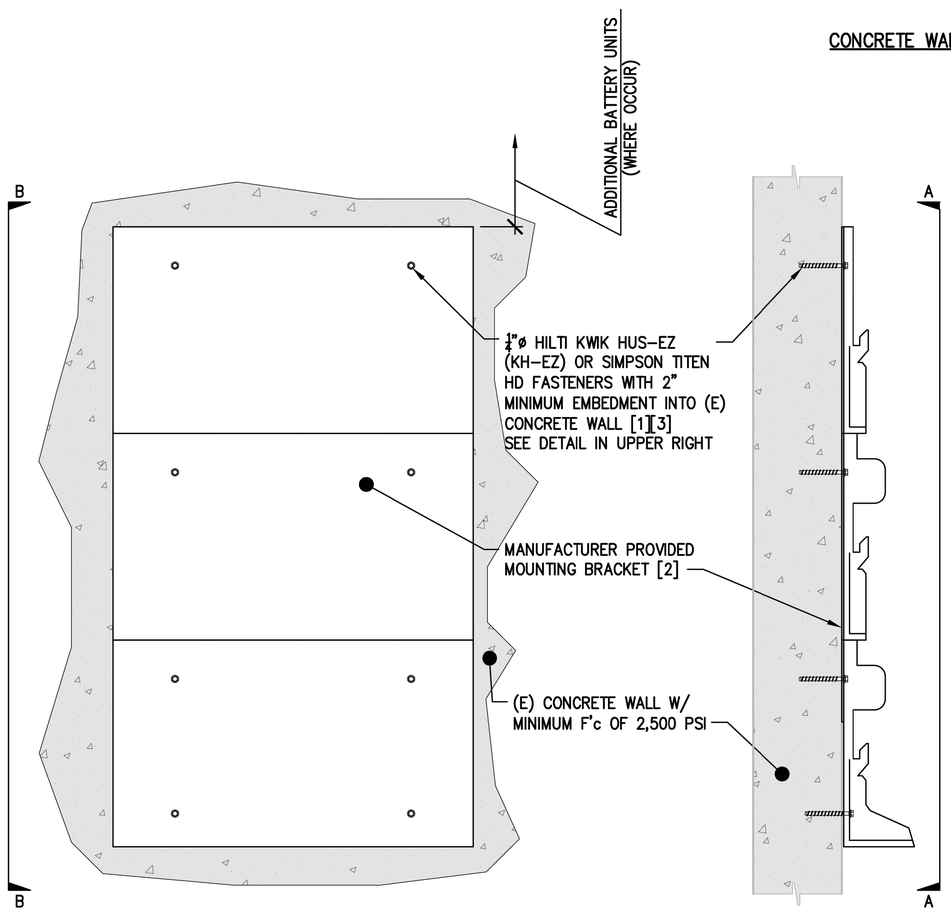
BATTERY MOUNTING DETAILS

PV 6.0

NOTE: SPECIAL INSPECTIONS MAY BE REQUIRED
FOR POST INSTALLED ANCHORS. VERIFY WITH AHJ.



CONCRETE WALL MOUNTING APPLICATION



ELEVATION A–A

SECTION B–B

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
CONCRETE WALL MOUNTING DETAIL

DATE:
2/11/26

SHEET NUMBER:
S1.1

REGISTERED PROFESSIONAL ENGINEER
ANDREW OESTERREICHER
No. C 81428
CIVIL
STATE OF CALIFORNIA

STAMPED AND SIGNED FOR STRUCTURAL ONLY

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

PROJECT NAME:
SAN JOSE BATTERY MASTERFILE

Rev A
DATE:11 June 2026

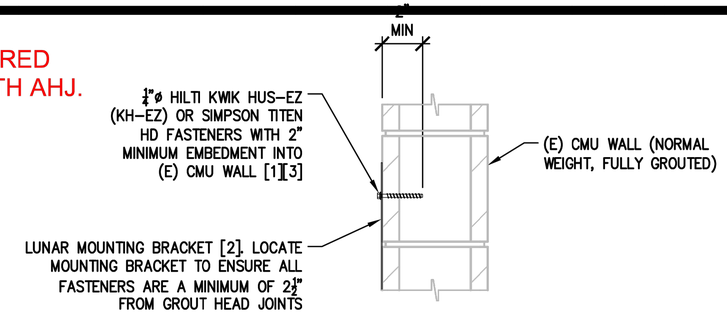
STAMP SPACE

Reviewed for Code Compliance
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Kiet Pham (408) 535-7773
No. 24-102993 Date: 07/02/2026

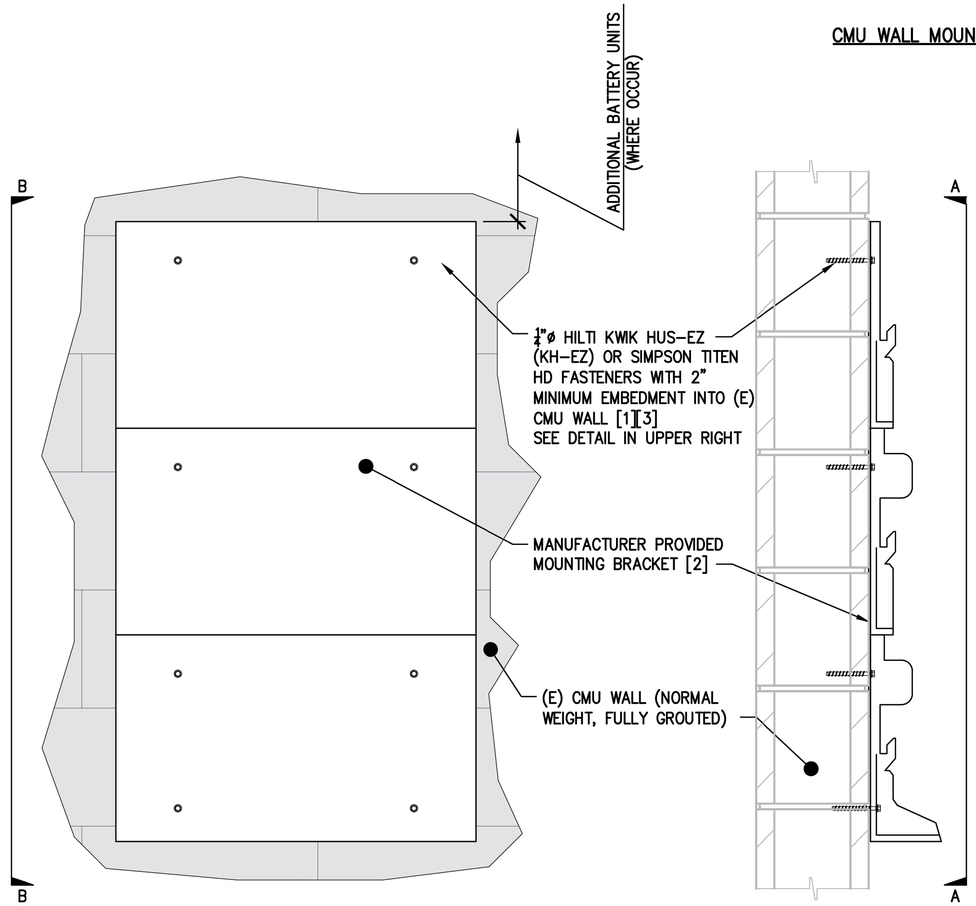
BATTERY MOUNTING DETAILS

PV 6.1

NOTE: SPECIAL INSPECTIONS MAY BE REQUIRED
FOR POST INSTALLED ANCHORS. VERIFY WITH AHJ.



CMU WALL MOUNTING APPLICATION



ELEVATION A–A

SECTION B–B

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
CMU WALL MOUNTING DETAIL

DATE:
2/11/26

SHEET NUMBER:
S1.2

REGISTERED PROFESSIONAL ENGINEER
ANDREW OESTERREICHER
No. C 81428
CIVIL
STATE OF CALIFORNIA

STAMPED AND SIGNED FOR STRUCTURAL ONLY

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

PROJECT NAME:
SAN JOSE BATTERY
MASTERFILE

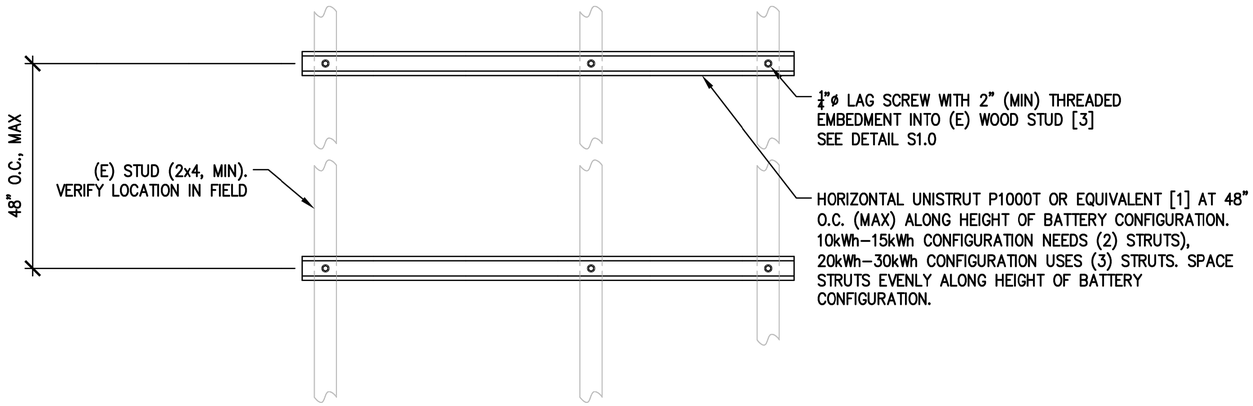
Rev A
DATE:11 June 2026

STAMP SPACE

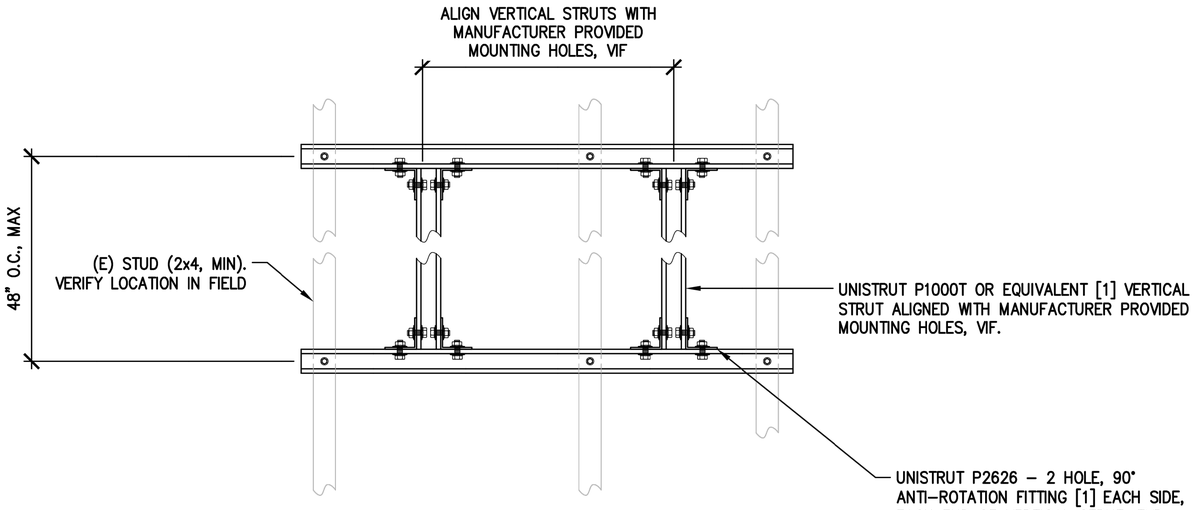
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☐ Plumbing ☐ Mechanical
Kiet Pham (408) 535-7773
No. 24-102993 Date: 07/02/2026

