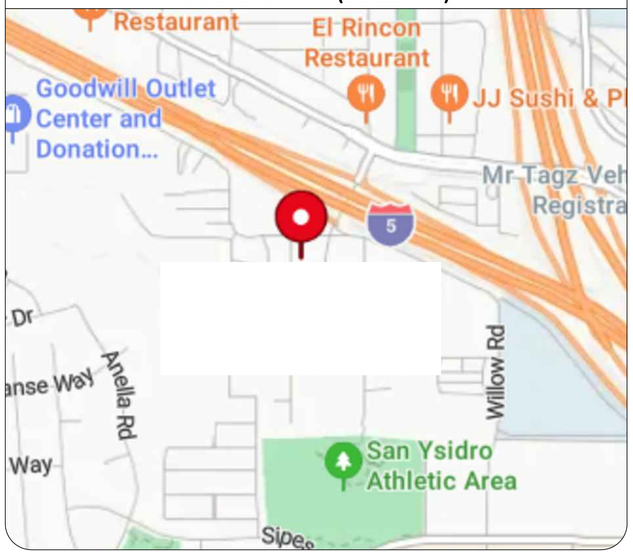
PROJECT: PV SYSTEM DETAILS

[DC] SYSTEM SIZE	[AC] SYSTEM SIZE
(125) MODULES x 545W	(1) INVERTER x 55000W
68.125kW	**55.000 kW**

SATELLITE VIEW (SCALE: NTS)



PROJECT LOCATION (SCALE: NTS)



SCOPE OF WORK

- PROPOSED PROJECT TO INSTALL GRID- TIED PV+BATTERY SYSTEM ON CARPORT & ROOF STRUCTURE AT A COMMERCIAL LOCATION: 3214 STREET NAME, SAN YSIDRO, CA 9874. COORDINATES: 32.550419,-117.046516
- THE PV MODULES WILL BE SECURED ON ROOF USING PRE-ENGINEERED ROOF RACKING SYSTEM.
- INSTALLED PV SYSTEM WILL BE CONNECTED TO HOMEOWNER'S SERVICE EQUIPMENT USING APPLICABLE INTERCONNECTION METHOD (AS PER AHJ).
- THE ENERGY PRODUCED BY PV SYSTEM WILL BE USED TO POWER THE HOME APPLIANCES. EXCESS POWER IS SENT BACK TO THE UTILITY GRID.

APPLICABLE GOVERNING CODES & NOTES

THIS PROJECT SHALL COMPLY WITH THE FOLLOWING CODES:

- 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
- 2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
- 2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
- 2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
- 2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
- 2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR
- 2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
- 2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
- 2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
- TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

DESIGN CRITERIA

- CONSTRUCTION: COMMERCIAL
- BUILDING AGE: SINCE 1969
- EXPOSURE CATEGORY : B, RISK CATEGORY : II
- CONSTRUCTION TYPE: V-B
- OCCUPANCY TYPE : A-3
- WIND SPEED (ASCE 7-16) : 96 MPH
- GROUND SNOW LOAD (ASCE 7-16) : 0 PSF
- ASHRAE EXTREME LOW: 2°C
- ASHRAE HIGH TEMP (2% AVG.) : 28°C
- ASHRAE DISTANCE ABOVE ROOF (7/8") : 50°C

EQUIPMENT DETAILS

(#) PV MODULES	(125) LA SOLAR LS545BF
(#) INVERTER	(1) GROWATT HYBRID WIT 55K-HU-US L2 (208V)
(#) OPTIMIZERS	(125) TIGO TS4-A-F
(#) BATTERY	(01) GROWATT 86 KW APX 86.0H-S1-US BATTERY
OUTPUT CURRENT	168.1A
BRANCH CIRCUIT	6 STRINGS OF 11 MODULES, 5 STRINGS OF 10 MODULES & 1 STRING OF 9 MODULES
ROOF RACKING SYSTEM	ORIAN STAND OFF WITH E-CURB W/ ORION STANDARD RAIL
POINT OF INTERCONNECTION	220A LOAD SIDE BREAKER IN THE EXTERIOR MAIN SERVICE PANEL WITH NEW 500A MAIN BREAKER, 600A BUSBAR AND 120/208V, 4W, 3ϕ
UTILITY	SDG&E
AHJ	CITY OF SAN DIEGO

SHEET INDEX

PV-0 - PV-0.1	PROJECT SUMMARY
PV-0.2	STATEMENT OF SPECIAL INSPECTIONS
PV-0.3	PROJECT SUMMARY
PV-1	SITE PLAN
PV-2	ROOF ATTACHMENT DETAILS
PV-3	BOM & STRING LAYOUT
S-1	STRUCTURAL DETAILED DIAGRAM
S-2	EQUIPMENT ELEVATION DIAGRAM
S-3	BATTERY INSTALLATION DETAIL
E-1 & E-2	ELECTRICAL DIAGRAM & ELECTRICAL CALCULATIONS
E-3	PLACARDS
E.S-1	MODULE SPECSHEET
E.S-2	MODULE CERTIFICATION
E.S-3	INVERTER SPECSHEET
E.S-4	INVERTER CERTIFICATION
E.S-5	BATTERY SPECSHEET
E.S-6	BATTERY CERTIFICATION
E.S-7 & E.S-8	ATTECHMENT SPECSHEET
E.S-9	RAIL SPECSHEET
E.S-10	ELECTRICAL LOAD CALCULATION

NOTE: WILL BE ADD 75 PV MODULES ON CARPORT.

ELECTRICAL NOTES

- THE EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE INSTALLED ONLY BY QUALIFIED PEOPLE. A QUALIFIED PERSON IS ONE WHO HAS SKILLS AND KNOWLEDGE RELATED TO THE CONSTRUCTION AND OPERATION OF THE ELECTRICAL EQUIPMENT AND INSTALLATIONS AND HAS RECEIVED SAFETY TRAINING TO RECOGNIZE AND AVOID THE HAZARDS INVOLVED. (CEC690.4(E) AND 705.6)
- LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION. FOR A LINE SIDE TAP CONNECTION, UTILITY NEEDS TO BE NOTIFIED WELL IN ADVANCE TO COORDINATE BUILDING ELECTRICAL SHUT OFF.
- NEW CONDUIT ROUTING SHOWN IS ESSENTIALLY SCHEMATIC. SUBCONTRACTOR SHALL LAY OUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES.
- ARRAY WIRING SHOULD NOT BE READILY ACCESSIBLE EXCEPT TO QUALIFIED PERSONNEL.
- ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE WATERTIGHT AND APPROVED FOR USE IN WET LOCATIONS .
- WIRING METHODS FOR PV SYSTEM CONDUCTORS AREN'T PERMITTED WITHIN 10 IN. OF THE ROOF DECKING OR SHEATHING EXCEPT WHERE LOCATED DIRECTLY BELOW THE ROOF SURFACE THAT'S COVERED BY PV MODULES AND ASSOCIATED EQUIPMENT WIRING
- BACK-FED BREAKER MUST BE AT THE OPPOSITE END OF BUS BAR FROM THE MAIN BREAKER OR MAIN LUG SUPPLYING CURRENT FROM THE UTILITIES.
- ALL CONDUCTORS AND WIRE TIES EXPOSED TO SUNLIGHT ARE LISTED AS UV RESISTANT.
- CONTRACTOR SHALL FOLLOW ALL ELECTRICAL EQUIPMENT LABELING REQUIREMENTS ACCORDING TO CEC.
- MEASURE THE LINE-TO-LINE AND LINE-TO-NEUTRAL VOLTAGE OF ALL SERVICE ENTRANCE CONDUCTORS PRIOR TO INSTALLING ANY SOLAR EQUIPMENT. THE VOLTAGES FOR THE 240VAC RATED.
- ALL EXTERIOR CONDUIT TO BE PAINT MATCHED TO THE HOMES COLORS

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC

3214 STREET NAME, SAN YSIDRO, CA 9874

APN: 369852147852

#	REVISION/UPDATE	DATE

PV-0

SHEET NAME

PROJECT SUMMARY

SHEET INFORMATION

NOTE: IF A NON-STORM WATER DISCHARGE LEAVES THE SITE, THE CONTRACTOR SHALL IMMEDIATELY STOP THE ACTIVITY AND REPAIR THE DAMAGES. THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER OF THE DISCHARGE, PRIOR TO RESUMING CONSTRUCTION ACTIVITY. ANY AND ALL WASTE MATERIAL, SEDIMENT, AND DEBRIS FROM EACH NON-STORM WATER DISCHARGE MUST BE CONTAINED, REMOVED, AND PROPERLY DISPOSED OF IN ACCORDANCE WITH APPLICABLE REGULATIONS.

NOTE: "ALL STORM WATER RUNOFF FROM PROPOSED AND/OR REPLACED IMPERVIOUS AREAS SHALL BE ROUTED TO PERVIOUS SURFACES OR LANDSCAPING PRIOR TO REACHING THE PUBLIC DRAIN SYSTEM."

NOTE: "PER CITY OF SAN DIEGO MUNICIPAL CODE SECTION 12.0104, 43.0310, 129.010 (A) (4), AND 142.0220, PERMIT ARE REQUIRED TO BE INSPECTED BY CITY INSPECTION STAFF TO ENSURE COMPLIANCE WITH ISSUED CONSTRUCTION PERMIT. THIS INCLUDES, BUT NOT LIMITED TO, STORM WATER COMPLIANCE INSPECTION REQUIREMENTS ASSOCIATED WITH EACH PERMIT."

NOTE: "NO WORK WILL BE PERFORMED IN THE RIGHT-OF-WAY."

Please provide a table with the following Earthwork Quantities			
1	Cut Quantities	0	cyd
2	Fill Quantities	0	cyd
3	Import/Export	0	cyd
4	Max Cut Depth	0	ft
5	Max Fill Depth	0	ft

Disturbance & Impervious Area Table
a. Total Disturbance Area: 0 SF b. Proposed amount of impervious area: 0 SF c. Replaced impervious area: 0 SF

NOTE: THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING 17 CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT ERASION, SEDIMENT, AND POLLUTANT DISCHARGE DURING CONSTRUCTION. BMPS SHALL BE INSTALLED AND MAINTAINED PER THE CALIFOMNIA STORMWATER BMP HANDBOOK (OR EQUIVALENT).

GENERAL NOTES

- ALL COMPONENTS ARE UL LISTED & CEC CERTIFIED, WHERE WARRANTED
- A DISCONNECTING MEANS SHALL BE INSTALLED AT A READILY ACCESSIBLE LOCATION EITHER OUTSIDE OF THE BUILDING OR STRUCTURE OR INSIDE NEAREST POINT OF ENTRANCE OF THE SYSTEM CONDUCTORS.
- HEIGHT OF THE INTEGRATED AC/DC DISCONNECT SHALL NOT EXCEED 6'-7" PER CEC CODE 240.24.
- A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER CEC
- GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
- PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
- PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING. MECHANICAL, OR BUILDING ROOF VENTS.
- WATER PROOF CONNECTORS AND HUBS SHALL BE USED WHERE APPLICABLE PER CEC 312.2 AND 314.15.
- GROUNDING/BONDING BUSHINGS SHALL BE INSTALLED WHERE APPLICABLE PER CEC 250.92.
- ALL EXTERIOR RACEWAYS ON WALLS SHOULD BE EMT UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS & NOTHING IN THIS DOCUMENT SHALL BE INTERPRETED IN A WAY THAT OVERRIDES THEM.
- CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL CONDITIONS, DIMENSIONS & DETAILS IN THIS DOCUMENT. ALL DIMENSIONS SHALL BE VERIFIED BY SUBCONTRACTOR BEFORE INSTALLATION.

PHOTOVOLTAIC SYSTEM FIRE CLASSIFICATION LISTING IN ACCORDANCE WITH UL1703 STANDARD.

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC

3214 STREET NAME, SAN YSIDRO, CA 9874

APN: 369852147852

#	REVISION/UPDATE	DATE

PV-0.1

SHEET NAME

PROJECT SUMMARY

SHEET INFORMATION

STATEMENT OF SPECIAL INSPECTIONS

PROJECT: OFFICE BUILDING, INC
ADDRESS: 3214 STREET NAME, SAN YSIDRO, CA 9874
PERMIT #: PRJ-1136417
DATE:
STATEMENT OF SPECIAL INSPECTIONS (CBC §1704.2.3, §1704.3)

THE FOLLOWING CONSTRUCTION ITEMS REQUIRE SPECIAL INSPECTIONS AND/OR TESTING BY A CITY-APPROVED SPECIAL INSPECTOR AND/OR LABORATORY:

- **STRUCTURAL STEEL FABRICATION (CBC §1705.2)**: SPECIAL INSPECTION REQUIRED FOR SHOP AND FIELD WELDING, THERMAL CUTTING, HEATING OPERATIONS, AND BOLTED CONNECTIONS. VERIFY WELDER QUALIFICATIONS, PROCEDURES, AND INSPECTION OF COMPLETED WELDS PER AISC/AWS REQUIREMENTS.
- **HIGH-STRENGTH BOLTS (CBC §1705.2; AISC 360)**: SPECIAL INSPECTION REQUIRED FOR INSTALLATION OF HIGH-STRENGTH BOLTS. VERIFY BOLT TYPE, INSTALLATION PROCEDURE, AND TIGHTENING METHOD (TURN-OF-NUT, CALIBRATED WRENCH, OR DIRECT-TENSION INDICATOR) PER AISC 360 SPECIFICATIONS.
- **CONCRETE** – SAMPLING, TESTING, AND INSPECTION FOR CARPORT FOOTINGS & FOUNDATIONS (CBC §1705.3).
- **ANCHORAGE** – CAST-IN-PLACE AND POST-INSTALLED ANCHORS (EPOXY, ADHESIVE, OR MECHANICAL) FOR BATTERY CABINETS, INVERTERS, AND CARPORT COLUMNS (ASCE 7-16 §13.1).
- **CARPORT FABRICATION** – OFF-SITE FABRICATION REQUIRES DS-311 CERTIFICATE OF CONFORMANCE PRIOR TO ERECTION (CBC §1704.2.5).
- **BATTERY & INVERTER** – SPECIAL INSPECTION OF FLOOR-MOUNTED ESS ANCHORAGE AND SUSPENDED INVERTER SUPPORTS.
- **OTHER ITEMS** – AS REQUIRED BY ENGINEER OF RECORD OR CITY OF SAN DIEGO DEVELOPMENT SERVICES.

NOTICES (PER CITY OF SAN DIEGO)

NOTICE TO THE APPLICANT/OWNER/OWNER'S AGENT/ARCHITECT OR ENGINEER OF RECORD:
BY USING THIS PERMITTED CONSTRUCTION DRAWINGS FOR CONSTRUCTION/INSTALLATION OF THE WORK SPECIFIED HEREIN, YOU AGREE TO COMPLY WITH THE REQUIREMENTS OF CITY OF SAN DIEGO FOR SPECIAL INSPECTIONS, STRUCTURAL OBSERVATIONS, CONSTRUCTION MATERIAL TESTING AND OFF-SITE FABRICATION OF BUILDING COMPONENTS, CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS AND AS REQUIRED BY THE CALIFORNIA CONSTRUCTION CODES.

NOTICE TO THE CONTRACTOR/BUILDER/INSTALLER/SUB-CONTRACTOR/OWNER-BUILDER:
BY USING THIS PERMITTED CONSTRUCTION DRAWINGS FOR CONSTRUCTION/INSTALLATION OF THE WORK SPECIFIED HEREIN, YOU ACKNOWLEDGE AND ARE AWARE OF, THE REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS. YOU AGREE TO COMPLY WITH THE REQUIREMENTS OF CITY OF SAN DIEGO FOR SPECIAL INSPECTIONS, STRUCTURAL OBSERVATIONS, CONSTRUCTION MATERIAL TESTING AND OFF-SITE FABRICATION OF BUILDING COMPONENTS, CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS AND AS REQUIRED BY THE CALIFORNIA CONSTRUCTION CODES.

SPECIAL INSPECTOR REQUIREMENT: THE SPECIAL INSPECTOR MUST BE REGISTERED BY THE CITY OF SAN DIEGO, DEVELOPMENT SERVICES, IN THE CATEGORY OF WORK REQUIRED TO HAVE SPECIAL INSPECTION.

TESTING LABORATORY REQUIREMENT: THE CONSTRUCTION MATERIALS TESTING LABORATORY MUST BE APPROVED BY THE CITY OF SAN DIEGO, DEVELOPMENT SERVICES, FOR TESTING OF MATERIALS, SYSTEMS, COMPONENTS AND EQUIPMENT.

OFF-SITE FABRICATOR APPROVAL: OFF-SITE FABRICATOR MUST BE APPROVED BY THE CITY OF SAN DIEGO, DEVELOPMENT SERVICES FOR THE FABRICATION OF MEMBERS AND ASSEMBLIES ON THE PREMISES OF THE FABRICATOR'S SHOP.

OFF-SITE FABRICATION COMPLIANCE FORM: OFF-SITE FABRICATOR SHALL SUBMIT AN "OFF-SITE FABRICATION COMPLIANCE FORM" TO THE INSPECTION SERVICES DIVISION PRIOR TO COMMENCING FABRICATION OF ANY COMPONENT AND ASSEMBLIES.

BUILDING INSPECTOR REQUIREMENT: THE SPECIAL INSPECTIONS IDENTIFIED ON PLANS ARE, IN ADDITION TO, AND NOT A SUBSTITUTE FOR, THOSE INSPECTIONS REQUIRED TO BE PERFORMED BY THE CITY'S BUILDING INSPECTOR.

SIGNATURE BLOCKS

OWNER/CONTRACTOR: _____ DATE: _____

ENGINEER OF RECORD (CA PE): _____ DATE: _____

SPECIAL INSPECTOR: _____ DATE: _____

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

PV-0.2
SHEET NAME
STATEMENT OF SPECIAL INSPECTIONS
SHEET INFORMATION

NOTE: PRIOR TO ANY SOIL DISTURBANCE, TEMPORARY SEDIMENT CONTROLS SHALL BE INSTALLED BY THE CONTRACTOR OR QUALIFIED PERSON(S) AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY OF SAN DIEGO “STORMWATER STANDARDS MANUAL" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED GRADING/IMPROVEMENTS CONSISTENT WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND/OR WATER POLLUTION CONTROL PLAN (WPCP) FOR CONSTRUCTION LEVEL BMPS AND, IF APPLICABLE, THE STORMWATER QUALITY MANAGEMENT PLAN (SWQMP) FOR POST-CONSTRUCTION BMPS.
2. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL STORM DRAIN INLET PROTECTION. INLET PROTECTION IN THE PUBLIC RIGHT-OF-WAY MUST BE TEMPORARILY REMOVED PRIOR TO A RAIN EVENT TO ENSURE NO FLOODING OCCURS AND REINSTALLED AFTER RAIN IS OVER.
3. ALL CONSTRUCTION BMPS SHALL BE INSTALLED AND PROPERLY MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.
4. THE CONTRACTOR SHALL ONLY GRADE, INCLUDING CLEARING AND GRUBBING, AREAS FOR WHICH THE CONTRACTOR OR QUALIFIED CONTACT PERSON CAN PROVIDE EROSION AND SEDIMENT CONTROL MEASURES.
5. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SUB-CONTRACTORS AND SUPPLIERS ARE AWARE OF ALL STORMWATER BMPS AND IMPLEMENT SUCH MEASURES. FAILURE TO COMPLY WITH THE APPROVED SWPPP/WPCP WILL RESULT IN THE ISSUANCE OF CORRECTION NOTICES, CITATIONS, CIVIL PENALTIES, AND/OR STOP WORK NOTICES.
6. THE CONTRACTOR OR QUALIFIED CONTACT PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF ALL SILT, DEBRIS, AND MUD ON AFFECTED AND ADJACENT STREET(S) AND WITHIN STORM DRAIN SYSTEM DUE TO CONSTRUCTION VEHICLES/EQUIPMENT AND CONSTRUCTION ACTIVITY AT THE END OF EACH WORK DAY.
7. THE CONTRACTOR SHALL PROTECT NEW AND EXISTING STORMWATER CONVEYANCE SYSTEMS FROM SEDIMENTATION, CONCRETE RINSE, OR OTHER CONSTRUCTION-RELATED DEBRIS AND DISCHARGES WITH THE APPROPRIATE BMPS THAT ARE ACCEPTABLE TO THE CITY RESIDENT ENGINEER AND AS INDICATED IN THE SWPPP/WPCP.
8. THE CONTRACTOR OR QUALIFIED CONTACT PERSON SHALL CLEAR DEBRIS, SILT, AND MUD FROM ALL DITCHES AND SWALES PRIOR TO AND WITHIN 3 BUSINESS DAYS AFTER EACH RAIN EVENT OR PRIOR TO THE NEXT RAIN EVENT, WHICHEVER IS SOONER.
9. IF A NON-STORMWATER DISCHARGE LEAVES THE SITE, THE CONTRACTOR SHALL IMMEDIATELY STOP THE ACTIVITY AND REPAIR THE DAMAGES. THE CONTRACTOR SHALL NOTIFY THE CITY RESIDENT ENGINEER OF THE DISCHARGE, PRIOR TO RESUMING CONSTRUCTION ACTIVITY. ANY AND ALL WASTE MATERIAL, SEDIMENT, AND DEBRIS FROM EACH NON-STORMWATER DISCHARGE SHALL BE REMOVED FROM THE STORM DRAIN CONVEYANCE SYSTEM AND PROPERLY DISPOSED OF BY THE CONTRACTOR.
10. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ONSITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID DEPLOYMENT OF CONSTRUCTION BMPS WHEN RAIN IS IMMINENT.
11. THE CONTRACTOR SHALL RESTORE AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO WORKING ORDER YEAR ROUND.
12. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES DUE TO UNFORESEEN CIRCUMSTANCES TO PREVENT NON-STORMWATER AND SEDIMENT-LADEN DISCHARGES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
14. ALL EROSION AND SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED SWPPP/WPCP SHALL BE INSTALLED AND MAINTAINED. ALL EROSION AND SEDIMENT CONTROLS FOR INTERIM CONDITIONS SHALL BE PROPERLY DOCUMENTED AND INSTALLED TO THE SATISFACTION OF THE CITY RESIDENT ENGINEER.
15. AS NECESSARY, THE CITY RESIDENT ENGINEER SHALL SCHEDULE MEETINGS FOR THE PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED CONTACT PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER, AND THE CITY RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION AND SEDIMENT CONTROL MEASURES AND OTHER BMPS RELATIVE TO ANTICIPATED CONSTRUCTION ACTIVITIES.
16. THE CONTRACTOR OR QUALIFIED CONTACT PERSON SHALL CONDUCT VISUAL INSPECTIONS AND MAINTAIN ALL BMPS DAILY AND AS NEEDED. VISUAL INSPECTIONS AND MAINTENANCE OF ALL BMPS SHALL BE CONDUCTED BEFORE, DURING, AND AFTER EVERY RAIN EVENT AND EVERY 24 HOURS DURING ANY PROLONGED RAIN EVENT. THE CONTRACTOR SHALL MAINTAIN AND REPAIR ALL BMPS AS SOON AS POSSIBLE AS SAFETY ALLOWS.
17. CONSTRUCTION ENTRANCE AND EXIT AREA. TEMPORARY CONSTRUCTION ENTRANCE AND EXITS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CASQA FACT SHEET TC-1OR CALTRANS FACT SHEET TC-01 TO PREVENT TRACKING OF SEDIMENT AND OTHER POTENTIAL POLLUTANTS ONTO PAVED SURFACES AND TRAVELED WAYS. WIDTH SHALL BE 10’ OR THE MINIMUM NECESSARY TO ACCOMMODATE VEHICLES AND EQUIPMENT WITHOUT BYPASSING THE ENTRANCE.

(a) NON-STORMWATER DISCHAARGES SHALL BE EFFECTIVELY MANAGED PER THE SAN DIEGO
(b) MUNICIPAL CODE CHAPTER 4, ARTICLE 3, DIVISION 3 “STORM WATER MANAGEMENT
(c) AND DISCHARGE CONTROL.

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

SHEET NAME
PV-0.3
PROJECT SUMMARY
SHEET INFORMATION

NOTE: ROOF ACCESS IS NOT LOCATED IN AREAS THAT REQUIRE PLACEMENT OF GROUND LADDERS OVER EXTERIOR WALL OPENINGS

MINIMUM 3' CLEARANCE BETWEEN BATTERY AND DOOR/WINDOW DIRECTLY ENTERING THE DWELLING UNIT.