BATTERY MOUNTING DETAILS

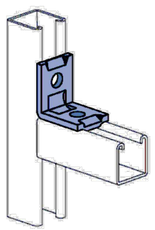
PV 6.2



STEP 1 – INSTALL HORIZONTAL UNISTRUT SUPPORT RAIL



STEP 2 – INSTALL VERTICAL UNISTRUT MOUNTING RAIL



STEP 3 – SEE DETAIL S2.1

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
WOOD STUD WALL MOUNTING DETAIL AT (3) STUD CONDITION

DATE:
2/11/26

SHEET NUMBER:
S2.0

REGISTERED PROFESSIONAL ENGINEER ANDREW OESTERREICHER No. C 81428 CIVIL STATE OF CALIFORNIA

STAMPED AND SIGNED FOR STRUCTURAL ONLY

CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

PROJECT NAME:
SAN JOSE BATTERY MASTERFILE

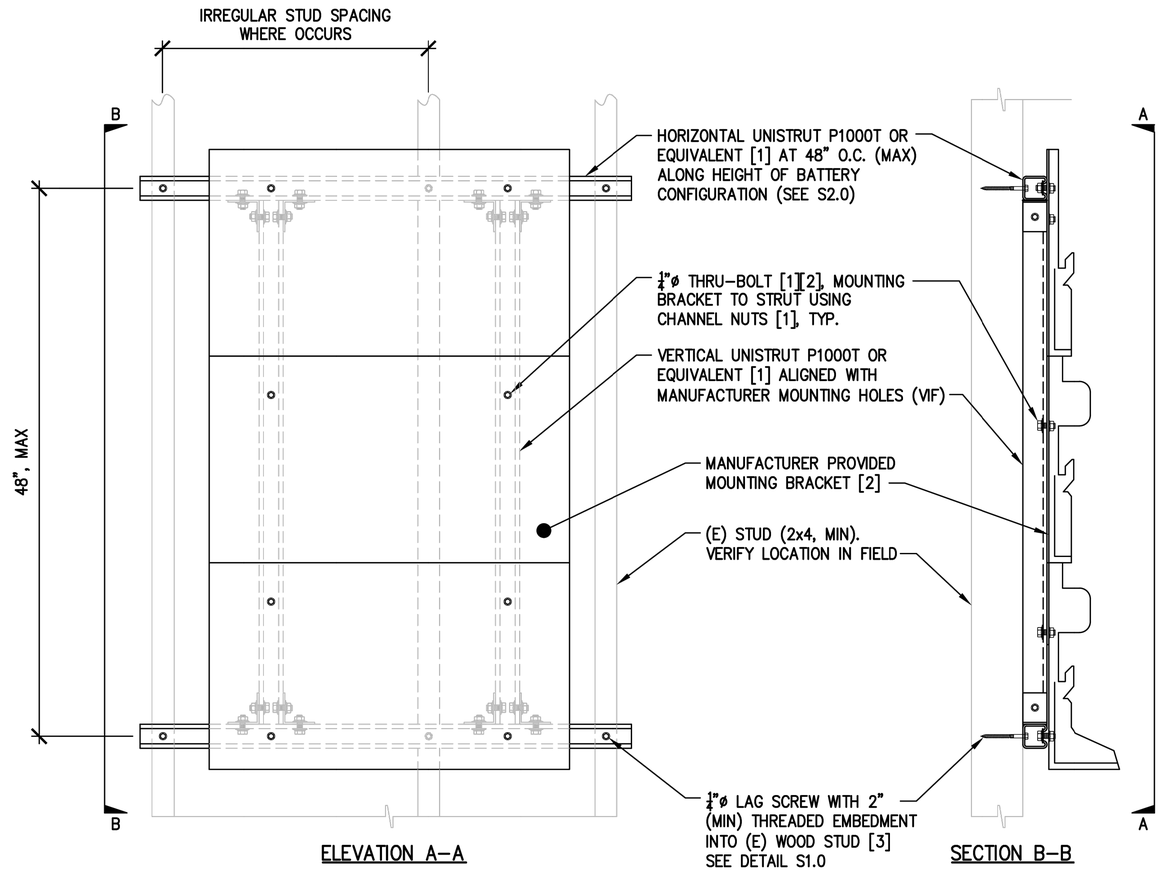
Rev A
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STAMP SPACE

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City of San Jose, Building Division
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Kiet Pham (408) 535-7773
No. 24-102993 Date: 07/02/2026

BATTERY MOUNTING DETAILS

PV 6.3



STEP 3 – INSTALL MANUFACTURER MOUNTING BRACKET/BATTERY ASSEMBLY

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
WOOD STUD WALL MOUNTING DETAIL AT (3) STUD CONDITION

DATE:
2/11/26

SHEET NUMBER:
S2.1

REGISTERED PROFESSIONAL ENGINEER
ANDREW OESTERREICHER
No. C 81428
CIVIL
STATE OF CALIFORNIA

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CONTRACTOR INSTALLED

LUNAR ENERGY
755 RAVENDALE DR, MOUNTAIN VIEW, CA 94043
Phone: (650) 351-2060
Email:ekaneko@lunarenergy.com

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Kiet Pham (408) 535-7773
No. 24-102993 Date: 07/02/2026

BATTERY MOUNTING DETAILS

PV 6.4

AOstructures Inc.
PO Box 413
Carnelian Bay, CA 96140
916.541.8586
www.AOstructures.com

PC 24-102993 MASTER FILE

February 26, 2026

TO: Lunar Energy

SUBJECT: Lunar Battery Anchorage - California
Fully Wall Mounted System

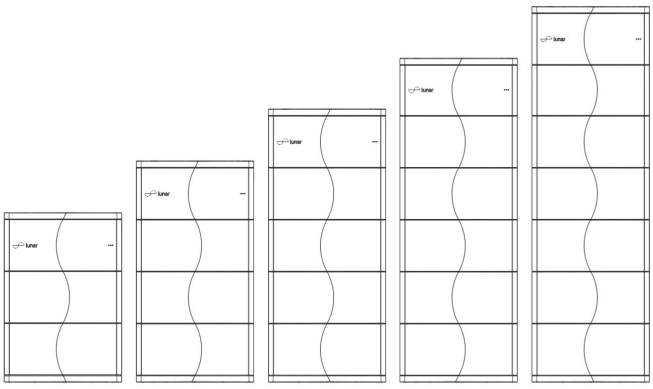
SCOPE OF WORK:
AOstructures, Inc. was asked to provide the structural anchorage design for a Lunar LFP Battery System. The installation method consists of a Lunar Battery System that is fully hung from an existing wall. The wall may be either of the following below conditions:

- Wood framed wall consisting of typical 2x4 (minimum) studs @ 16" o.c.
- Wood framed wall consisting of atypical 2x4 (minimum) stud spacing
- Concrete wall, 6" minimum thickness with f'c = 2,500 psi, min.
- CMU wall, fully grouted, normal weight CMU

The wall anchorage is designed to resist both the dead weight (downward load) of the equipment as well as the vertical and lateral seismic forces (vertical, horizontal and withdrawl).

ESS DESCRIPTION
The subject battery system consists of a modular design which includes (1) inverter and can include as few as (2) battery blocks (10kWh ESS) and as many as (6) battery blocks (30kWh ESS). Each of the modular elements are attached modularly to a wall mounting bracket provided by the manufacturer. The bottom wall mounting bracket is fastened to the wall using (4) fasteners with additional modular elements above clipped to the bracket below and fastened to the wall using (2) additional fasteners. For the 10kWh ESS, there are a total of (8) fasteners while the 30 kWh ESS utilizes (16) fasteners. See Mechanical properties of the modular battery system, below:

Mechanical	10 kWh	15 kWh	20 kWh	25 kWh	30 kWh
Dimensions (L x W x D)	34.8" x 24.4" x 13.5" (884 x 619 x 344mm)	45.5"x 24.4" x 13.5" (1156 x 619 x 344 mm)	56.1"x 24.4" x 13.5" (1425 x 619 x 344 mm)	66.8"x 24.4" x 13.5" (1696 x 619 x 344 mm)	77.4"x 24.4" x 13.5" (1967 x 619 x 344 mm)
	Inverter: 12" x 24.4" x 13.5" (305 x 619 x 344 mm) **Top + Bottom Cover:** 3" x 24.4" x 13.5" (75 x 619 x 344 mm)				
Inverter Mass	42 lb (19 kg)				
Total Assembly Mass (including brackets & covers)	305 lb (139 kg)	421 lb (191 kg)	540 lb (245 kg)	659 lb (299 kg)	778 lb (354 kg)
Mounting	Floor or wall mounted				



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Kiet Pham (408) 535-7773
No. 24-102993 Date: 07/02/2026

LIMITATIONS:
The scope of this report is strictly limited to the anchorage of the above specified wall mounting brackets to the existing wall framing only. No evaluation of the existing structure or any of the manufacturer provided elements (i.e. batteries/inverters/mounting brackets/clips/base/etc.) is included or implied in the scope of this report. The calculations that follow are designed with the following design criteria and are only applicable for sites with design criteria less than that specified below:

AOstructures Inc.
PO Box 413
Carnelian Bay, CA 96140
916.541.8586
www.AOstructures.com

DESIGN CRITERIA:

- Applicable Codes = 2025 CBC, ASCE 7-22
- Risk Category II
- Seismic: Sds = 2g, Ip = 1, Rμ = 1.3, Car =1, Rpo = 1.5

EQUIPMENT SPECIFICATIONS:

- Equipment:
  - (1) Lunar LFP Battery System (30kWh, max) - weighing no more than 778lb
- All equipment shall be installed per manufacturer specifications

CONCLUSIONS:

Anchorage to wood framed wall construction:

Each modular mounting bracket shall be attached to the existing framing using a minimum of (2) 1/4"Ø Lag Screw fasteners installed into (2) different existing 2x studs to suspend the equipment above grade. (4) fasteners shall be used for the bottom bracket. The fasteners shall be installed at manufacturer provided mounting holes and shall be installed within the middle 1/3 of the stud width with a minimum threaded embedment of 2.0" into the existing wood stud framing in the wall (See Detail S1.0).

This proposed mounting method assumes that only one ESS is mounted per pair of studs. In some cases, the contractor may consider mounting multiple ESS's per pair of studs. Examples of such conditions are provided below. In all cases, it is recommended that the contractor contact a licensed engineer to evaluate the proposed existing stud wall to assess it's suitabilty to support the weight of multiple ESS's.

- Walls < 10'-0 tall with 2x6 studs or larger
- Walls < 12'-0 tall with 2x8 studs or larger
- Bearing walls with minimal (i.e. < 8'-0") tributary area of loads.
- Walls that are sheathed with OSB or CDX plywood intended to resist lateral forces (shear walls)

In some conditions, such as irregular stud spacing or stud spacing that exceeds 16" o.c., the as-built stud spacing may not support the pre-drilled manufacturer mounting hole locations without a supplemental support. Details S2.0 and S2.1 are provided to propose an alternative mounting solution for such conditions and provide flexibility for the installation when preferred.

Anchorage to concrete or CMU wall construction:

Each modular mounting bracket shall be attached to the existing wall using a minimum of (2) 1/4 diameter Hilti Kwik HUS-EZ or Simpson Titen HD fasteners with a minimum embedment of 2" into the supporting concrete (See Detail S1.1) or CMU (See Detail S1.2) wall. The fasteners shall be installed at all manufacturer provided mounting hole locations. If mounted in an exterior or otherwise corrosive environment, the fasteners shall be galvanized or stainless steel. The fasteners shall maintain a minimum 6" edge and/or end distance from concrete and/or CMU wall ends/edges. Fasteners installed in CMU walls shall maintain a 2.5" separation from grout head joints.

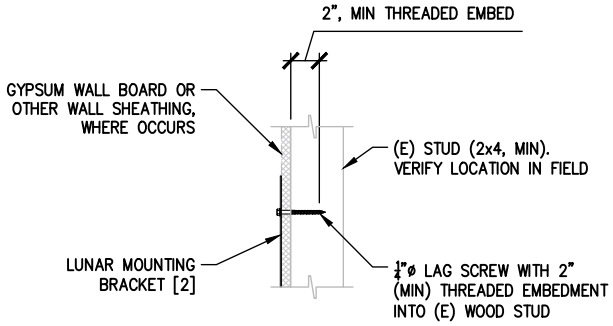
Please contact me with any further questions or concerns regarding this project.