NOTE: 3' WORKING CLEARANCE IN FRONT OF EQUIPMENT IS REQUIRED BY CEC 110.26

NOTE: NEED 6 X BOLLARD

NOTE: EXISTING LANDSCAPE TO BE PROTECTED IN PLACE.

NOTE: ALL LANDSCAPE AND IRRIGATION SHALL CONFORM TO THE STANDARDS OF THE CITY-WIDE LANDSCAPE REGULATIONS AND THE CITY OF SAN DIEGO LAND DEVELOPMENT MANUAL LANDSCAPE STANDARDS AND ALL OTHER LANDSCAPE RELATED CITY AND REGIONAL STANDARDS.

NOTE: MAINTENANCE: ALL REQUIRED LANDSCAPE AREAS SHALL BE MAINTAINED BY OWNER. LANDSCAPE AND IRRIGATION AREAS IN THE PUBLIC RIGHT-OF-WAY SHALL BE MAINTAINED BY OWNER. THE LANDSCAPE AREAS SHALL BE MAINTAINED FREE OF DEBRIS AND LITTER, AND ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION. DISEASED OR DEAD PLANT MATERIAL SHALL BE SATISFACTORILY TREATED OR REPLACED PER THE CONDITIONS OF THE PERMIT.

NOTE: IF ANY REQUIRED LANDSCAPE INDICATED ON THE APPROVED CONSTRUCTION DOCUMENT PLANS IS DAMAGED OR REMOVED, IT SHALL BE REPAIRED AND/OR REPLACED IN KIND AND EQUIVALENT SIZE PER THE APPROVED DOCUMENTS TO THE SATISFACTION OF THE DEVELOPMENT SERVICES DEPARTMENT WITHIN 30 DAYS OF DAMAGE.

NOTES: EXISTING TREES TO REMAIN WITHIN THE AREA OF WORK WILL BE PROTECTED IN PLACE. THE FOLLOWING PROTECTION MEASURES WILL BE PROVIDED:

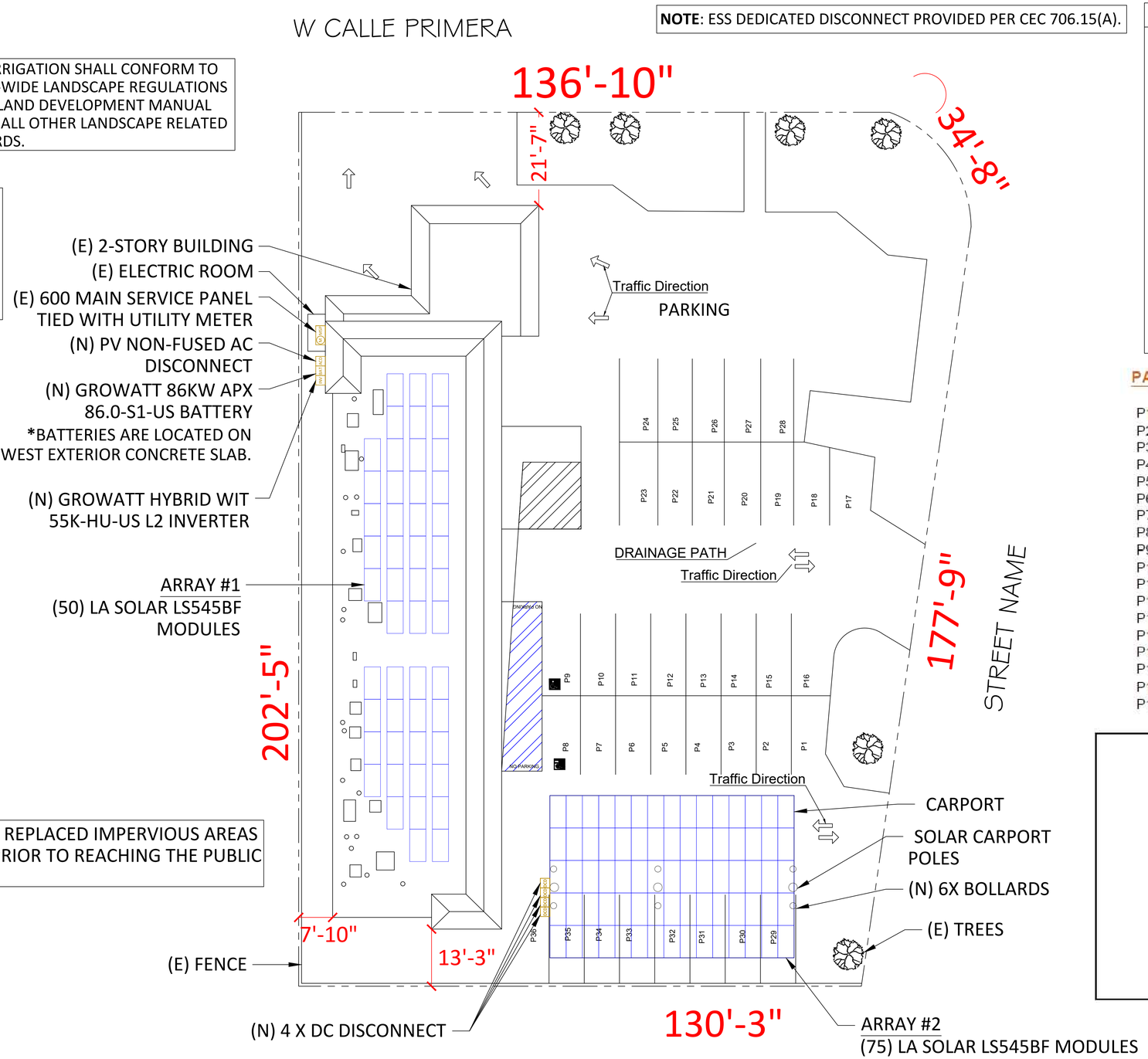
1. A BRIGHT YELLOW OR ORANGE TEMPORARY FENCE WILL BE PLACED AROUND EXISTING TREES AT THE DRIP LINE.
2. STOCKPILING, TOPSOIL DISTURBANCE, VEHICLE USE, AND MATERIAL STORAGE OF ANY KIND IS PROHIBITED WITHIN THE DRIP LINE.
3. ROOT SYSTEMS OF EXISTING TREES WILL BE PROTECTED FROM FLOODING, EROSION, CHEMICAL SPILLS, AND EXCESSIVE WETTING AND DRYING DURING DE-WATERING.
4. THE EXISTING GRADE WILL BE MAINTAINED WITHIN THE DRIP LINE OF EXISTING TREES.
5. ROOTS OF EXISTING TREES WILL BE CUT APPROXIMATELY 6 INCHES BACK FROM NEW CONSTRUCTION.
6. A CERTIFIED CONSULTING ARBORIST SHALL OVERSEE PRUNING OF ANY ROOTS 4-IN OR GREATER IN DIAMETER.
7. MAINTAIN AND DOCUMENT A TREE WATERING SCHEDULE DURING CONSTRUCTION.
8. ALL DAMAGED TREES WILL BE REPLACED WITH ONE OF EQUAL OR GREATER SIZE.

NOTE: "ALL STORM WATER RUNOFF FROM PROPOSED AND/OR REPLACED IMPERVIOUS AREAS SHALL BE ROUTED TO PERVIOUS SURFACES OR LANDSCAPING PRIOR TO REACHING THE PUBLIC DRAIN SYSTEM."

NOTE: ALL OPERATING HANDLES FOR AC DISCONNECTS, BREAKERS AND SWITCHES SHALL BE MOUNTED NOT HIGHER THAN 6 FT. 7 IN. ABOVE FINISHED FLOORE PER CEC 404.8(A).

N

PROPOSED SITE DIAGRAM SHOWING THE RELATIVE LOCATION OF MAJOR COMPONENTS.

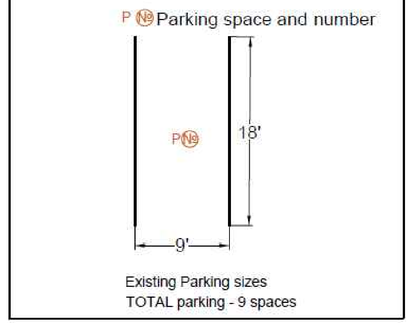


LEGEND

M	UTILITY METER
MSP	MAIN SERVICE PANEL
INV	GROWATT HYBRID WIT 55K-HU-US L2 INVERTER
ACD	PV AC DISCONNECT
BAT	GROWATT 86KW APX 86.0-S1-US BATTERY
———	FENCE
- - - -	PROPERTY LINE
○ □	VENT, ATTIC FAN (ROOF OBSTRUCTIONS)

PARKING STALLS

P1	Standard	P19	Standard
P2	Standard	P20	Standard
P3	Standard	P21	Standard
P4	Standard	P22	Standard
P5	Standard	P23	Standard
P6	Standard	P24	Standard
P7	Standard	P25	Standard
P8	ADA	P26	Standard
P9	ADA	P27	Standard
P10	Standard	P28	Standard
P11	Standard	P29	Standard
P12	Standard	P30	Standard
P13	Standard	P31	Standard
P14	Standard	P32	Standard
P15	Standard	P33	Standard
P16	Standard	P34	Standard
P17	Standard	P35	Standard
P18	Standard	P36	Standard



CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	1/14" = 1'-0"
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

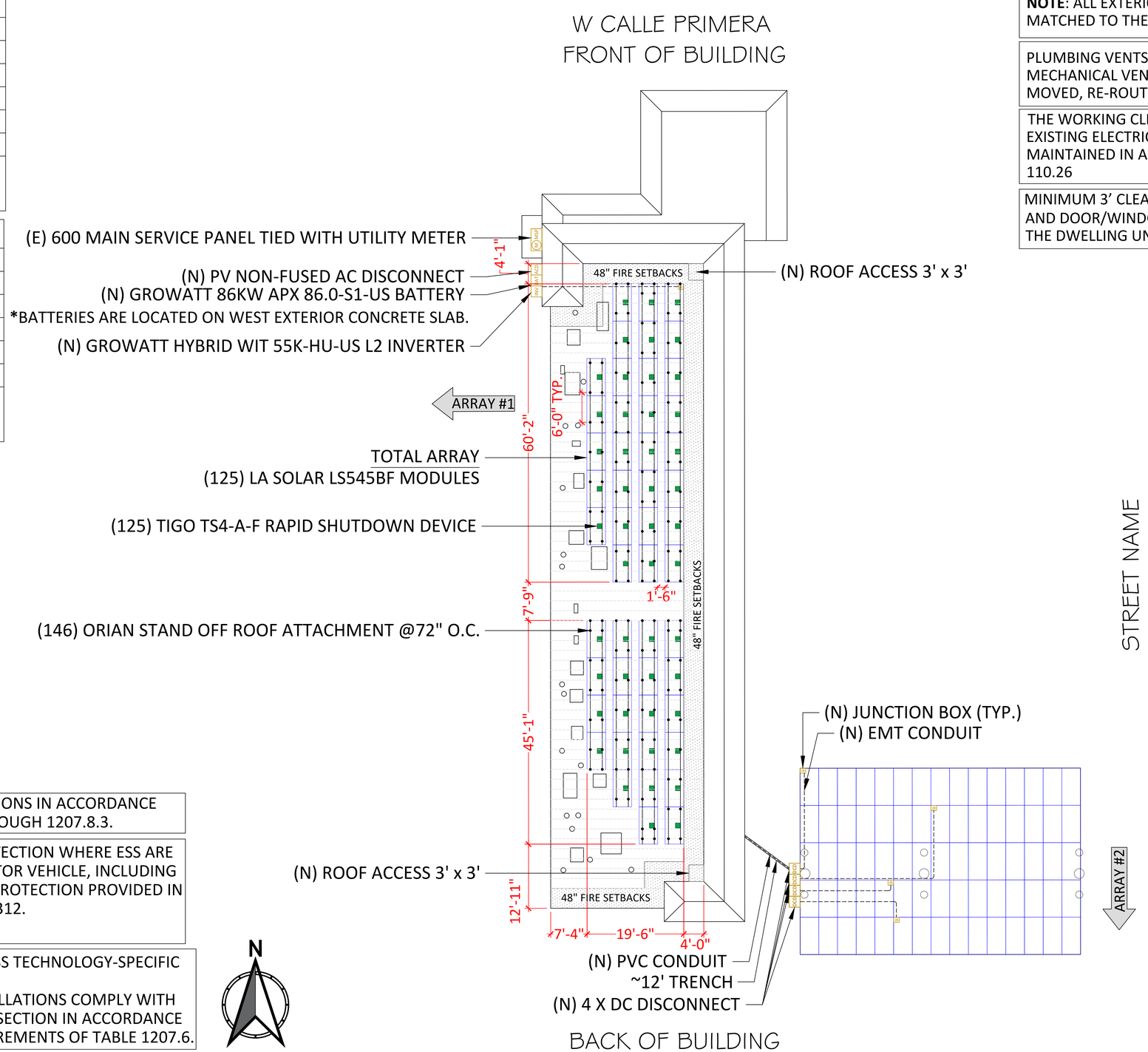
OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

PV-1
SHEET NAME
SITE PLAN
SHEET INFORMATION

ARRAY DETAILS OF GYM	
MOUNTING PLANE	**ARRAY #1**
NO. OF MODULES	50
AZIMUTH	270
ROOF TILT	5°
ROOF TYPE	ROLLED COMP
ARRAY AREA	1406.25
(TOTAL ARRAY AREA/ TOTAL ROOF AREA) X 100% = (1406.25/6449.95) X 100% = 15.26%	

CARPORT ARRAY'S DETAILS	
MOUNTING PLANE	**ARRAY #2**
NO. OF MODULES	75
AZIMUTH	180
ROOF TILT	5°
ROOF TYPE	METAL
ARRAY AREA	2109.38
(TOTAL ARRAY AREA/ TOTAL ROOF AREA) X 100% = (2109.38/2126.06) X 100% = 99.22%	



NOTE: ALL EXTERIOR CONDUIT TO BE PAINT MATCHED TO THE HOMES COLORS

PLUMBING VENTS, SKYLIGHTS AND MECHANICAL VENTS SHALL NOT BE COVERED, MOVED, RE-ROUTED OR RE-LOCATED.

THE WORKING CLEARANCES AROUND THE EXISTING ELECTRICAL EQUIPMENT AS WELL BE MAINTAINED IN ACCORDANCE WITH CEC 110.26

MINIMUM 3' CLEARANCE BETWEEN BATTERY AND DOOR/WINDOW DIRECTLY ENTERING THE DWELLING UNIT.

LEGEND

- (M) UTILITY METER
- MSP — MAIN SERVICE PANEL
- INV — GROWATT HYBRID WIT 55K-HU-US L2 INVERTER
- ACD — PV AC DISCONNECT
- JB — JUNCTION BOX
- BAT — GROWATT 86KW APX 86.0-S1-US BATTERY
- DCD — DC DISCONNECT
- CONDUIT
- VENT, ATTIC FAN (ROOF OBSTRUCTIONS)
- RAFTERS
- ORIAN STAND OFF WITH E-CURB ATTACHMENT
- TIGO TS4-A-F RAPID SHUTDOWN DEVICE

NOTES: ELECTROCHEMICAL ESS PROTECTION. THE PROTECTION OF ELECTROCHEMICAL ESS SHALL BE IN ACCORDANCE WITH SECTIONS 1207.5.1 THROUGH 1207.5.8 WHERE REQUIRED BY SECTIONS 1207.7 THROUGH 1207.10

NOTES: WORKING CLEARANCES ACCESS AND WORKING SPACE PROVIDED AND MAINTAINED ABOUT ALL ELECTRICAL EQUIPMENT TO PERMIT READY AND SAFE OPERATION AND MAINTENANCE OF SUCH EQUIPMENT IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE AND THE MANUFACTURER'S INSTRUCTIONS. (AS PER CFC 1207.4.2)

NOTES: ATTACHMENT POINTS ARE NOT EXACT. CONTRACTOR MAY NEED TO ADJUST MOUNT LOCATION. EXISTING ROOF CONDITION & RAFTER LOCATIONS ARE SUBJECT TO FIELD VERIFICATION. ACTUAL LOCATION MAY DIFFER. INSTALL PER MANUFACTURER SPECIFICATIONS. SEE SUPPLEMENTAL DOCUMENTS FOR ATTACHMENT & STRUCTURAL DOCUMENTATION.

NOTES: ROOF ACCESS, PATHWAYS AND SPACING REQUIREMENTS SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS 1205.2.1 THROUGH 1205.3.3. PATHWAYS SHALL BE OVER AREAS CAPABLE OF SUPPORTING FIRE FIGHTERS ACCESSING THE ROOF. PATHWAYS SHALL BE LOCATED IN AREAS WITH MINIMAL OBSTRUCTIONS, SUCH AS VENT PIPES, CONDUIT OR MECHANICAL EQUIPMENT.

NOTES: OUTDOOR INSTALLATIONS IN ACCORDANCE WITH SECTIONS 1207.8.1 THROUGH 1207.8.3.

NOTES: VEHICLE IMPACT PROTECTION WHERE ESS ARE SUBJECT TO IMPACT BY A MOTOR VEHICLE, INCLUDING FORK LIFTS, VEHICLE IMPACT PROTECTION PROVIDED IN ACCORDANCE WITH SECTION 312. (AS PER CFC 1207.4.5)

NOTES: ELECTROCHEMICAL ESS TECHNOLOGY-SPECIFIC PROTECTION. ELECTROCHEMICAL ESS INSTALLATIONS COMPLY WITH THE REQUIREMENTS OF THIS SECTION IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF TABLE 1207.6.

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	3/32" = 1'-0"
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC

3214 STREET NAME, SAN YSIDRO, CA 9874

APN: 369852147852

#	REVISION/UPDATE	DATE

PV-2

SHEET NAME

ATTACHMENT DETAILS

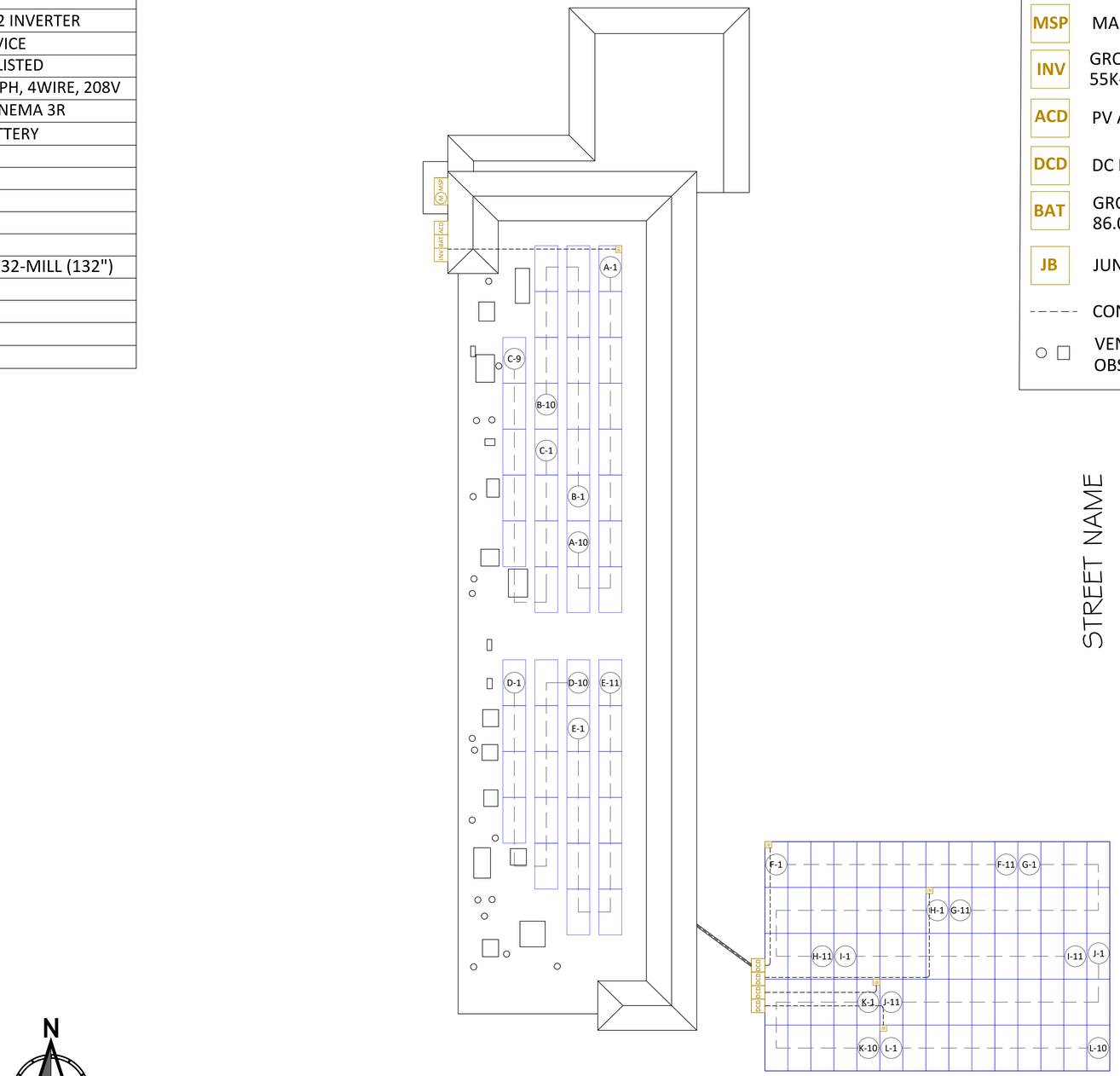
SHEET INFORMATION

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	125	LA SOLAR LS545BF MODULES
INVERTER	1	GROWATT HYBRID WIT 55K-HU-US L2 INVERTER
OPTIMIZER	125	TIGO TS4-A-F RAPID SHUTDOWN DEVICE
JUNCTION BOX	5	JUNCTION BOX, 600V, NEMA 3R, UL LISTED
AC DISCONNECT	1	300A NON FUSED AC DISCONNECT, 3PH, 4WIRE, 208V
DC DISCONNECT	4	60A, DC DISCONNECT, 1000VDC, 2P, NEMA 3R
BATTERY	1	GROWATT 86KW APX 86.0-S1-US BATTERY
ATTACHMENT	146	ORION STAND OFF
ATTACHMENT	146	E-CURB
ATTACHMENT	146	ALUMINIUM BASES
ATTACHMENT	146	5/16" X 3-1/2" LAG BOLT
ATTACHMENT	146	ORION L-FOOT
RAIL	71	ORION STANDARD RAIL GR-R-STD-132-MILL (132")
BONDED SPLICE	62	BONDED SPLICE
CLAMPS	224	GROUNDING MID CLAMPS
CLAMPS	52	UNIVERSAL END CLAMPS
GROUNDING LUG	13	GROUNDING LUG

ARRAY WEIGHT (LOAD CALC'S)		
Number of Modules	125	
Module Weight	57	LBS
Total Module (Array) Weight	7125.00	LBS
Number of Attachment point	146	
Mounting System Weight *(Per Module)*	1	LBS
Mounting System Weight	146.00	LBS
Total System Weight *(Module Weight + Mounting System Weight)*	7271.00	LBS
Weight at Each Attachment Point *(Array Weight / Number of Attachment Point)*	48.80	LBS
Module Area (90x45)	28.13	SqFt
Total Array Area	3515.63	SqFt
Distributed Load *(Total System Weight / Total Array Area)*	2.07	Per SqFt
Total Roof Area	6449.95	SqFt
Total Percentage of Roof Covered *Total Array Area / Total Roof Area)*100*	54.51%	

NOTES: VEHICLE IMPACT PROTECTION WHERE ESS ARE SUBJECT TO IMPACT BY A MOTOR VEHICLE, INCLUDING FORK LIFTS, VEHICLE IMPACT PROTECTION PROVIDED IN ACCORDANCE WITH SECTION 312.
(AS PER CFC 1207.4.5)

NOTES: ELECTROCHEMICAL ESS TECHNOLOGY-SPECIFIC PROTECTION.
ELECTROCHEMICAL ESS INSTALLATIONS COMPLY WITH THE REQUIREMENTS OF THIS SECTION IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF TABLE 1207.6.