Sincerely,

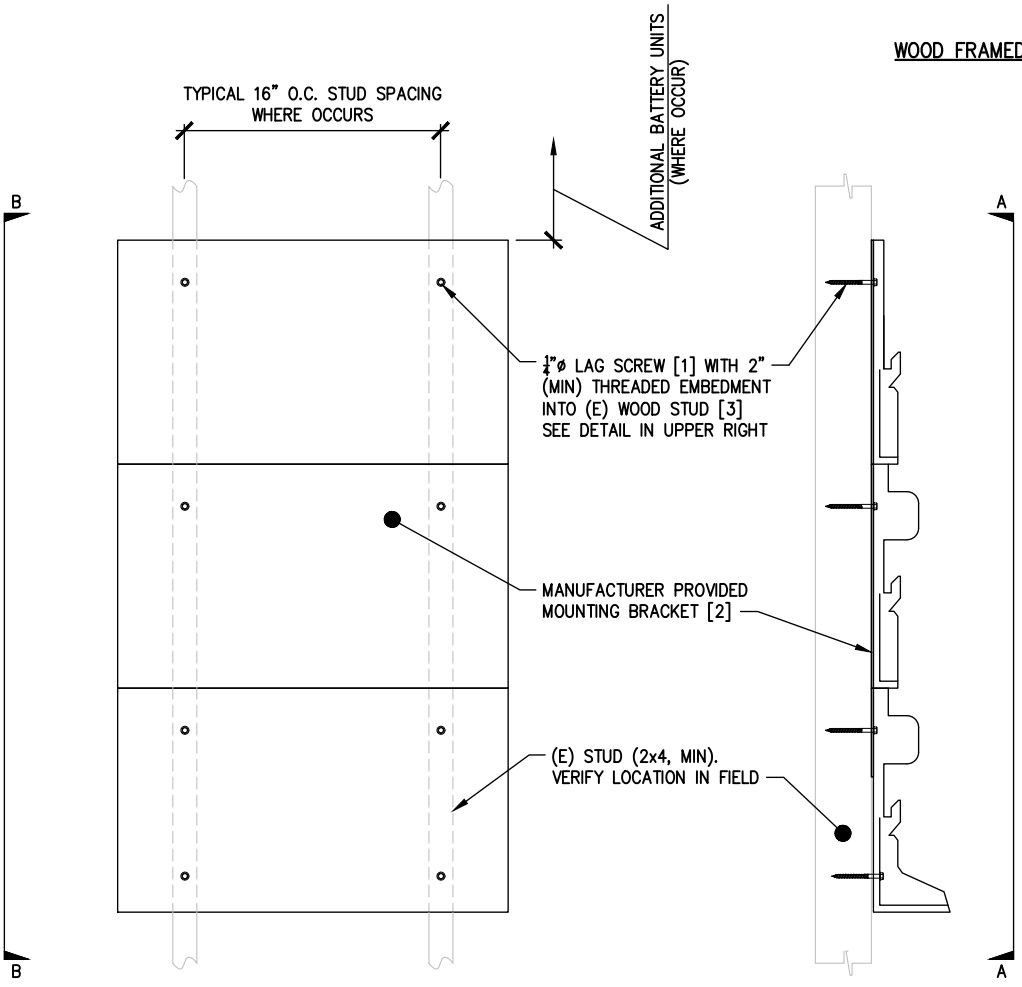
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Andrew Oesterreicher, P.E.



WOOD FRAMED WALL MOUNTING APPLICATION



ELEVATION A–A

SECTION B–B

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

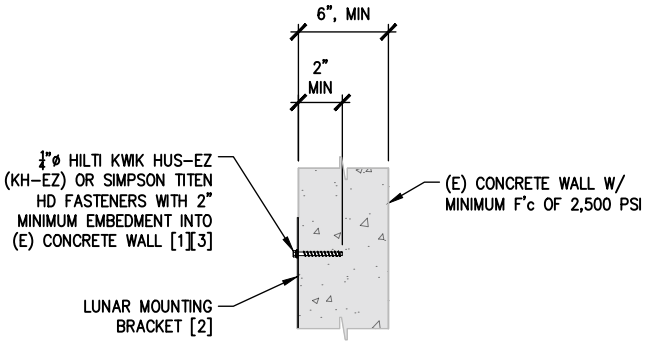
PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
WOOD STUD WALL MOUNTING DETAIL

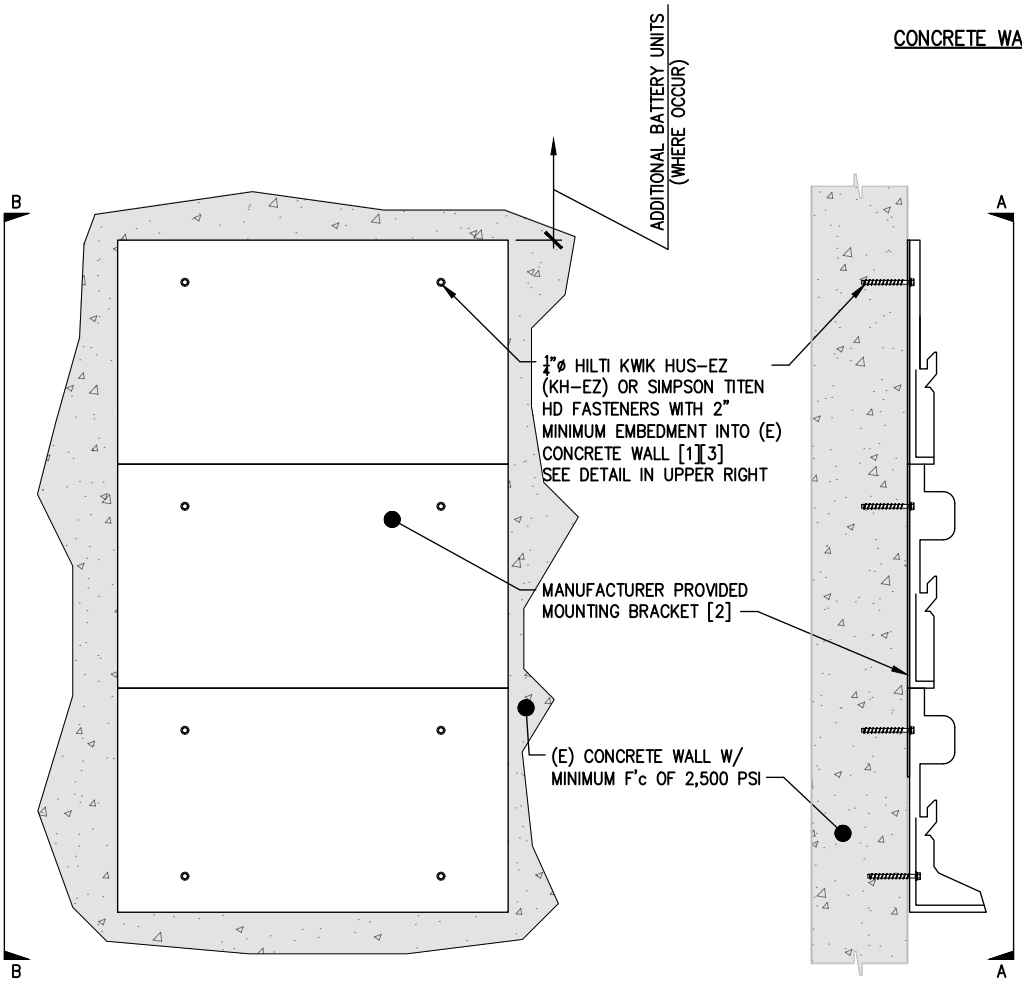
DATE:
2/11/26

SHEET NUMBER:
S1.0

NOTE: SPECIAL INSPECTIONS MAY BE REQUIRED
FOR POST INSTALLED ANCHORS. VERIFY WITH AHJ.



CONCRETE WALL MOUNTING APPLICATION



ELEVATION A–A

SECTION B–B

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

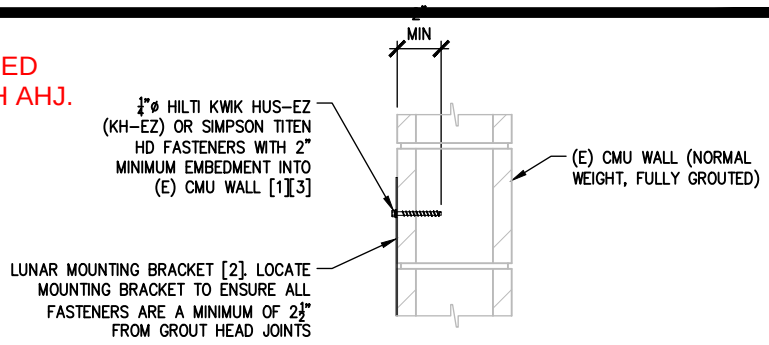
PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
CONCRETE WALL MOUNTING DETAIL

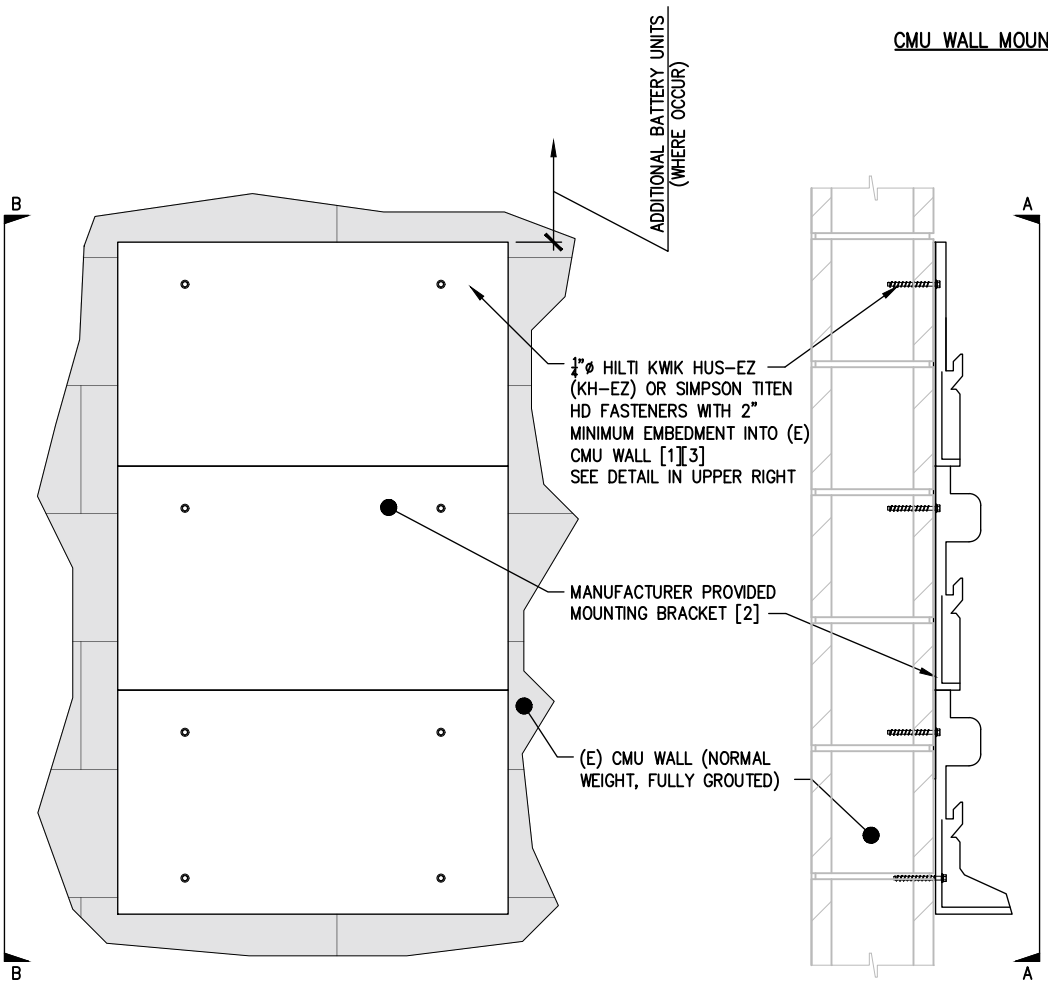
DATE:
2/11/26

SHEET NUMBER:
S1.1

NOTE: SPECIAL INSPECTIONS MAY BE REQUIRED FOR POST INSTALLED ANCHORS. VERIFY WITH AHJ.