LEGEND

M	UTILITY METER
MSP	MAIN SERVICE PANEL
INV	GROWATT HYBRID WIT 55K-HU-US L2 INVERTER
ACD	PV AC DISCONNECT
DCD	DC DISCONNECT
BAT	GROWATT 86KW APX 86.0-S1-US BATTERY
JB	JUNCTION BOX
-----	CONDUIT
○ □	VENT, ATTIC FAN (ROOF OBSTRUCTIONS)

STRING LEGEND

A	STRING #1 - 10 MODULES
B	STRING #2 - 10 MODULES
C	STRING #3 - 09 MODULES
D	STRING #4 - 10 MODULES
E	STRING #5 - 11 MODULES
F	STRING #6 - 11 MODULES
G	STRING #7 - 11 MODULES
H	STRING #8 - 11 MODULES
I	STRING #9 - 11 MODULES
J	STRING #10 - 11 MODULES
K	STRING #11 - 10 MODULES
L	STRING #12 - 10 MODULES

MINIMUM 3' CLEARANCE BETWEEN BATTERY AND DOOR/WINDOW DIRECTLY ENTERING THE DWELLING UNIT.

NOTES: OUTDOOR INSTALLATIONS IN ACCORDANCE WITH SECTIONS 1207.8.1 THROUGH 1207.8.3.

NOTES: ELECTROCHEMICAL ESS PROTECTION. THE PROTECTION OF ELECTROCHEMICAL ESS SHALL BE IN ACCORDANCE WITH SECTIONS 1207.5.1 THROUGH 1207.5.8 WHERE REQUIRED BY SECTIONS 1207.7 THROUGH 1207.10

NOTES: WORKING CLEARANCES ACCESS AND WORKING SPACE PROVIDED AND MAINTAINED ABOUT ALL ELECTRICAL EQUIPMENT TO PERMIT READY AND SAFE OPERATION AND MAINTENANCE OF SUCH EQUIPMENT IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE AND THE MANUFACTURER'S INSTRUCTIONS.
(AS PER CFC 1207.4.2)

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	1/10" = 1'-0"
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

PV-3
SHEET NAME
BOM & STRING LAYOUT
SHEET INFORMATION

STRUCTURAL NOTES:

1. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE ORION STANDARD RAIL SYSTEM WITH ORIAN STAND OFF WITH E-CURB ATTACHMENTS.
2. THE MOUNTING FEET ARE TO BE SPACED AS SHOWN IN THE DETAILS, AND MUST BE STAGGERED TO ADJACENT FRAMING MEMBERS TO SPREAD OUT THE ADDITIONAL LOAD.
3. THE PROPOSED PV+RACKING SYSTEM ADDS 2.07 PSF TO THE ROOF FRAMING SYSTEM.
4. ROOF LIVE LOAD = 20 PSF
5. GROUND SNOW LOAD = 0 lb/sqft
6. WIND SPEED = 96 MPH
7. EXPOSURE CATEGORY = B
8. RISK CATEGORY = II

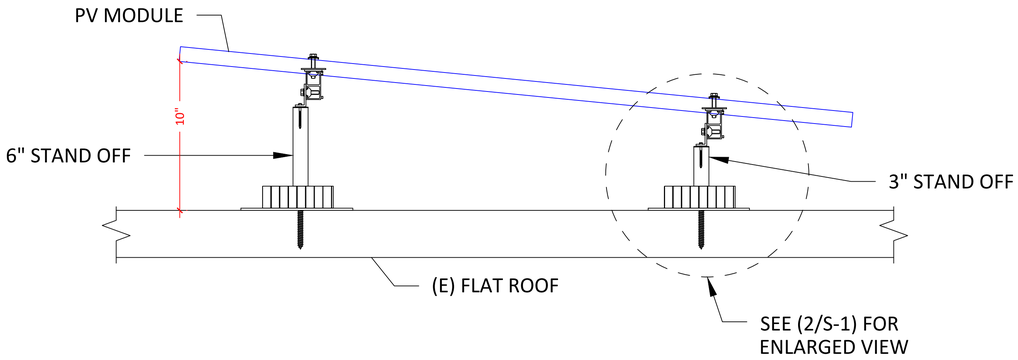
ARRAY WEIGHT (LOAD CALC'S)		
Number of Modules	125	
Module Weight	57	LBS
Total Module (Array) Weight	7125.00	LBS
Number of Attachment point	146	
Mounting System Weight *(Per Module)*	1	LBS
Mounting System Weight	146.00	LBS
Total System Weight *(Module Weight + Mounting System Weight)*	7271.00	LBS
Weight at Each Attachment Point *(Array Weight / Number of Attachment Point)*	48.80	LBS
Module Area (90x45)	28.13	SqFt
Total Array Area	3515.63	SqFt
Distributed Load *(Total System Weight / Total Array Area)*	2.07	Per SqFt
Total Roof Area	6449.95	SqFt
Total Percentage of Roof Covered *Total Array Area / Total Roof Area)*100*	54.51%	

NOTES: THE ROOFTOP-MOUNTED PV SYSTEM, INCLUDING ALL MODULES, RACKING, ATTACHMENT HARDWARE, IMPOSES A UNIFORM DEAD LOAD OF 2.07 PSF ACROSS THE ARRAY FOOTPRINT. TYPICAL POINT LOAD AT EACH ROOF ATTACHMENT IS 1 LBS. ALL MODULE AND RACK SUPPORT LOCATIONS ARE DIMENSIONED ON THIS SHEET RELATIVE TO THE EXISTING ROOF FRAMING MEMBERS. AS PER (CBC 1603.1.8.1)

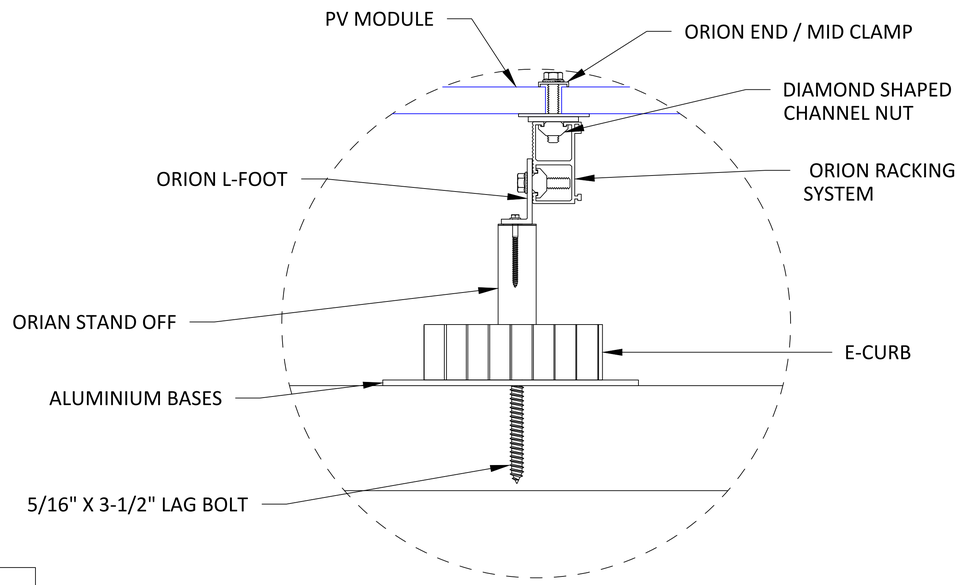
NOTE: - CONTRACTOR/INSTALLER TO VERIFY COMPATIBILITY OF ANY BRANDS OR PRODUCTS SUBSTITUTED OR USED AS ALTERNATES WITHIN ANY BRAND-SPECIFIC SYSTEMS.
CONTRACTOR SHALL SUPPLY AND PRESENT CERTIFICATES OF COMPATIBILITY TO THE BUILDING OFFICIAL UPON INSPECTION.

NOTE: PV CARPORT MODULES AND RACKING SHALL BE GROUNDED AND BONDED USING UL 2703 LISTED HARDWARE AND A CONTINUOUS EGC PER CEC 690.43.

NOTE: PV MODULES AND RACKING SYSTEM MEET UL 2703 CLASS A FIRE RATING WHEN INSTALLED TOGETHER PER MANUFACTURER'S TESTED CONFIGURATION.

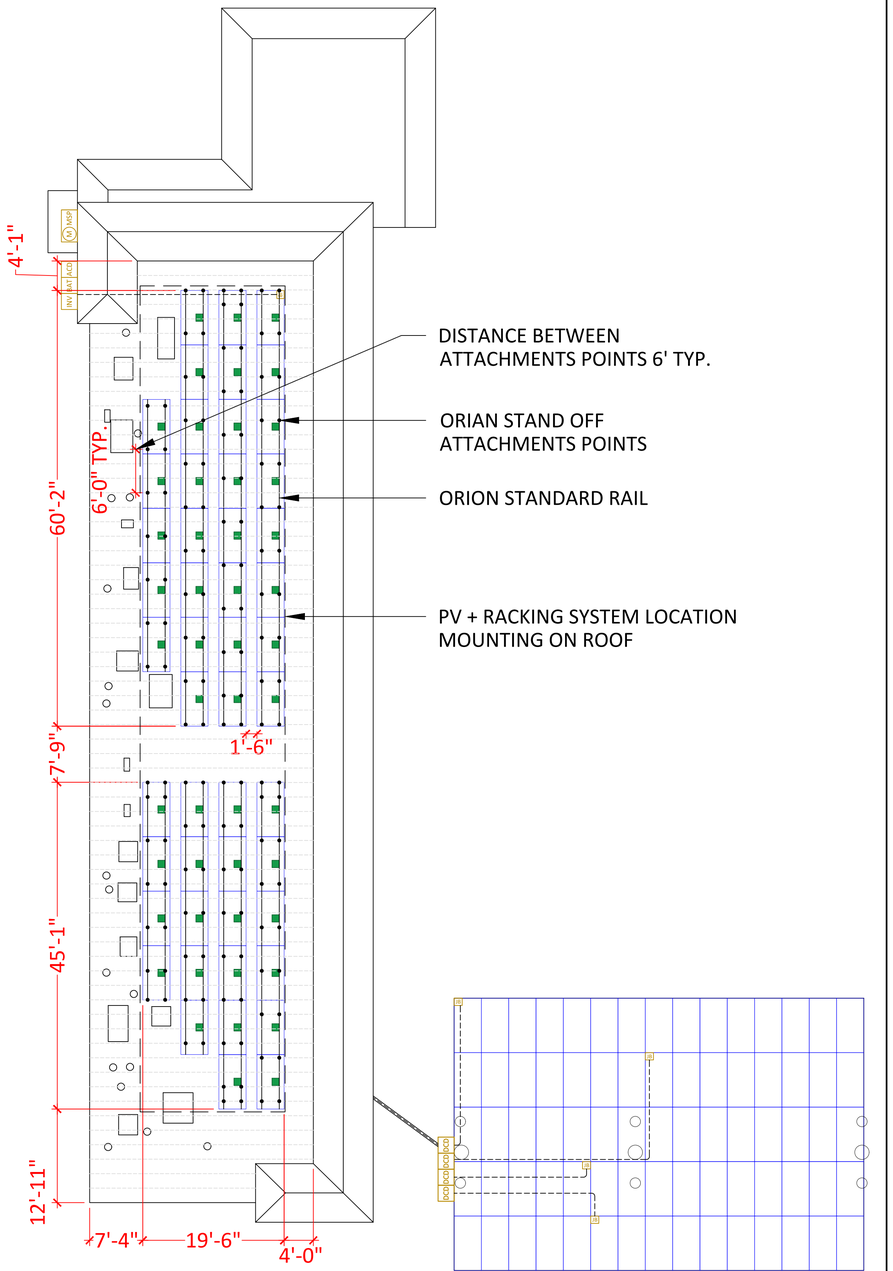


ATTACHMENT DETAIL (SIDE VIEW)



ATTACHMENT DETAIL (ENLARGED VIEW)

PV + RACKING SYSTEM VIEW



CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

S-1
SHEET NAME
STRUCTURAL DETAILED DIAGRAM
SHEET INFORMATION

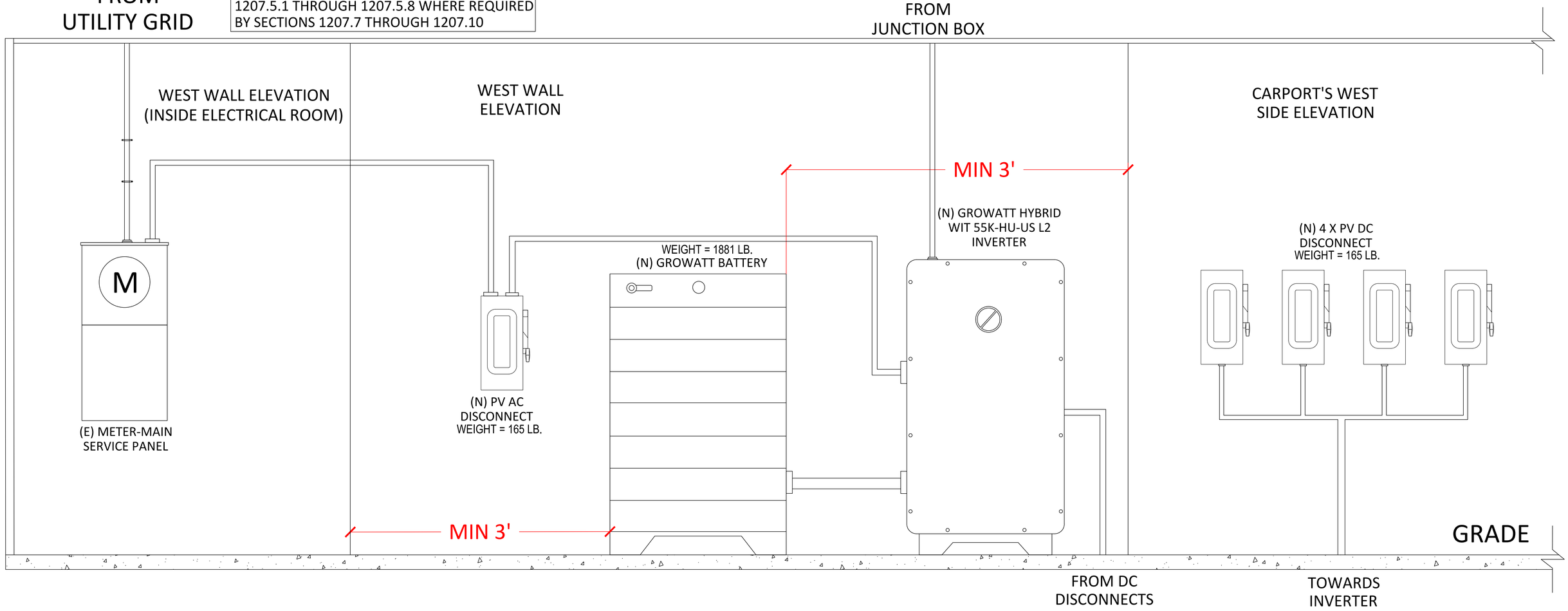
NOTES:
ESS UNIT LOCATION(S) AND DISTANCES RELATIVE TO ONE ANOTHER AND TO ALL RELEVANT BUILDING FEATURES AND OTHER EQUIPMENT, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
I.) INDIVIDUAL ESS UNITS SHALL BE SEPARATED FROM ONE ANOTHER BY 3 FEET.
II.) WHERE AN ESS IS INSTALLED ON AN EXTERIOR WALL OR OUTDOOR, ESS UNITS SHALL BE SEPARATED FROM ALL WINDOWS, DOORS, OPERABLE OPENINGS AND HVAC INLETS BY 3 FEET (IN ANY DIRECTION).

NOTES: ELECTROCHEMICAL ESS PROTECTION. THE PROTECTION OF ELECTROCHEMICAL ESS SHALL BE IN ACCORDANCE WITH SECTIONS 1207.5.1 THROUGH 1207.5.8 WHERE REQUIRED BY SECTIONS 1207.7 THROUGH 1207.10

NOTES: SUSPENDED INVERTER: MODEL GROWATT HYBRID WIT 55K-HU-US L2 — GROSS WEIGHT = 352 LB. SUPPORT AND ANCHORAGE TO BE DESIGNED PER ASCE 7-16 §13.1. PROVIDE HANGER/ANCHOR TYPE, SPACING, AND ATTACHMENT REACTION ON PLAN. SEE STRUCTURAL CALCULATIONS (CALCS §S-CALC-02) FOR ANCHOR DESIGN (SIGNED & STAMPED BY CA PE).

NOTES: VEHICLE IMPACT PROTECTION WHERE ESS ARE SUBJECT TO IMPACT BY A MOTOR VEHICLE, INCLUDING FORK LIFTS, VEHICLE IMPACT PROTECTION PROVIDED IN ACCORDANCE WITH SECTION 312.
(AS PER CFC 1207.4.5)

NOTES: ELECTROCHEMICAL ESS TECHNOLOGY-SPECIFIC PROTECTION.
ELECTROCHEMICAL ESS INSTALLATIONS COMPLY WITH THE REQUIREMENTS OF THIS SECTION IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF TABLE 1207.6.



EQUIPMENT ELEVATION DIAGRAM

*BATTERIES ARE LOCATED ON WEST EXTERIOR WALL.

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

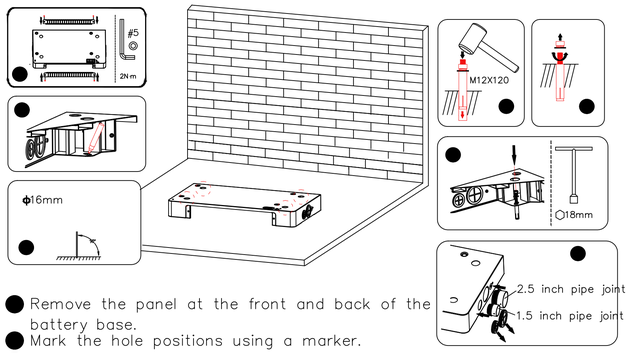
OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

S-2
SHEET NAME
EQUIPMENT ELEVATION DIAGRAM
SHEET INFORMATION

BOLT/ANCHOR SIZE
M6 BOLTS – 4 PER MODULE (MODULE TO BASE/WALL).
M12 × 120 MM BOLTS – 4 PER BASE (BASE TO CONCRETE SLAB).
ANTI-TIP M6 BOLTS – 2 PER GAP BETWEEN MODULES.

Step 1:Install the battery base:



- Remove the panel at the front and back of the battery base.
- Mark the hole positions using a marker.
- Drill holes at the marked positons to a depth of 95 mm.
- Knock the expansion screws into the holes (M12×120).
- Remove the flat washer, the spring washer and the nut.
- Place the base on the selected position, then install the flat washer, the spring washer and the nut. Tighten the nut to secure the base.
- When installing in two columns, you need to remove the rubber sealing plugs on the side of the base and install the conduit fittings with appropriate specifications. Determine the length of the conduit according to the distance between two columns and install the conduit.

Figure 4–6: Installing the battery base

Step 2: Move the auxiliary tool onto the forks of the forklift

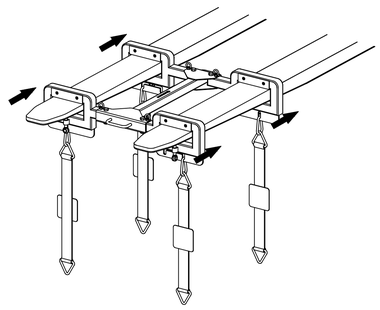


Figure 4–7: Moving the auxiliary tool

Step 3: Place the Battery Module onto the base, ensuring that the locating pins of the BM align with the locating points on the base.

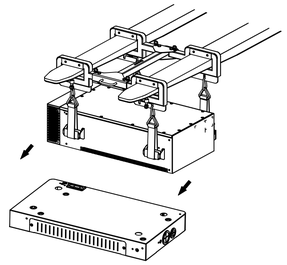


diagram: Placing the battery module

Step 4: Install the 4 anti–tip & grounding connecting pieces between the BM and the base to avoid tip–overs and for grounding purpose.

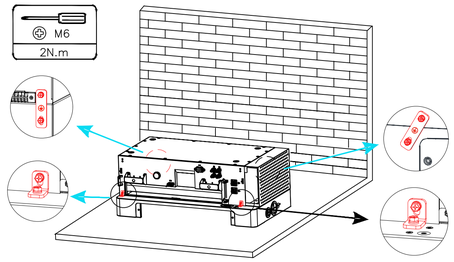


diagram: Connecting the anti–tip & grounding connecting pieces between the BM and the base

Step 5: Connect the 4 anti–tip & grounding connecting pieces between two BMs. It is not recommended to install the anti–tip & grounding connecting pieces after stacking all the BMs as it might cause an accident due to the falling BM.

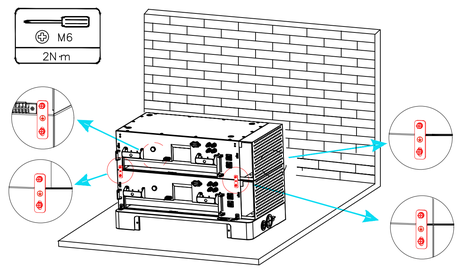


diagram: Connecting the anti–tip components between two BMs

Step 6: Connect the 4 anti–tip & grounding connecting pieces between the BM and the CM. Therefore, it is necessary to install the anti–tip components properly.

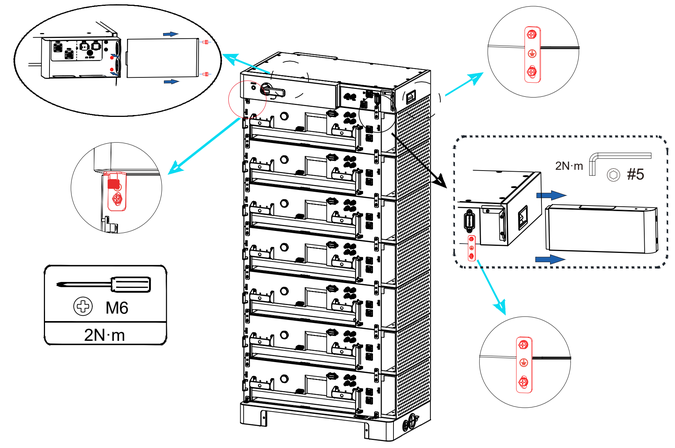
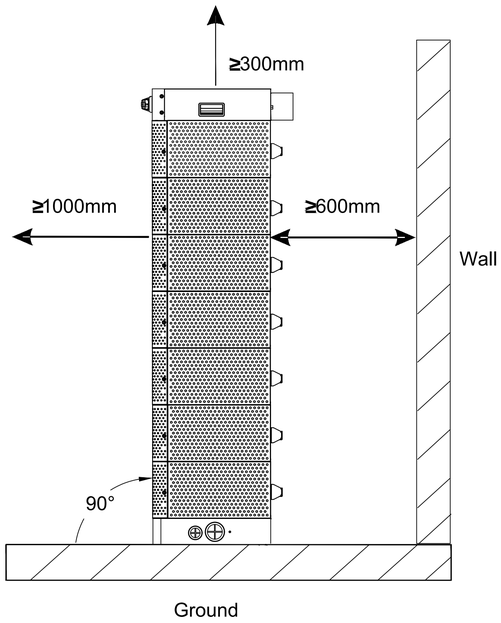


diagram: Connecting the anti–tip components between the BM and the CM



NOTES: GROWATT APX 86.0H-S1-US IS A FLOOR-MOUNTED BATTERY ENERGY STORAGE CABINET.
GROSS WEIGHT: 853 KG (1880 LB)
CENTER OF MASS: ~4 FT ABOVE F.F.