CMU WALL MOUNTING APPLICATION



ELEVATION A–A

SECTION B–B

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

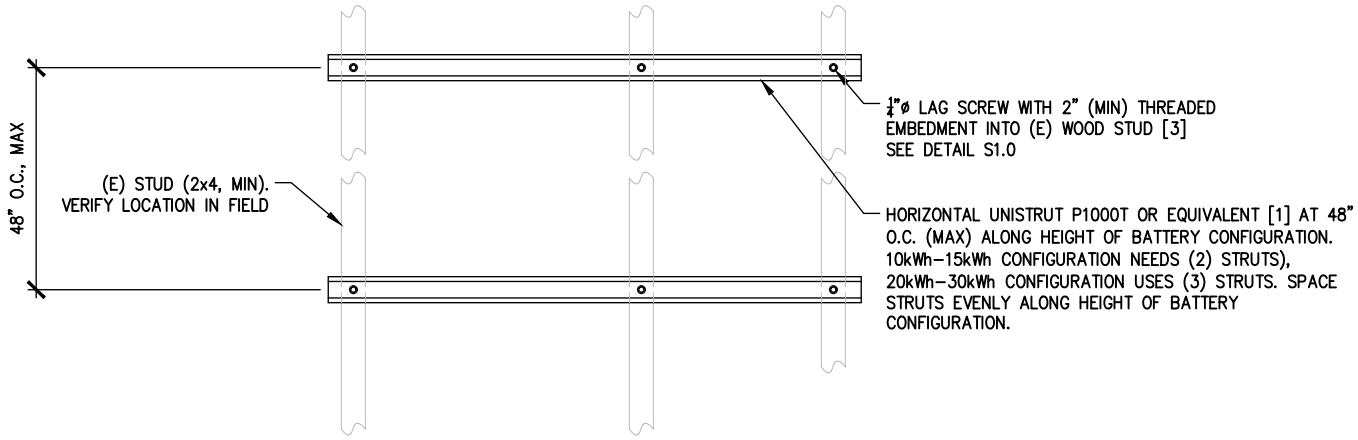
AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

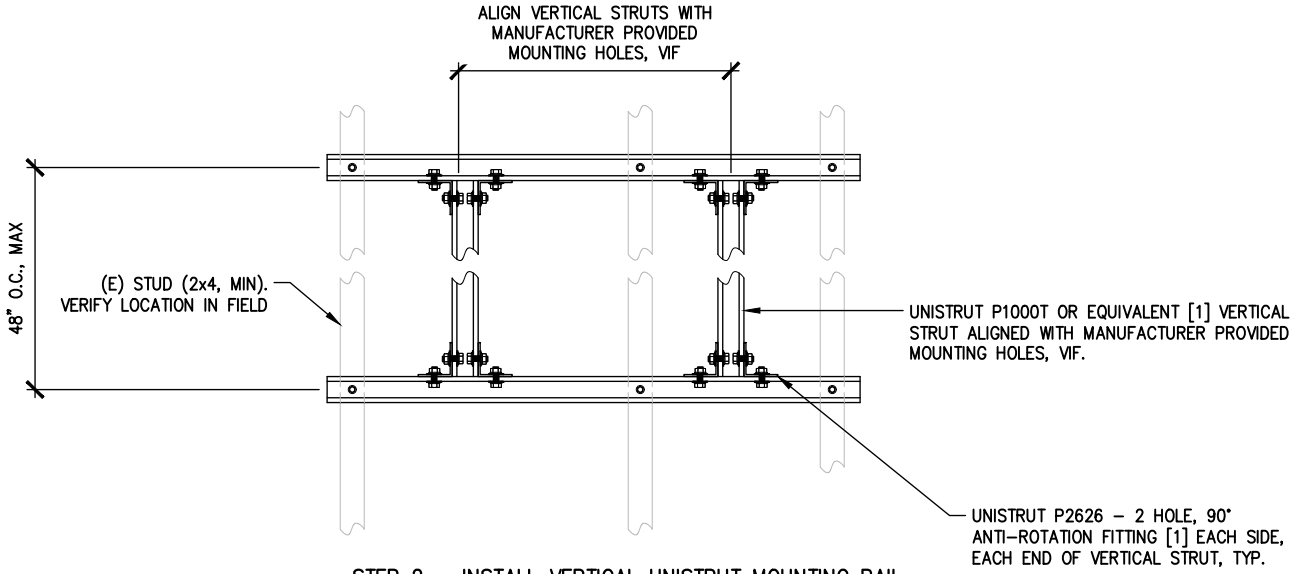
SHEET TITLE:
CMU WALL MOUNTING DETAIL

DATE:
2/11/26

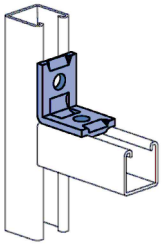
SHEET NUMBER:
S1.2



STEP 1 – INSTALL HORIZONTAL UNISTRUT SUPPORT RAIL



STEP 2 – INSTALL VERTICAL UNISTRUT MOUNTING RAIL



STEP 3 – SEE DETAIL S2.1

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

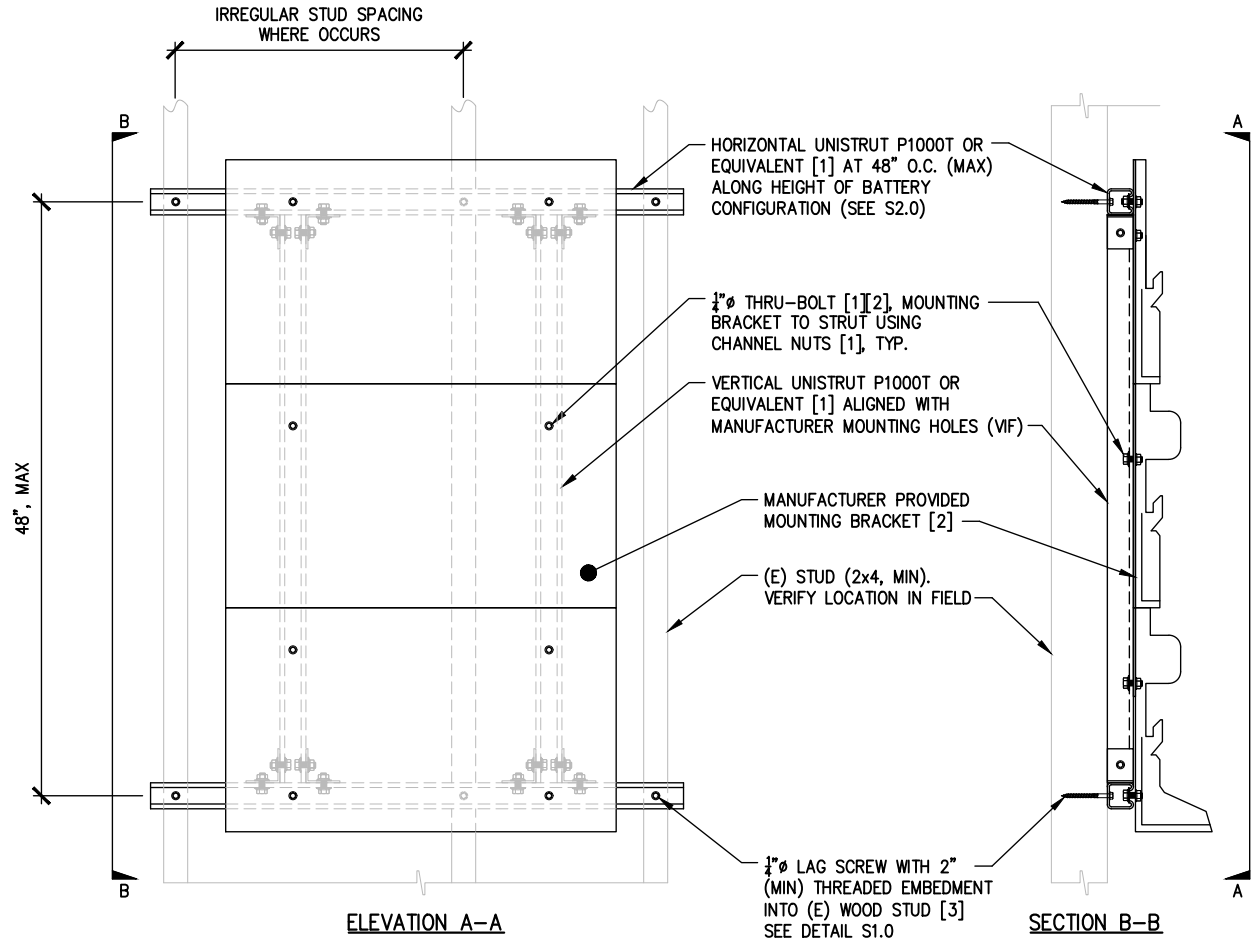
AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
WOOD STUD WALL MOUNTING DETAIL AT (3) STUD CONDITION

DATE:
2/11/26

SHEET NUMBER:
S2.0



STEP 3 – INSTALL MANUFACTURER MOUNTING BRACKET/BATTERY ASSEMBLY

NOTES: [#]
1. FOR EXTERIOR ENVIRONMENTS, USE STAINLESS STEEL FASTENERS & GALVANIZED STRUT
2. SEE MANUFACTURER INSTALLATION INSTRUCTIONS
3. WATERPROOFING BY CONTRACTOR

AO structures

PROJECT:
LUNAR LFP BATTERY ANCHORAGE

SHEET TITLE:
WOOD STUD WALL MOUNTING DETAIL AT (3) STUD CONDITION

DATE:
2/11/26

SHEET NUMBER:
S2.1

AOstructures Inc.
PO Box 413
Carnelian Bay, CA 96140
916.541.8586
www.AOstructures.com

Seismic Anchorage of Wall Mounted Equipment - Lunar LFP Battery - 10kWh

Input Variables

Per ASCE 7-22, Chapter 13		
Fp - Wall Mounted Equipment		
Equipment Label	1	
Equipment Name	Lunar LFP Battery - 10kWh	
Sds =	2.00 g	(Section 11.4.5)
Importance Factor (Ip) =	1.00	(Section 13.1.3)
z/h =	0.50	
Hf =	2.25	(13.3.1.1)
Rμ =	1.30	(13.3.1.2)
Car =	1.0	(Table 13.6-1)
Rpo =	1.5	(Table 13.6-1)
Equipment Weight (Wp) =	305 lb	

Seismic Design Force

Fp = $= 0.4 * S_{DS} * I_P * W_P * \left[\frac{H_f}{R_\mu}\right] * \left[\frac{C_{AR}}{R_{po}}\right]$ (13.3-1)

= 282 lb **Governs**

Fp (max) = 1.6 * Sds * Ip * Wp (13.3-2)

= 0,976 lb

Fp (min) = 0.3 * Sds * Ip * Wp (13.3-3)

= 183 lb

Fp = 282 lb (ultimate)

Seismic Forces Required for Anchorage to Concrete/Masonry

Ωo = 2.0 (Used for anchorage to concrete)

Ωo Fp = 0,563 lb (ultimate)

Seismic Design Force (Vertical Load)

Fp (vert) = 0.2* Sds * Wp

= 122 lb

Fp (vert) = 122 lb (ultimate)

Note: Use 244 lb for anchorage forces at concrete/masonry

AOstructures Inc.
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Carnelian Bay, CA 96140
916.541.8586
www.AOstructures.com

Fastener (to Wood Framed Wall) Capacity Check - Shear and Withdrawl - Lunar LFP Battery - 10kWh

Demand Loads					
Equipment Weight =	305 lb				(Per manufacturer)
Vertical Seismic Force Demand =	122 lb				(See Fp Calcs)
Lateral Shear Demand =	282 lb				(See Fp Calcs)
1.0D + 0.7 Ev + 0.7Eh =	391 lb	vertical	198 lb	horizontal	
0.6D - 0.7 Ev + 0.7 Eh =	98 lb	vertical	198 lb	horizontal	

Fastener Selection			
Fastener =	1/4"Ø Lag Screw		
Number of Fasteners =	8		
Stud Width =	1.500 in	in	
Required Edge Distance =	0.625 in	in	(2.5 * d as per NDS)
2x Edge Distance + Fastener Diameter =	1.500 in	in	≤ stud width, OK!

Fastener Withdrawl Capacity Check (Seismic force away from the wall)		
Withdrawl Shear Force =	198 lb	(ASD)
Embedment Depth =	2.0 in	
Pullout Capacity Per Inch =	173 lb	(G = 0.42 - per NDS)
Group Fastener Withdrawl Capacity =	2768 lb	
w/ Cd of 1.6 =	4429 lb	
4429 lb capacity > 198 lb demand	**Therefore, OK**	4.5% stress

Fastener Shear Capacity Check (Left Right Force)		
Lateral Shear Demand =	198 lb	
Individual Fastener Shear Capacity =	120 lb	(Z⊥ per NDS w/ 12 gage mounting bracket)
Group Fastener Shear Capacity =	960 lb	
Group Shear Capacity w/ Cd = 1.6 =	1536 lb	
1536 lb capacity > 198 lb demand	**Therefore, OK**	12.9% stress

Fastener Shear Capacity Check (Up Down Force)		
Vertial Shear Demand =	391 lb	(1.0D + 0.7 Ev)
Individual Fastener Shear Capacity =	160 lb	(Z‖ per NDS w/ 12 gage mounting bracket)
Group Fastener Shear Capacity =	1280 lb	
Group Shear Capacity w/ Cd = 1.6 =	2048 lb	
2048 lb capacity > 391 lb demand	**Therefore, OK**	19.1% stress

Check Combined Loading	
Withdrawl Stress =	5%
Max Shear Stress =	19%
Combined Stress =	20%

Results: (8) 1/4"Ø Lag Screw(s) have a combined stress ratio of 20%, OK!

AOstructures Inc.
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Carnelian Bay, CA 96140
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www.AOstructures.com

Seismic Anchorage of Wall Mounted Equipment - Lunar LFP Battery - 30kWh

Input Variables

Per ASCE 7-22, Chapter 13		
Fp - Wall Mounted Equipment		
Equipment Label	1	
Equipment Name	Lunar LFP Battery - 30kWh	
Sds =	2.00 g	(Section 11.4.5)
Importance Factor (Ip) =	1.00	(Section 13.1.3)
z/h =	0.50	
Hf =	2.25	(13.3.1.1)
Rμ =	1.30	(13.3.1.2)
Car =	1.0	(Table 13.6-1)
Rpo =	1.5	(Table 13.6-1)
Equipment Weight (Wp) =	778 lb	

Seismic Design Force

Fp = $= 0.4 * S_{DS} * I_P * W_P * \left[\frac{H_f}{R_\mu}\right] * \left[\frac{C_{AR}}{R_{po}}\right]$ (13.3-1)

= 718 lb **Governs**

Fp (max) = 1.6 * Sds * Ip * Wp (13.3-2)

= 2,490 lb

Fp (min) = 0.3 * Sds * Ip * Wp (13.3-3)

= 467 lb

Fp = 718 lb (ultimate)

Seismic Forces Required for Anchorage to Concrete/Masonry

Ωo =	2.0	(Used for anchorage to concrete)
Ωo Fp =	**1,436 lb**	(ultimate)

Seismic Design Force (Vertical Load)

Fp (vert) = 0.2* Sds * Wp

= 311 lb

Fp (vert) = 311 lb (ultimate)

Note: Use 623 lb for anchorage forces at concrete/masonry

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Fastener (to Wood Framed Wall) Capacity Check - Shear and Withdrawl - Lunar LFP Battery - 30kWh

Demand Loads				
Equipment Weight =	778 lb			(Per manufacturer)
Vertical Seismic Force Demand =	311 lb			(See Fp Calcs)
Lateral Shear Demand =	718 lb			(See Fp Calcs)
1.0D + 0.7 Ev + 0.7Eh =	996 lb	vertical	503 lb horizontal	
0.6D - 0.7 Ev + 0.7 Eh =	249 lb	vertical	503 lb horizontal	

Fastener Selection			
Fastener =	1/4"Ø Lag Screw		
Number of Fasteners =	16		
Stud Width =	1.500 in	in	
Required Edge Distance =	0.625 in	in	(2.5 * d as per NDS)
2x Edge Distance + Fastener Diameter =	1.500 in	in	≤ stud width, OK!

Fastener Withdrawl Capacity Check (Seismic force away from the wall)		
Withdrawl Shear Force =	503 lb	(ASD)
Embedment Depth =	2.0 in	
Pullout Capacity Per Inch =	173 lb	(G = 0.42 - per NDS)
Group Fastener Withdrawl Capacity =	5536 lb	
w/ Cd of 1.6 =	8858 lb	
8858 lb capacity > 503 lb demand	**Therefore, OK**	5.7% stress

Fastener Shear Capacity Check (Left Right Force)		
Lateral Shear Demand =	503 lb	
Individual Fastener Shear Capacity =	120 lb	(Z⊥ per NDS w/ 12 gage mounting bracket)
Group Fastener Shear Capacity =	1920 lb	
Group Shear Capacity w/ Cd = 1.6 =	3072 lb	
3072 lb capacity > 503 lb demand	**Therefore, OK**	16.4% stress

Fastener Shear Capacity Check (Up Down Force)		
Vertial Shear Demand =	996 lb	(1.0D + 0.7 Ev)
Individual Fastener Shear Capacity =	160 lb	(Z‖ per NDS w/ 12 gage mounting bracket)
Group Fastener Shear Capacity =	2560 lb	
Group Shear Capacity w/ Cd = 1.6 =	4096 lb	
4096 lb capacity > 996 lb demand	**Therefore, OK**	24.4% stress

Check Combined Loading	
Withdrawl Stress =	6%
Max Shear Stress =	24%
Combined Stress =	26%

Results: (16) 1/4"Ø Lag Screw(s) have a combined stress ratio of 26%, OK!

Company:		Page:	1
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Lunar ESS - Concrete Anchorage	Date:	1/20/2026
Fastening point:			

Specifier's comments:

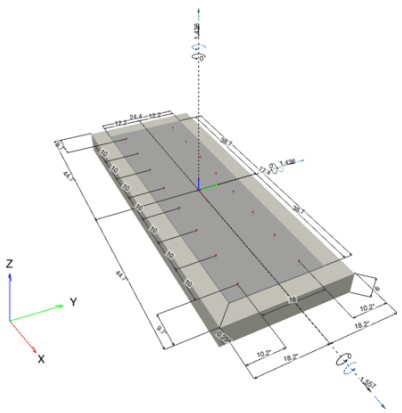
1 Input data



Anchor type and diameter:	**KWIK HUS-EZ (KH-EZ)-SS316 1/4 (1 5/8)**
Item number:	2245630 KH-EZ SS316 1/4"x2"
Specification text:	Hilti ∅ 1/4 in KWIK HUS-EZ (KH-EZ)-SS316 with 1.625 in nominal embedment depth per ICC-ES ESR-3027 , Hammer drill bit installation per MPII
Effective embedment depth:	$h_{ef,act}$ = 1.190 in., h_{nom} = 1.625 in.
Material:	AISI 316
Evaluation Service Report:	ESR-3027
Issued I Valid:	12/1/2023 | 12/1/2025
Proof:	Design Method ACI 318-19 / Mech
Shear edge breakout verification:	Row closest to edge (Case 3 only from ACI 318-19 Fig. R.17.7.2.1b)
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.250 in.
Anchor plate[R] :	l_x x l_y x t = 77.400 in. x 24.400 in. x 0.250 in.; (Recommended plate thickness: not calculated)
Profile:	no profile
Base material:	cracked concrete, 2500, f_c' = 2,500 psi; h = 6.000 in.
Installation:	**Hammer drilled hole, Installation condition: Dry**
Reinforcement:	tension: not present, shear: not present; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.10.5.3 (d)) Shear load: yes (17.10.6.3 (c))

[R] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, in.lb]



Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:		Page:	2
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Lunar ESS - Concrete Anchorage	Date:	1/20/2026
Fastening point:			

1.1 Unfactored loads

	Sustained load factor	Load factor f_1 or f_2	V_x [lb]	V_y [lb]	N [lb]	M_x [in.lb]	M_y [in.lb]	M_z [in.lb]
D (Dead)	1.000	-	778	-	-	-	-	-
F (Fluid)	1.000	-	-	-	-	-	-	-
T (Temperature)	1.000	-	-	-	-	-	-	-
L (Live)	1.000	0.500	-	-	-	-	-	-
H (Lateral)	1.000	-	-	-	-	-	-	-
L_r (Roof live)	1.000	-	-	-	-	-	-	-
S (Snow)	1.000	0.200	-	-	-	-	-	-
R (Rain)	-	-	-	-	-	-	-	-
W (Wind)	-	-	-	-	-	-	-	-
E (Earthquake)	-	-	623	1,436	1,436	-	-	-

1.2 Load combination and design results

1.2.1 Load combination

Load case	Load combination
Equation (16-1)	1.4 (D + F)
Equation (16-5)	1.2 (D + F) + 1.0 (E) + f_1L + 1.6 (H) + f_2S
Equation (16-7)	0.9 (D + F) + 1.0 (E) + 1.6 (H)

1.2.2 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
Equation (16-1)	1.4 (D + F)	N = 0; V_x = 1,089; V_y = 0; M_x = 0; M_y = 0; M_z = 0;	yes	27
Equation (16-5)	1.2 (D + F) + 1.0 (E) + f_1L + 1.6 (H) + f_2S	N = 1,436; V_x = 1,557; V_y = 1,436; M_x = 0; M_y = 0; M_z = 0;	yes	72
Equation (16-7)	0.9 (D + F) + 1.0 (E) + 1.6 (H)	N = 1,436; V_x = 1,323; V_y = 1,436; M_x = 0; M_y = 0; M_z = 0;	yes	68

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:		Page:	3
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Lunar ESS - Concrete Anchorage	Date:	1/20/2026
Fastening point:			

2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization	
Loading	**Proof**	**Load**	**Capacity**	**β_N / β_V [%]**	**Status**
Tension	Pullout Strength	90	161	56 / -	OK
Shear	Concrete edge failure in direction x+	2,118	4,061	- / 53	OK

Loading	**β_N**	**β_V**	**ζ**	**Utilization $\beta_{N,V}$ [%]**	**Status**
Combined tension and shear loads	0.558	0.521	5/3	72	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:		Page:	1
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Masonry - Jan 20, 2026	Date:	1/20/2026
Fastening point:			

Specifier's comments:

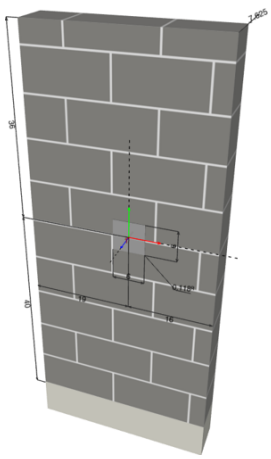
1 Input data



Anchor type and diameter:	**KWIK HUS-EZ (KH-EZ)-SS316 1/4 (2 1/2)**
Item number:	2245632 KH-EZ SS316 1/4"x2-1/2"
Specification text:	Hilti ∅ 1/4 (2 1/2) KWIK HUS-EZ (KH-EZ)-SS316 with 1.93 in nominal embedment depth per ICC-ES ESR-3056 , Hammer drilled installation per MPII
Effective embedment depth:	h_{ef} = 1.930 in.
Material:	AISI 316
Evaluation Service Report:	ESR-3056
Issued I Valid:	10/1/2024 | 10/1/2025
Proof:	Design Method LRFD (AC01) Masonry + ACI 318-19
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.118 in.
Anchor plate[R] :	l_x x l_y x t = 6.000 in. x 6.000 in. x 0.118 in.; (Recommended plate thickness: not calculated)
Profile:	no profile
Base material:	uncracked Grout-filled CMU, f=1500, f = 1,500 psi, L x W x H: 16.000 in. x 8.000 in. x 8.000 in.; Solid Head Joint: no; open ended unit: no Joints: vertical: 0.375 in.; horizontal: 0.375 in.
Installation:	Face installation, Drill hole: Hammer drilled, Installation condition: Dry
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.10.5.3 (d)) Shear load: yes (17.10.6.3 (c))

[R] - The anchor calculation is based on a rigid anchor plate assumption.