BATTERY INSTALLATION

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

S-3
SHEET NAME
BATTERY INSTALLATION DETAIL
SHEET INFORMATION

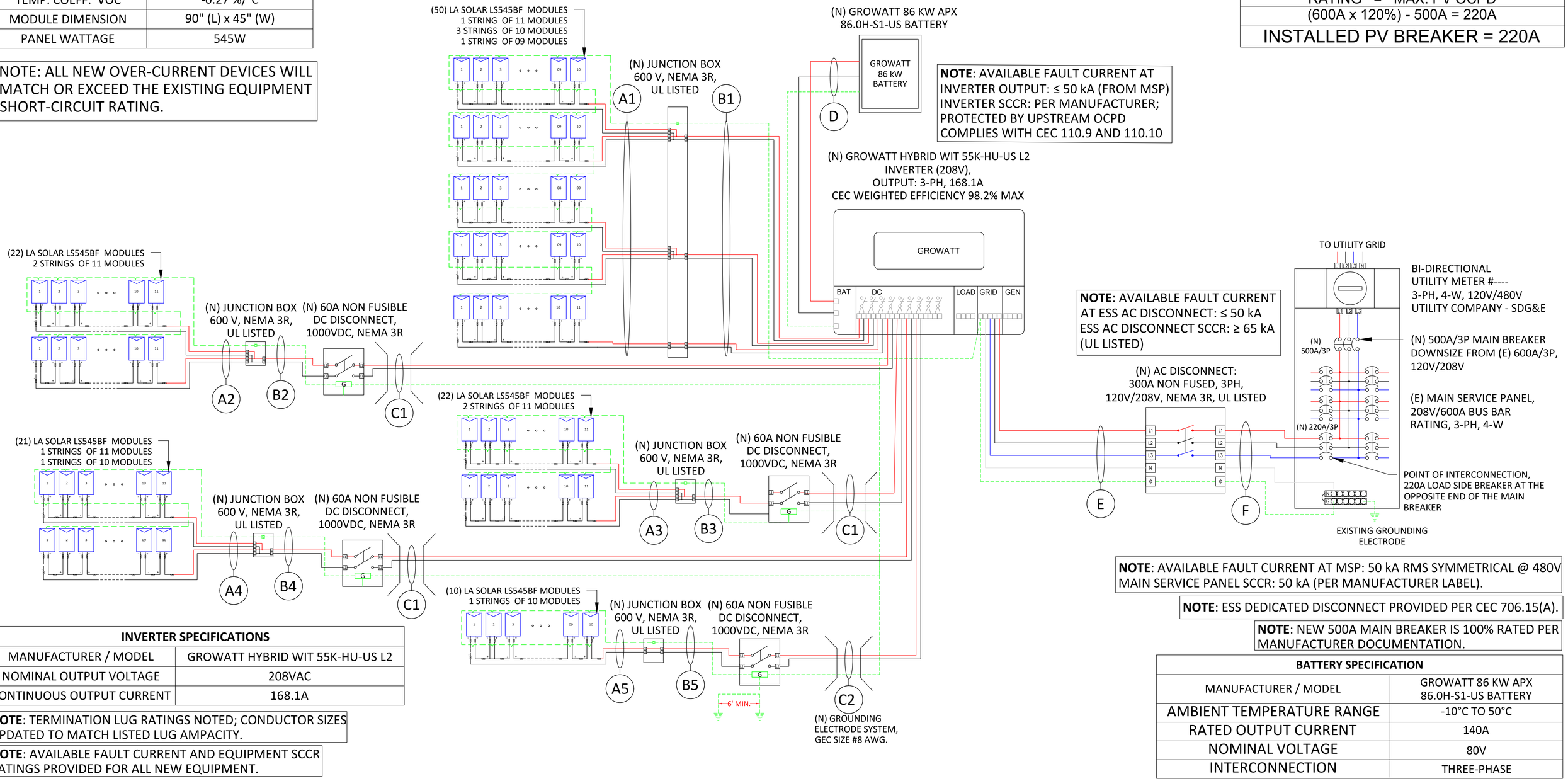
SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL	LA SOLAR LS545BF
VMP	41.81 V
IMP	13.04A
VOC	49.6 V
ISC	13.92A
TEMP. COEFF. VOC	-0.27 %/°C
MODULE DIMENSION	90" (L) x 45" (W)
PANEL WATTAGE	545W

NOTE: ALL NEW OVER-CURRENT DEVICES WILL MATCH OR EXCEED THE EXISTING EQUIPMENT SHORT-CIRCUIT RATING.

ARRAY DETAILS	
ARRAY #1	**ARRAY #2**
ROOF MODULES	CARPORT MODULES
(50) MODULES x 545W	(75) MODULES x 545W
27.250 kW	**40.875 kW**

[DC] SYSTEM SIZE	[AC] SYSTEM SIZE
(125) MODULES x 545W	(1) INVERTER x 55000W
68.125 kW	**55.000 kW**

120% RULE CEC 705.12 (B)(2)(3)(B)
(BUS BAR RATING X 120%) - MAIN BREAKER RATING = MAX. PV OCPD
(600A x 120%) - 500A = 220A
INSTALLED PV BREAKER = 220A



INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL	GROWATT HYBRID WIT 55K-HU-US L2
NOMINAL OUTPUT VOLTAGE	208VAC
CONTINUOUS OUTPUT CURRENT	168.1A

NOTE: TERMINATION LUG RATINGS NOTED; CONDUCTOR SIZES UPDATED TO MATCH LISTED LUG AMPACITY.

NOTE: AVAILABLE FAULT CURRENT AND EQUIPMENT SCCR RATINGS PROVIDED FOR ALL NEW EQUIPMENT.

NOTE: AVAILABLE FAULT CURRENT AT MSP: 50 kA RMS SYMMETRICAL @ 480V
MAIN SERVICE PANEL SCCR: 50 kA (PER MANUFACTURER LABEL).

NOTE: ESS DEDICATED DISCONNECT PROVIDED PER CEC 706.15(A).

NOTE: NEW 500A MAIN BREAKER IS 100% RATED PER MANUFACTURER DOCUMENTATION.

BATTERY SPECIFICATION	
MANUFACTURER / MODEL	GROWATT 86 KW APX 86.0H-S1-US BATTERY
AMBIENT TEMPERATURE RANGE	-10°C TO 50°C
RATED OUTPUT CURRENT	140A
NOMINAL VOLTAGE	80V
INTERCONNECTION	THREE-PHASE

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

OFFICE BUILDING, INC

3214 STREET NAME, SAN YSIDRO, CA 9874

APN: 369852147852

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

E-1

SHEET NAME

ELECTRICAL DIAGRAM & ELECTRICAL CALCULATIONS

SHEET INFORMATION

EQUIPMENT DETAILS	
(#) PV MODULES	(125) LA SOLAR LS545BF
(#) INVERTER	(1) GROWATT HYBRID WIT 55K-HU-US L2 (208V)
(#) OPTIMIZERS	(125) TIGO TS4-A-F
(#) BATTERY	(01) GROWATT 86 KW APX 86.0H-S1-US BATTERY
OUTPUT CURRENT	168.1A
BRANCH CIRCUIT	6 STRINGS OF 11 MODULES, 5 STRINGS OF 10 MODULES & 1 STRING OF 9 MODULES
ROOF RACKING SYSTEM	ORIAN STAND OFF WITH E-CURB W/ ORION STANDARD RAIL
POINT OF INTERCONNECTION	220A LOAD SIDE BREAKER IN THE EXTERIOR MAIN SERVICE PANEL WITH NEW 500A MAIN BREAKER, 600A BUSBAR AND 120/208V, 4W, 3ϕ
UTILITY	SDG&E
AHJ	CITY OF SAN DIEGO

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	2°C
AMBIENT TEMP (HIGH TEMP 2%)	28°C
CONDUIT HEIGHT	7/8"
ROOF TOP TEMP	90°C
CONDUCTOR TEMPERATURE RATE	50°C
MODULE TEMPERATURE COEFFICIENT OF VOC	-0.27 %/°C

ID	CONDUCTOR		CONDUIT	# OF PARALLEL CIRCUITS	CURRENT-CARRYING CONDUCTORS IN CONDUIT	CONDUIT FILL PERCENT	OCPD	EGC		TEMP. CORR. FACTOR		CONDUIT FILL FACTOR	CONT. CURRENT (CONTINUOUS CURRENT x 1.25)				MAX CURRENT	BASE AMP.	DERATED AMP.	LENGTH	VOLTAGE DROP
A1	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG	BARE COPPER	0.82	(50°C)	N/A	13.9A	x	1.25	=	17.4A	N/A	N/A	152FT	1.03%
A2	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG	BARE COPPER	0.82	(50°C)	N/A	13.9A	x	1.25	=	17.4A	N/A	N/A	85FT	0.58%
A3	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG	BARE COPPER	0.82	(50°C)	N/A	13.9A	x	1.25	=	17.4A	N/A	N/A	55FT	0.37%
A4	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG	BARE COPPER	0.82	(50°C)	N/A	13.9A	x	1.25	=	17.4A	N/A	N/A	46FT	0.31%
A5	10 AWG	PV WIRE	-	1	2	N/A	N/A	6 AWG	BARE COPPER	0.82	(50°C)	N/A	13.9A	x	1.25	=	17.4A	N/A	N/A	37FT	0.25%
B1	8 AWG	THWN-2 COPPER	MIN 1.00" Dia EMT	3	6	28.86%	N/A	8 AWG	THWN-2, COPPER	1.00	(28°C)	0.8	27.8A	x	1.25	=	34.8A	55A	55A x 0.8 x 1 = 44.0A	38FT	0.29%
B2	8 AWG	THWN-2 COPPER	MIN 0.75" Dia EMT	1	2	20.05%	N/A	8 AWG	THWN-2, COPPER	1.00	(26°C)	1.00	27.8A	x	1.25	=	34.8A	55A	55A x 1 x 1 = 55.0A	30FT	0.23%
B3	8 AWG	THWN-2 COPPER	MIN 0.75" Dia EMT	1	2	20.05%	N/A	8 AWG	THWN-2, COPPER	1.00	(26°C)	1.00	27.8A	x	1.25	=	34.8A	55A	55A x 1 x 1 = 55.0A	51FT	0.40%
B4	8 AWG	THWN-2 COPPER	MIN 0.75" Dia EMT	1	2	20.05%	N/A	8 AWG	THWN-2, COPPER	1.00	(26°C)	1.00	27.8A	x	1.25	=	34.8A	55A	55A x 1 x 1 = 55.0A	30FT	0.23%
B5	10 AWG	THWN-2 COPPER	MIN 0.75" Dia EMT	1	2	11.45%	N/A	8 AWG	THWN-2, COPPER	1.00	(26°C)	1.00	13.9A	x	1.25	=	17.4A	40A	40A x 1 x 1 = 40.0A	33FT	0.22%
C1	8 AWG	THWN-2 COPPER	MIN 0.75" Dia PVC	1	2	21.06%	N/A	8 AWG	THWN-2, COPPER	1.00	(26°C)	1.00	27.8A	x	1.25	=	34.8A	55A	55A x 1 x 1 = 55.0A	130FT	1.01%
C2	10 AWG	THWN-2 COPPER	MIN 0.75" Dia PVC	1	2	15.04%	N/A	8 AWG	THWN-2, COPPER	1.00	(26°C)	1.00	13.9A	x	1.25	=	17.4A	40A	40A x 1 x 1 = 40.0A	130FT	2.36%
D	1 AWG	THWN-2 COPPER	MIN 1.25" Dia EMT	1	2	25.18%	N/A	8 AWG	THWN-2, COPPER	1.00	(26°C)	1.00	112.0A	x	1.25	=	140.0A	145A	145A x 1 x 1 = 145.0A	5FT	0.10%
E	4/0 AWG	THWN-2 COPPER	MIN 2.50" Dia EMT	1	4	22.24 %	N/A	4 AWG	THWN-2, COPPER	1.00	(26°C)	0.8	168.1A	x	1.25	=	210.1A	260A	260A x 0.8 x 1 = 208.0A	5FT	0.07%
F	4/0 AWG	THWN-2 COPPER	MIN 2.50" Dia EMT	1	4	22.24 %	220A	4 AWG	THWN-2, COPPER	1.00	(26°C)	0.8	168.1A	x	1.25	=	210.1A	260A	260A x 0.8 x 1 = 208.0A	5FT	0.07%

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC

3214 STREET NAME, SAN YSIDRO, CA 9874

APN: 369852147852

#	REVISION/UPDATE	DATE

E-2

SHEET NAME

ELECTRICAL DIAGRAM & ELECTRICAL CALCULATIONS

SHEET INFORMATION

1

⚠ WARNING

ELECTRIC SHOCK HAZARD

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

LABEL LOCATION:
MAIN SERVICE PANEL/AC DISCONCECT/INVERTER/
AC COMBINER
2022 CEC 690.13(B)

2

⚠ WARNING

ELECTRIC SHOCK HAZARD

**IF GROUND FAULT IS INDICATED
ALL NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUNDED AND ENERGIZED**

LABEL LOCATION:
INVERTER(S), ENPHASE ENVOY ENCLOSURE (IF
APPLICABLE).
PER CODE(S): CEC 2022: 690.5(C)

3

PHOTOVOLTAIC AC DISCONCECT

RATED AC OUTPUT CURRENT 168.10 A

NOMINAL OPERATING AC VOLTAGE 208 VAC

LABEL LOCATION:
MAIN SERVICE PANEL/AC DISCONCECT
2022 CEC 690. 13(B)

4

**RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM**

LABEL LOCATION:
INVERTER
AT OR WITHIN 3' OF THE DC COMBINER
SWITCH
2022 CEC 690.56(C)(3)

5

**PHOTOVOLTAIC SYSTEM
UTILITY DISCONCECT SWITCH**

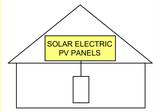
LABEL LOCATION:
AC DISCONCECT
2022 CEC 690.56(C)(3)

ADHESIVE FASTENED SIGNS:
- LABELS SHALL BE MADE OF RED PLASTIC MATERIAL WITH ENGRAVED WHITE LETTERS.
- LETTERS SHALL BE A MINIMUM 3/8" IN SIZE.
- THE LABELS SHALL BE PERMANENTLY ATTACHED TO THE APPROPRIATE PANEL.
- AC & DC CONDUIT, RACEWAY, ENCLOSURES, CABLE ASSEMBLIES AND JUNCTION BOXES SHALL BE RED BACKGROUND MATERIAL WITH WHITE LETTERING MADE OF DURABLE ADHESIVE, REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT PER UL 969; TO ALERT FIRE SERVICE TO AVOID CUTTING THEM OFF.