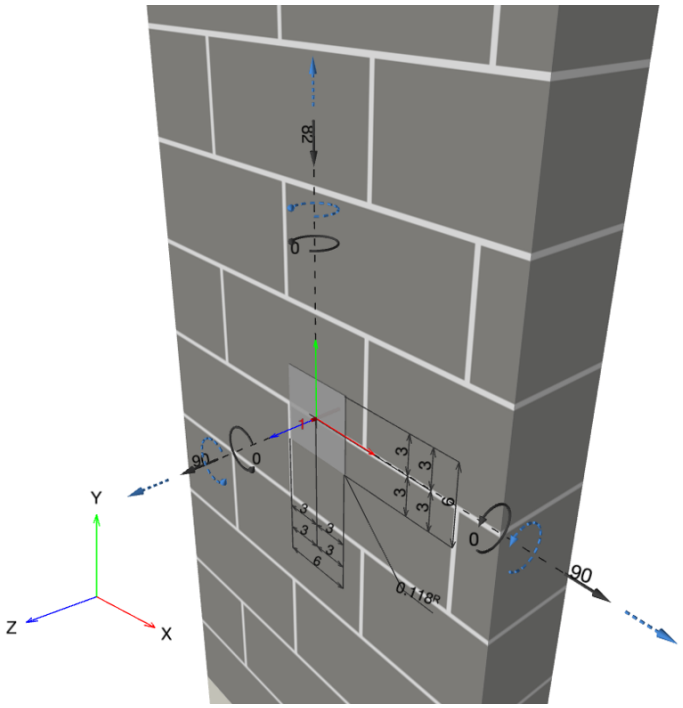
Geometry [in.]



Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:		Page:	2
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Masonry - Jan 20, 2026	Date:	1/20/2026
Fastening point:			

Geometry [in.] & Loading [lb, in.lb]



1.1 Unfactored loads

	Sustained load factor	Load factor f_1 or f_2	V_x [lb]	V_y [lb]	N [lb]	M_x [in.lb]	M_y [in.lb]	M_z [in.lb]
D (Dead)	1.000	-	-	-48	-	-	-	-
F (Fluid)	1.000	-	-	-	-	-	-	-
T (Temperature)	1.000	-	-	-	-	-	-	-
L (Live)	1.000	0.500	-	-	-	-	-	-
H (Lateral)	1.000	-	-	-	-	-	-	-
L_r (Roof live)	1.000	-	-	-	-	-	-	-
S (Snow)	1.000	0.200	-	-	-	-	-	-
R (Rain)	-	-	-	-	-	-	-	-
W (Wind)	-	-	-	-	-	-	-	-
E (Earthquake)	-	-	90	-39	90	-	-	-

1.2 Load combination and design results

1.2.1 Load combination

Load case	Load combination
Equation (16-1)	1.4 (D + F)
Equation (16-5)	1.2 (D + F) + 1.0 (E) + f_1L + 1.6 (H) + f_2S
Equation (16-7)	0.9 (D + F) + 1.0 (E) + 1.6 (H)

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:		Page:	3
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Masonry - Jan 20, 2026	Date:	1/20/2026
Fastening point:			

1.2.2 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
Equation (16-1)	1.4 (D + F)	N = 0; V_x = 0; V_y = -67; M_x = 0; M_y = 0; M_z = 0;	yes	8
Equation (16-5)	1.2 (D + F) + 1.0 (E) + f_1L + 1.6 (H) + f_2S	N = 90; V_x = 90; V_y = -97; M_x = 0; M_y = 0; M_z = 0;	yes	65
Equation (16-7)	**0.9 (D + F) + 1.0 (E) + 1.6 (H)**	**N = 90; V_x = 90; V_y = -82; M_x = 0; M_y = 0; M_z = 0;**	**yes**	**65**

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:		Page:	4
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Masonry - Jan 20, 2026	Date:	1/20/2026
Fastening point:			

2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization	
Loading	**Proof**	**Load**	**Capacity**	**β_N / β_V [%]**	**Status**
Tension	Pullout	90 [lb]	90 [lb]	64 / -	OK
Shear	Steel	122 [lb]	122 [lb]	- / 13	OK

Loading	**β_N**	**β_V**	**α**	**Utilization $\beta_{N,V}$ [%]**	**Status**
Interaction	0.642	0.133	1.667	51	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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4 Remarks; Your Cooperation Duties

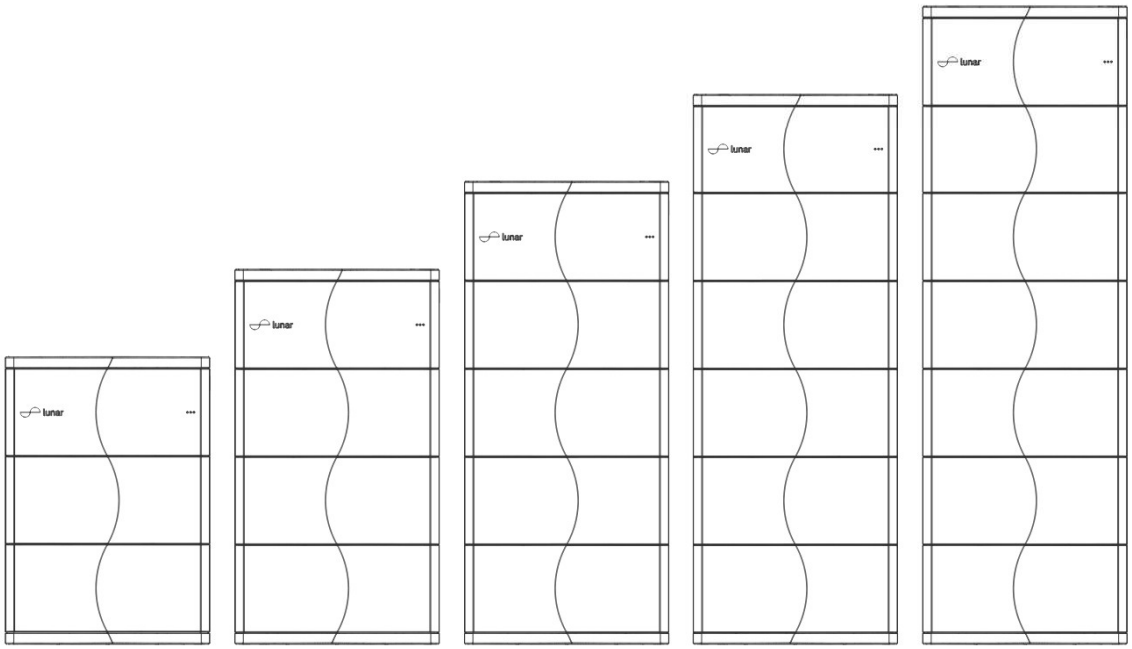
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AOstructures Inc.
PO Box 413
Carnelian Bay, CA 96140
916.541.8586
www.AOstructures.com

Appendix A: Manutacurer Specifications

Mechanical	10 kWh	15 kWh	20 kWh	25 kWh	30 kWh
Dimensions (L x W x D)	34.8" x 24.4" x 13.5" (884 x 619 x 344mm)	45.5"x 24.4" x 13.5" (1156 x 619 x 344 mm)	56.1"x 24.4" x 13.5" (1425 x 619 x 344 mm)	66.8"x 24.4" x 13.5" (1696 x 619 x 344 mm)	77.4"x 24.4" x 13.5" (1967 x 619 x 344 mm)
	Inverter: 12" x 24.4" x 13.5" (305 x 619 x 344 mm) **Top + Bottom Cover:** 3" x 24.4" x 13.5" (75 x 619 x 344 mm)				
Inverter Mass	42 lb (19 kg)				
Total Assembly Mass (including brackets & covers)	305 lb (139 kg)	421 lb (191 kg)	540 lb (245 kg)	659 lb (299 kg)	778 lb (354 kg)
Mounting	Floor or wall mounted				



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Appendix B: General Notes

GENERAL

- The contractor shall verify all dimensions, property setbacks, AHJ/HOA CC&R's, elevations and site conditions before starting work and shall notify AOstructure, Inc, (AOstructures) of any discrepancies.
- All report conclusions represent AOstructures, Inc.'s best professional judgment based upon industry standards.
- Resolve any conflicts on the drawings with AOstructures, Inc before proceeding with construction.
- The design criteria used for this project & listed on the first page of the report is based on the engineers best judgement and/or provided by the ATC council. AHJ specific requests may differ. Please contact our team if the design criteria needs to be modified.
- AOstructures is not responsible for enforcing safety measures or regulations. The contractor shall design, construct, and maintain all safety devices including shoring and bracing, and shall be solely responsible for conforming to all local, state and federal safety and health standards, laws and regulations. The contractor shall take necessary precautions to maintain and insure the integrity of the structure during construction. If a lawsuit is filed by one of the contractor's or subcontractor's employees, or any one else, the contractor will indemnify, defend and hold the owner and aostructures, inc harmless of any and all such claims.
- Any and all waterproofing shall be provided by the contractor. AOstrctures is not responsible for waterproofing.
- All hardware shall be installed per manufacturer specifications and within specified design limitations. AOstructures, Inc. assumes no responsibility for incorrectly installed hardware or hardware installed outside of the manfacturer specifications.
- Unless otherwise noted, construction material shall be evenly distributed if placed on framed floors or roofs. Loads shall not exceed the allowable loading for the supporting members and their connections.
- All members and hardware shall be either galvanized and/or stainless steel to resist corrosion due to the exterior environment they are intended to be installed in.

USER RELIANCE

- AOstructures was engaged by Lunar Energy (Client) to perform this assessment. This report and the information therein, are for the exclusive use of the Client. This report has no other purpose and shall not be relied upon, or used, by any other person or entity without the written consent of AOStructures. Third parties that obtain this report, or the information within shall have no rights of recourse or recovery against AOstructures, it's officers or employees.

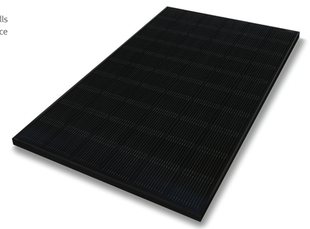
LG NeON®2 Black

LG370N1K-A6

60

370W

The LG NeON® 2 is LG's best selling solar module and one of the most powerful and versatile modules on the market today. The cells are designed to appear all-black at a distance, and the performance warranty guarantees 90.6% of labeled power output at 25 years.



25 YEAR PRODUCT • PERFORMANCE • LABOR WARRANTY

c UL us

Features

Enhanced Performance Warranty

LG NeON® 2 Black has an enhanced performance warranty. After 25 years, LG NeON® 2 Black is guaranteed at least 90.6% of initial performance.

25-Year Limited Product Warranty

The NeON® 2 Black is covered by a 25-year limited product warranty. In addition, up to $450 of labor costs will be covered in the rare case that a module needs to be repaired or replaced.

Solid Performance on Hot Days

LG NeON® 2 Black performs well on hot days due to its low temperature coefficient.

Roof Aesthetics

LG NeON® 2 Black has been designed with aesthetics in mind using thinner wires that appear all black at a distance.

When you go solar, ask for the brand you can trust: LG Solar

About LG Electronics USA, Inc.

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

LG Life's Good

LG NeON®2 Black

LG370N1K-A6

General Data

Cell Properties (Material/Type)	Monocrystalline/N-type
Cell Maker	LG
Cell Configuration	60 Cells (6 x 10)
Number of Busbars	12EA
Module Dimensions (L x W x H)	1,740mm x 1,042mm x 40 mm
Weight	18.6 kg
Glass (Material)	Tempered Glass with AR coating
Backsheet (Color)	Black
Frame (Material)	Anodized Aluminium
Junction Box (Protection Degree)	IP 68 with 3 Bypass Diodes
Cables (Length)	1,100mm x 2EA
Connector (Type/Maker)	MC 4/MC

Certifications and Warranty

Certifications*	IEC 61215-1/-1-1/-2 : 2016, IEC 61730-1/2 : 2016, UL 61730-1 : 2017, UL 61730-2 : 2017
	ISO 9001, ISO 14001, ISO 50001
	OHSAS 18001
Salt Mist Corrosion Test	IEC 61701:2012 Severity 6
Ammonia Corrosion Test	IEC 62716:2013
Module Fire Performance	Type 2 (UL 61730)
Fire Rating	Class C (UL 790, ULC/ORD C 1703)
Solar Module Product Warranty	25 Year Limited
Solar Module Output Warranty	Linear Warranty*

*Improved: 1st year 98.5%, from 2-24th year: -0.33%/year down, 90.6% at year 25

Temperature Characteristics

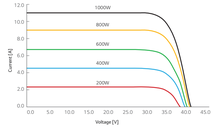
NMOT*	[°C]	42 ± 3
Pmax	[%/°C]	-0.35
Voc	[%/°C]	-0.26
Isc	[%/°C]	0.03

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

Electrical Properties (NMOT)

Model		LG370N1K-A6
Maximum Power (Pmax)	[W]	277
MPP Voltage (Vmpp)	[V]	33.3
MPP Current (Impp)	[A]	8.32
Open Circuit Voltage (Voc)	[V]	39.4
Short Circuit Current (Isc)	[A]	8.81

I-V Curves



Electrical Properties (STC*)

Model		LG370N1K-A6
Maximum Power (Pmax)	[W]	370
MPP Voltage (Vmpp)	[V]	35.5
MPP Current (Impp)	[A]	10.43
Open Circuit Voltage (Voc ± 5%)	[V]	41.9
Short Circuit Current (Isc ± 5%)	[A]	10.96
Module Efficiency	[%]	20.4
Power Tolerance	[%]	0 ~ +3

*STC (Standard Test Condition): Irradiance 1000 W/m², cell temperature 25°C, AM 1.5
Measurement Tolerance of Pmax: ± 3%

Operating Conditions

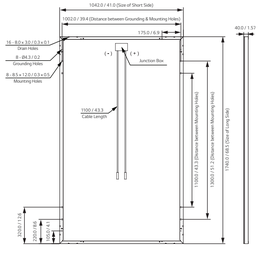
Operating Temperature	[°C]	-40 ~ +85
Maximum System Voltage	[V]	1,000 (UL/IEC)
Maximum Series Fuse Rating	[A]	20
Mechanical Test Load* (Front)	[Pa/psf]	5,400
Mechanical Test Load* (Rear)	[Pa/psf]	4,000

*Based on IEC 61215-2 : 2016 (Test Load = Design Load x Safety Factor (1.5))
Mechanical Test Loads 6,000Pa/5,400Pa based on IEC 61215:2005

Packaging Configuration

Number of Modules per Pallet	[EA]	25
Number of Modules per 40' Container	[EA]	650
Number of Modules per 53' Container	[EA]	850
Packaging Box Dimensions (L x W x H)	[mm]	1,790 x 1,120 x 1,213
Packaging Box Dimensions (L x W x H)	[in]	70.5 x 44.1 x 47.8
Packaging Box Gross Weight	[kg]	500
Packaging Box Gross Weight	[lb]	1,102

Dimensions (mm/inch)



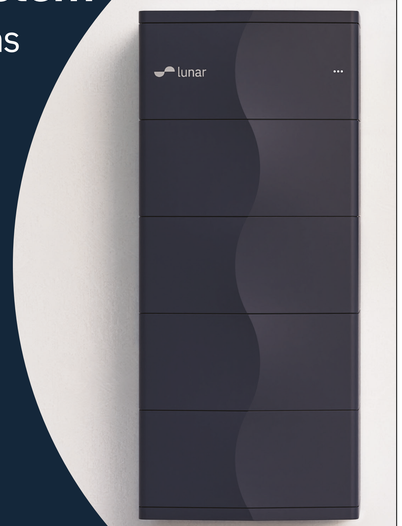
LG Electronics USA, Inc.
Solar Business Division
2000 Millbrook Drive
Lincolnshire, IL 60069
www.lg-solar.com

Product specifications are subject to change without notice.
LG370N1K-A6.pdf
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lunar energy

Lunar System Specifications



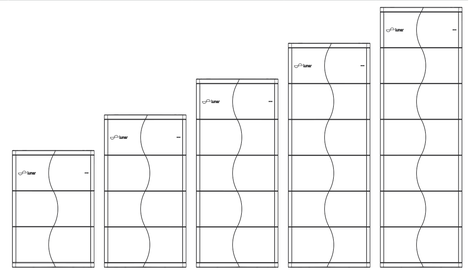
2026-03-03 Confidential & Proprietary lunarenergy.com

Compliance

Certifications	**System:** CAN/UL 9540, UL 9450A (indoor and outdoor), UL 1741 CRD PCS, UL 3141 (Issue 1) **Inverter:** UL 1741, UL 1741 SB, UL 1699B, CSA C22.2, No. 107.1
Grid Connection	IEEE 1547.1-2020, IEEE 1547.1-2018, SunSpec IEEE 2030.5 / CSIP, CA Rule 21
Emissions	FCC Part 15 Class B

Mechanical

	10 kWh	15 kWh	20 kWh	25 kWh	30 kWh
Dimensions (L x W x D)	34.8" x 24.4" x 13.5" (884 x 619 x 344mm)	45.5"x 24.4" x 13.5" (1156 x 619 x 344 mm)	56.1"x 24.4" x 13.5" (1425 x 619 x 344 mm)	66.8"x 24.4" x 13.5" (1696 x 619 x 344 mm)	77.4"x 24.4" x 13.5" (1967 x 619 x 344 mm)
	Inverter: 12" x 24.4" x 13.5" (305 x 619 x 344 mm) **Top + Bottom Cover:** 3" x 24.4" x 13.5" (75 x 619 x 344 mm)				
Heaviest Individual Component	106 lb (48 kg)				
Inverter Mass	42 lb (19 kg)				
Total Assembly Mass (including brackets & covers)	305 lb (139 kg)	421 lb (191 kg)	540 lb (245 kg)	659 lb (299 kg)	778 lb (354 kg)
Mounting	Floor or wall mounted				



Environmental

Ingress Rating	**System:** Type 3R **Inverter:** Type 3R
Operating Temperature	-4°F to 122°F (-20°C to 50°C)[1]
Storage Conditions	**Absolute Limits:** –4°F to 140°F (-20°C to 60°C) < 95% RH **1 month:** –4°F to 113°F (-20°C to 45°C) <60%RH **2 months:** 32°F to 95°F (0°C to 35°C) <60%RH **Up to 24 months:** 65°F to 82°F (18°C to 28°C) <60%RH
Altitude	Up to 9843 ft (3000 m)
Operating Noise @ 1 m	< 39.5 dbA (Typical) < 57.5 dbA (Maximum)

[1] Performance may be de-rated at operating temperatures below 0°C (32°F).

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Lunar Battery

Lunar Battery (AC ESS) is a fully-integrated solar battery system. It includes a hybrid inverter converts both solar and battery energy to power homes, and offers a range of energy storage capacity options. Lunar Battery can be further expanded with DC ESS units, bringing 24/7 reliable clean energy to homes of all sizes. Key features include:

- Seamless multi-day backup power with dynamic load control
- Flexible DC and AC-coupling with new and existing solar systems
- Stunningly compact design that fits easily in any home
- Lunar AI to optimize solar self-consumption, utility bill savings and VPP revenue

System

	10 kWh	15 kWh	20 kWh	25 kWh	30 kWh
Model Number	L2-ESS-10KWH	L2-ESS-15KWH	L2-ESS-20KWH	L2-ESS-20KWH*	L2-ESS-20KWH*
DC Expansion				(1) LE-DC-UNIT	(2) LE-DC-UNIT
Aggregate Energy	10 kWh	15 kWh	20 kWh	25 kWh	30 kWh
Maximum Continuous AC Power	9.6 kW full sun 5 kW no sun	9.6 kW full sun 7.5 kW no sun	9.6 kW Full sun and no sun	9.6 kW Full sun and no sun	9.6 kW Full sun and no sun
Max Load Start Capability[1]	80 LRA	100 LRA	134 LRA	134 LRA	134 LRA
Solar Configuration	DC-coupled and AC-coupled				
Customer Interface	Customer App, Installer App, Gridshare Fleet Portal, APIs, LEDs				
Operating Modes	Lunar AI, Solar Self-Consumption, Time-of-use, Backup				
Advanced Software Features	Outage Watch, VPP enabled, load control				
Communication	Wi-Fi (2.4 GHz), 4G/LTE (CAT M1), Ethernet				
Warranty	12.5 Years 38 MWh AC throughput	12.5 Years 56 MWh AC throughput	12.5 Years 75 MWh AC throughput	12.5 year 94 MWh AC throughput	12.5 years 113 MWh AC throughput

* L2-ESS-20KWH AC-ESS is use with up to two (2) DC Expansion Units, Model LE-DC-UNIT. When used with the expansion units, the total system capacity may increase to25 KWh and 30 kWh.
[1] Subject to base load and SOC at time of motor start.

Inverter

Model Number	10-005025
Nominal Voltage	120/240 Vac Split Phase
Grid Frequency	60 Hz
Maximum Battery DC Input Current	30 A
Maximum PV DC Input Current	37.5 A
Maximum PV DC Input Power	15 kW
Operating Input Voltage	380 - 450 Vdc
Peak Discharge Power, off-grid	15 kW for 5s
Maximum Continuous Output Current	40 A
Overcurrent Protection Device	50 A Breaker
Output Voltage Range	210 Vac - 264 Vac
Total Harmonic Distortion	<5%
Power Factor	0.85 lagging to 0.85 leading
PV Rapid Shutdown Switch and System Disconnect	Yes, lockable
CEC Solar to Home/Grid Efficiency	95.5%
Supported Islanding Devices	Lunar Bridge, Lunar MSA Controller + ConnectDER MSA
Warranty	12.5 years

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Reviewed for Code Compliance
City of San Jose, Building Division
☒ Building ☐ Electrical
☐ Plumbing ☐ Mechanical
Kiet Pham (408) 535-7773
No. 26-029863 Date: 07/02/2026

DC Expansion Unit (DC ESS)

Lunar DC Expansion Unit is a UL9540-certified, 5kWh DC energy storage system unit (DC ESS) designed for easy expansion of battery energy capacity. Each DC expansipon unit features a individual wall bracket for secure, independent wall mounting. Units can be vertically installed to deliver up to 30kWh of aggregate energy in a single vertical column.

System

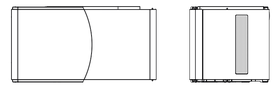
Model Number	LE-DC-UNIT
Rated Energy	5 kWh
Operating Voltage Range	190 Vdc - 225 Vdc
Maximum Continuous Power	2.5 kW (on grid and off-grid)
Peak Discharge Power, off-grid	3.75 kW (5s)
Cell Chemistry	Lithium Iron Phosphate (LFP)
Warranty	12.5 years

Compliance

Certifications	CAN/UL 9540, UL 9450A (indoor and outdoor), CAN/UL 1973, UN 38.3

Mechanical

Dimensions (L x W x D)	12" x 24.4" x 13.5" (305 mm x 619 mm x 344 mm)
Mass	106 lb (48 kg)



Environmental

Ingress Rating	Type 3R
Operating Temperature	-4°F to 122°F (-20°C to 50°C)[1]
Storage Conditions	**Absolute Limits:** –4°F to 140°F (-20°C to 60°C) < 95% RH **1 month:** –4°F to 113°F (-20°C to 45°C) <60%RH **2 months:** 32°F to 95°F (0°C to 35°C) <60%RH **Up to 24 months:** 65°F to 82°F (18°C to 28°C) <60%RH
Altitude	Up to 9843 ft (3000 m)
State of Charge (SOC)	<30% initial

[1] Performance may be de-rated at operating temperatures below 0°C (32°F).

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PC 24-1029 93 MASTER FILE

Lunar Bridge

Lunar Bridge is a Microgrid Interconnection Device that automatically detects outages and seamlessly transitions between grid and island. It supports all home circuits with a service entrance rated load center.

System

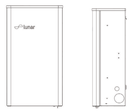
Model Number	90-06801A
Current Rating	200 A
Busbar Rating	200 A
Off-Grid Switchover Time	< 0.03s
Overcurrent Protection Device	Up to 200 A
Number of Panelboard Spaces	20 Spaces / 40 Circuits
AC Meter	**Integral:** +/- 0.2% **External (Rogowski Coil):** +/- 5%
Warranty	12.5 Years

Environmental

Operating Temperature	-40°F to 140°F (-40°C to 60°C)
Ingress Rating	NEMA 3R

Mechanical

Dimension (L x W x D)	26.7" x 14.1" x 9" (677 x 358 x 228 mm)
Mass	44 lbs (20 kg)
Mounting	Wall or semi-flush mount



Compliance

Certifications	UL 1741, UL 67, UL 869A
Emissions	FCC Part 15 Class B

Lunar Maximizer

The Lunar Maximizer is a DC-to-DC charge controller that connects to individual solar panel. It optimizes solar output via tracking the maximum power point, with real-time monitoring and rapid shutdown capability.

System

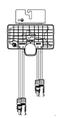
Model Number	10-00522E
Rated Input DC Power	650 W
Maximum Input Open Circuit Voltage (Voc)	75 Vdc[1]
MPPT Operating Voltage	20 Vdc - 60 Vdc
Maximum Input Short Circuit Current (Isc)	20 A
Maximum Output Current	16 A
PV String Length	**Typical site:** 9 - 20 Maximizers **Shaded PV:** 9 - 24 Maximizers
Usable PV power per string	6.6 kW (higher nameplate rating allowed and will curtail)
Parallel Strings of Different Lengths or Orientations	3 Strings
Warranty	25 Years

Environmental

Operating Temperature	-40°F to 185°F (-40°C to 85°C)
Ingress Rating	IP66

Mechanical

Dimension (L x W x D)	6.9" x 6.7" x 1.7" (176 x 169 x 43 mm)
Mass	1.6 lbs (725 g)
Mounting	Rack or panel mount
PV Connector	Staubli MC4



Compliance

Certifications	UL 1741, CSA C22.2.107
Emissions	FCC Part 15 Class B

[1] A PV module is compatible if its nameplate specification, adjusted for site-specific cold temperature, is less than the Maximizer input rating

Lunar Maximizer Hub

The Lunar Maximizer Hub is a junction box that combines PV strings and ensure reliable, instantaneous coordination between Lunar Maximizers and the inverter.

System

Part Number	90-004034
Operating Voltage	25 - 450 Vdc
DC Inputs	3 DC PV strings (3+ & 3- wire terminals + 1 ground terminal)
Maximum Current Per Terminal	50 A
Terminal Wire Size Range	8 AWG - 20 AWG (Red / Black) 6 AWG - 16 AWG (Ground)
Internal Communications	Mesh Wi-Fi to Maximizers, PLC to Inverter
Warranty	25 Years

Environmental

Operating Temperature	-40°F to 185 °F (-40°C to 85°C)
Ingress Rating	NEMA 3R

Mechanical

Dimension (L x W x D)	11"x 12" x 4" (280 x 305 x 102 mm)
Mass	2.3 lbs (1050 g)
Mounting	Rail mounting or comp shingle flashing



Compliance

Certifications	UL 1741 CAN/CSA C22.2 No. 107.1. CSA C22.2 No. 290.

Rogowski Coil CT

Rogowski Coils are flexible, air-core sensors that provide accurate, non-intrusive AC current measurements. These current transformers (CTs) seamlessly transmit telemetry to the Lunar System to enable partial home backup monitoring.

Specifications

Magnelab Part Number	RCT-180L-Coil
Rated Primary Current	Up to 5000 Amp
Accuracy	0.5 Class per IEC 61869-2 Accuracy from 100 Amps to 15, 000 Amps
Phase Displacement	< 0.5°
Power Supply	9-36 VDC required (Not included)
UL Max Voltage	600 V on bare conductor BIL 10 kV
RMS Voltage	10,000 V for AC insulation Test (1 min)
Rated Frequency	30-1,000 Hz
Minimum Impendance	75 kOhms

Environmental

UL Rated Ambient	55°C
Operating Temperature	-15°C to 65°C
Storage Temperature	-45°C to 80°C
UL Relative Humidity Rating	85%

Mechanical

Coil Diameter	6.0"
Insulated Leads	Length: 8 ft, 24 AWG gray cable Rating: 600 V
Mass	0.40 lbs (0.18kg)



Compliance

Certifications	UL 2808, CAN.CSA C22.2 No. 61010-1-12, IP64

ConnectDER

Lunar Partner

Lunar and ConnectDER make installations faster and simpler. Using ConnectDER's IslandDER™ Meter Socket Adapter together with the Lunar Meter Socket Adapter Controller, installers can integrate the Lunar System quickly and efficiently.

System

Part Number	V-1-A-6[1]
Maximum Continuous Current	200A
Short Circuit Rating	22k AIC
Power	12V DC bus to/from Lunar MSAC, Max 5W power supply available to 3rd party system from grid side of MID (load side of meter)
Current Sensing	ANSI 0.2 Accuracy Class CTs for Revenue Grade Sensing, Additional line and load side (of MID) Rogowski Coils at < 5% accuracy
Voltage Sensing	Line and Load side (of MID) - 0.4% Accuracy at Ambient, 1% Across Temperature Range
MID Control	Discrete open/close signals with 1ms input noise rejection, Actuation time < 15 ms
MID Rated Cycles	10,000
Warranty	12.5 years

Environmental

Ingress Rating	NEMA 3R
Enclosure Type	UL 94 5VA flame rating
Ambient Operating Temperature	-22 F to 149 F (-30°C to 65°C)

Mechanical

Dimension (L x W x D)	7.8" x 6.7" x 4.9" (198 x 170 x 124 mm) With pluggable Connection Module
Mass	5.55 lbs. / 2.52 kg With Connection Module and 6 ft analog cable
Mounting	Blade interface with 4-jaw or 5 jaw meter socket
Electric Meter Compatibility	Type 2S, and 12S
Meter Socket Compatibility	Ringless, Ring-type, Lever, Horn Bypass
Manual MID Override	Externally Accessible Switch, Protected by (Dry Contact) Interlocked Tool-Access Cover
Thermal Management	Passive Cooling, Heat Sinks
Cable Connection	Factory-Wired Pluggable Connection, Weathertight, Reversible at Top of MSA, Pre-attached connector to Lunar MSAC
Cable Length	Just 6"



Compliance

Certifications	UL 414 SA, SB, SC – Meter Sockets, UL 1741 / 3141 / 9741 system ready
Emissions	FCC CFR Part 15 Class B, ANSI C12 / IEC 61000
ETL File Number	5028888

[1] V-1-A-# (# denotes length up to 25 ft.) 6 ft. cable is standard length.

Lunar Meter Socket Adapter Controller (MSAC)

System

Model Number	LE-MSAC-01
MSAC Connection Voltage	12 VDC
MSAC Connection Rating	0.35 A
Inverter Connection Voltage	13 VDC
Warranty	12.5 years

Environmental

Operating Temperature	–40°F (–40°C) to 140°F (60°C)
Storage Temperature	–40°F (–40°C) to 140°F (60°C)
Environment	Indoor and outdoor
Ingress Rating	Type 3R
Humidity	100%
Maximum Elevation	9,843 ft (3000m)

Mechanical

Dimension (L x W x D)	11.9 in x 7.02 in x 2.99 in (303 x 178.4 x 76 mm)
Mass	2.2 lb (1 kg)
Mounting	Wall

Compliance

Certifications	UL 1741, UL CSA 61010-1, UL CSA 61010-02-30
Emissions	FCC Part 15 Class B

EATON

Lunar Partner

The Lunar System, when paired with Eaton AbleEdge smart breakers, delivers a flexible and cost-effective way to extend backup power and integrate existing PV inverters.

System

Current rating	15/20/30/40/50/60A[1]
Breaker type	BR5 plug-on style
Metering	Revenue Grade Metering (±0.5%)
Ground Fault Circuit Protection (GFCI)	Yes
Max # of smart breakers per Lunar System	8
Compatible Panels	Lunar Bridge and any Eaton BR-style residential panels
Compatible PV inverters	All CEC-listed solar inverters
Maximum Non-Lunar AC PV in backup	11. 5kWac combined
Maximum Distance from Lunar Bridge/ MSA Controller	**Free air:** 75 ft (23 m) **Through 1 wall (wood/drywall):** 30 ft (9 m) **Through 1 wall (concrete/brick):** 10 ft (3 m)
Commissioning	Lunar Installer App
Warranty	10 years mechanical, 3 years electronics

[1] 40/50/60A available today. Contact Lunar for 15/20/30A availability.

Environmental

Ambient operating temperature	-30 °C to +40 °C
Humidity	0% to 90%, noncondensing

Mechanical

Footprint	2-pole: Takes 2 spaces in a loadcenter

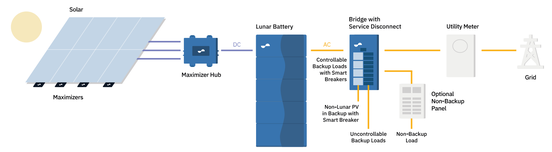


Compliance

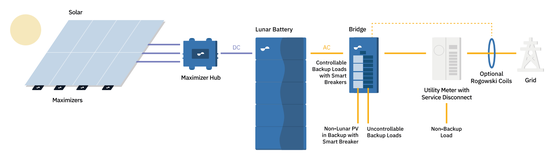
Certifications	UL 943; CSA C22.2 No. 144.1-16, UL 486A-486B, CSA C22.2 No. 65, UL 489, CSA C22.2 No. 144.1, UL 1998, CSA C22.2 No. 0.8, UL 60730-1, FCC Part 15, ICES-003

System Layout

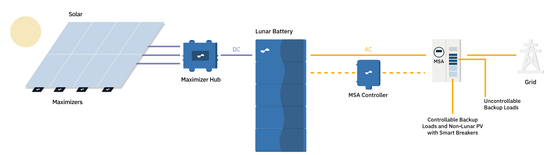
Lunar System with Service Disconnect at Lunar Bridge



Lunar System with Service Disconnect at Utility Meter



Lunar System with MSA and MSA Controller



lunar energy

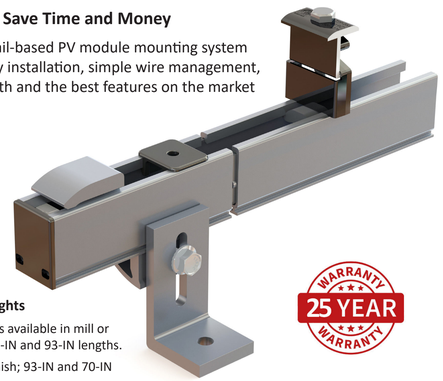
lunarenergy.com

Data Sheet | Flush Mount Rail System

Flush Mount Rail System

Save Time and Money

Low-cost rail-based PV module mounting system provides easy installation, simple wire management, great strength and the best features on the market



Three Rail Heights

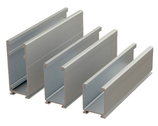
1.6 and 2.3 rail is available in mill or black finish; 126-IN and 93-IN lengths.

3.1 rail is mill finish; 93-IN and 70-IN lengths.

- **Best Wire Management -** PV cables and wiring for module-level electronics fits inside rails to avoid time consuming wire management.
- **Use Any Roof Attachments -** Our rails mount to Tamarack composition shingle flashings, S-5! metal roof clamps or any roof attachment that uses a 5/16-IN bolt.
- **One Wrench Size -** Install with ease and minimal tools. 1/2-IN socket fits all fasteners.
- **UL 2703 Listed -** All components meet UL standards and have Class A Fire Rating for Type 1 and 2 modules.
- **PE Certified -** Pre-stamped engineering letters available for all 50 states and DC.

Tamarack Solar | Phone: 707-222-6240 | Email: info@tamaracksolar.com | Rev#5e

Tamarack Flush Mount makes it easy to stock parts and quickly install a PV system



Three Rail Sizes
3.1-inch rail for heavy loads and longer spans, 2.3-IN for moderate snow loads and 1.6-IN rail for low-profile mounting and areas with low snow load.



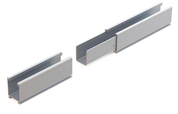
L-Foot with Rail Mount
Quickly and securely mount the rail from either side, to Tamarack composition shingle flashings, S-5! metal roof clamps or any roof attachment that uses a 5/16-IN bolt.



Comp Shingle Flashing
Get superior waterproofing on composition shingle roofs. 10-IN x 8-IN black aluminum flashing fits over L-foot. Sealing washer is included. Use with 5/16-IN lag bolt.



Channel End Clamp
This end clamp replaces the 50/50 clamp at the end of the row of modules for better aesthetics. For 2.3 and 1.6 rail only.



Push-In Bonding Rail Splice
Quickly splice and bond rail sections with no tools or fasteners for 2.3 and 1.6 splices. Top Clamps and Rail Mounts can be co-located with splice.



5050 Clamp
One clamp can be used as a mid-clamp or an end-clamp on modules with 30mm to 40mm frame height. **5050+ Clamp** is used for modules with frame height of 35mm to 46mm.



Push-On End Cap
Caps give the rail system a finished look while allowing drainage. Can be used with 50/50 Clamp or Channel End Clamp.



Wire Clip
Clips can be pushed into top of rail to keep cables in place.



Ground Lug
Use one per module row to ground rail with bare 6 to 10 AWG copper wire.



MLPE Mount
Use this adapter for mounting microinverters and optimizers on the rails under the modules.

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