6

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:
MAIN SERVICE PANEL
IF MSD IS OUTSIDE PLACE IT THERE / IF
MSD IS INSIDE PLACE ON THE AC DISCONCECT
2022 CEC 690.56(C)

7

**PHOTOVOLTAIC SYSTEM
UTILITY DISCONCECT SWITCH**

LABEL LOCATION:
AC DISCONCECT
2022 CEC 690.56(C)(3)

8

⚠ WARNING

**PHOTOVOLTAIC SYSTEM
COMBINER PANEL**

DO NOT ADD LOADS

LABEL LOCATION:
PHOTOVOLTAIC AC COMBINER (IF APPICABLE).
PER CODE(S): CEC 2022: 705.12(B)(2)(3)(c)

9

PV SOLAR BREAKER

DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL LOCATION:
MAIN SERVICE PANEL
2022 CEC 705.12(B)(3)(2)

10

CAUTION - TRI POWER SOURCE

FIRST SOURCE IS UTILITY ELECTRICAL GRID
SECOND SOURCE IS AC BATTERY
THIRD SOURCE IS PV INVERTER

LABEL LOCATION:
SUB PANEL OR BACKUP LOADS PANEL, BATTERY, INVERTER OUTPUT
PANEL, MAIN SERVICE PANEL, METER/MAIN AND PV AC DISCONNECT
2022 CEC 705.10

11

ENERGY STORAGE SYSTEM

LABEL LOCATION:
NEAR THE BATTERY SYSTEM, INVERTER, AND
ACCESS DOORS AS REQUIRED BY CFC 1207.4.8

ENERGY STORAGE SYSTEM

LABEL LOCATION:
NEAR THE BATTERY SYSTEM, INVERTER, AND
ACCESS DOORS AS REQUIRED BY CFC 1207.4.8

**ENERGIZED ELECTRICAL
CIRCUITS**

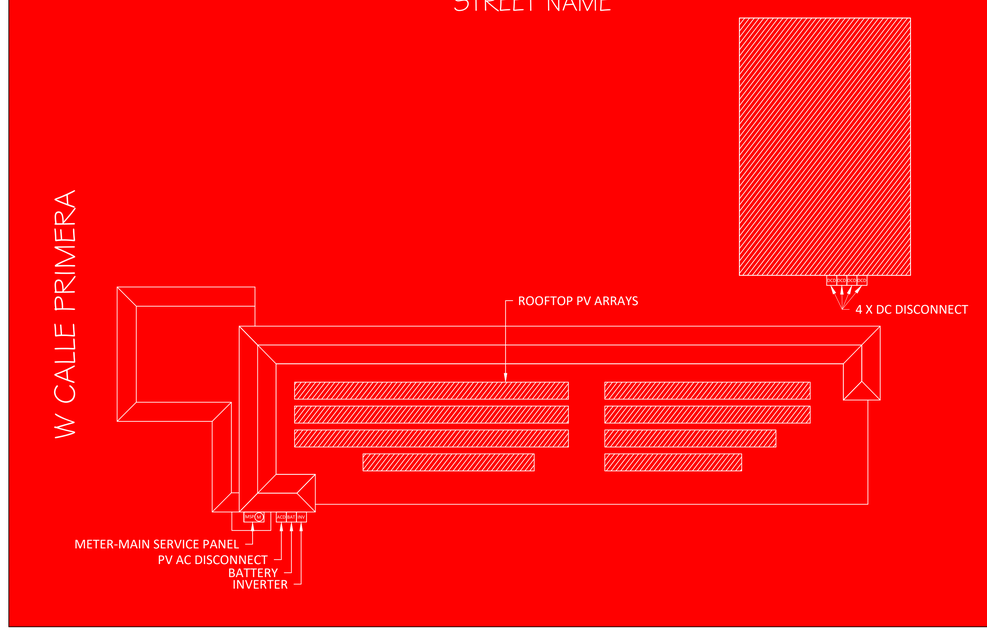
LABEL LOCATION:
NEAR THE BATTERY SYSTEM, INVERTER, AND
ACCESS DOORS AS REQUIRED BY CFC 1207.4.8

APPLY NO WATER

LABEL LOCATION:
NEAR THE BATTERY SYSTEM, INVERTER, AND
ACCESS DOORS AS REQUIRED BY CFC 1207.4.8

CAUTION!

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES
WITH DISCONNECTS LOCATED AS SHOWN.



LABEL LOCATION:
EACH SERVICE EQUIPMENT LOCATION AND AT THE LOCATION(S) OF THE SYSTEM DISCONNECT(S) FOR ALL ELECTRIC POWER
PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	NTS
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

E-3
SHEET NAME
PLACARDS
SHEET INFORMATION

NOTE: CARPORT PV MODULES ARE CLASS A FIRE RATED.

LA SOLAR

HALF CELL

LS530-550BF

144 CELLS
MONOCRYSTALLINE MODULE

530W-550W
POWER OUTPUT RANGE

21.28%
MAXIMUM EFFICIENCY

0 to ±3%
POSITIVE POWER TOLERANCE

DESIGNED IN USA
MADE IN ARMENIA

30 YEAR WARRANTY



Main Characteristics

Mismatch loss reduction for maximum efficiency

Reduced power loss by minimizing the effect of shadow shading

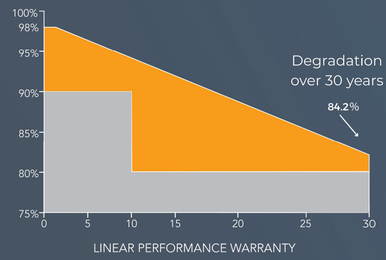
Competitive low light performance

Two EL tests to ensure the best quality

BOS's reduced and increased ROI is ideal for commercial and industrial scale projects

Proven reliability through PVEL's rigorous weatherproofing tests:

- Dust, acid, and alkali resistance, hail test
- 2400Pa wind pressure and 5400Pa snow pressure
- Anti-PID



QUALIFICATIONS AND CERTIFICATES

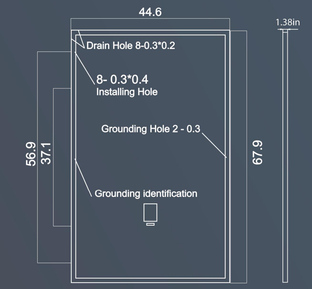
UL/IEC61215, UL/IE 61730
ANTI-PID IEC TS 62804-1:2015
ISO9001, ISO14001, ISO45001

111 Raffi st., Yerevan, Republic of Armenia

lasolarfactory.com

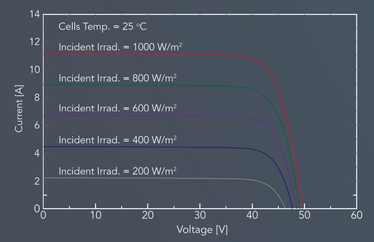
Electrical Characteristics

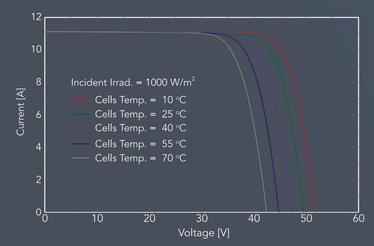
Component Model	LS530BF	LS535BF	LS540BF	LS545BF	LS550BF
	STC	STC	STC	STC	STC
Maximum Power (Pmax)	530W	535W	540W	545W	550W
Module Efficiency	20.56%	20.76%	20.95%	21.14%	21.28%
Open Circuit Voltage (Voc)	49.30V	49.40V	49.50V	49.60V	49.70V
Short Circuit Current (Isc)	13.60A	13.70A	13.81A	13.92A	14.02A
Maximum Power Voltage (Vmp)	41.03V	41.29V	41.55V	41.81V	42.07V
Maximum Power Current (Imp)	12.92A	12.96A	13A	13.04A	13.08A
Power Tolerance	±3%				
Maximum System Voltage	1500V				
Maximum Rated Fuse Current	35A				
STC: Irradiance	1000 W/m²				
Module Temperature	25 °C				



Temperature Characteristics

Maximum Power Temperature Coefficient (TC Pmax)	-0.35 % / °C
Temperature Coefficient of Open Circuit Voltage (TC Voc)	-0.27 % / °C
Temperature Coefficient of Short Circuit Current (TC Isc)	0.05 % / °C
Working Temperature	-40 ~ +85 °C
Nominal Operating Cell Temperature (NOCT)	46 ± 2 °C





Structural Characteristics

Module Size	89.72 x 44.64x 1.38in
Weight	58.42lbs
Cell type	MONO PERC 7.17 x 3.58in (144 pieces)
Glass	0.125in tempered Ar coated
Frame	Black anodized aluminum alloy
Junction Box	IP68, 3 diodes
Mechanical Load	front 5400Pa / back 2400Pa
Connector	MC4
Wire Type	compatible PV wire
Fire Performance	Type 1
Protection Class	Class II (Classified as per IEC 61140)

Packing Method

Container	40' HQ
Quantity Per Pallet	30
Number of Pallets Per Container	20
Quantity Per Container	600

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

E.S-1
SHEET NAME
MODULE SPECSHEET
SHEET INFORMATION

intertek
Total Quality. Assured.

AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant: La Solar LLC
Address: Raffi 111, Yerevan, 0064
Country: Armenia

Manufacturer: La Solar LLC
Address: Raffi 111, Yerevan, 0064
Country: Armenia

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing Services Shanghai Limited

Control Number: *5020665* **Authorized by:** _____
for L. Matthew Snyder, Certification Manager

C ETL US LISTED Intertek

This document supersedes all previous Authorizations to Mark for the noted Report Number.

This Authorization to Mark is for the exclusive use of Intertek's Client and is provided pursuant to the Certification agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Authorization to Mark. Only the Client is authorized to permit copying or distribution of this Authorization to Mark and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the agreement and in this Authorization to Mark. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

intertek
Total Quality. Assured.

AUTHORIZATION TO MARK

Standard(s):	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [UL 61730-1:2017 Ed.1+R:30Apr2020] Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [CSA C22.2#61730-1:2019 Ed.2] Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [UL 61730-2:2017 Ed.1+R:30Apr2020] Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [CSA C22.2#61730-2:2019 Ed.2] Terrestrial Photovoltaic (Pv) Modules - Design Qualification And Type Approval - Part 1: Test Requirements [UL 61215-1:2017 Ed.1] Terrestrial Photovoltaic (PV) Modules - Design Qualification And Type Approval - Part 1-1: Special Requirements For Testing of Crystalline Silicon Photovoltaic (PV) Modules [UL 61215-1-1:2017 Ed.1] Terrestrial Photovoltaic (Pv) Modules - Design Qualification And Type Approval - Part 2: Test Procedures [UL 61215-2:2017 Ed.1]
Product:	Crystalline Silicon Photovoltaic (PV) Modules
Brand Name:	LA SOLAR, SOLARA
Models:	LS followed by 370, 375, 380, 385, 390, 395 or 400; followed by ST. LS followed by 390, 395, 400, 405, 410, 415 or 420; followed by HC. LS followed by 430, 435, 440, 445 or 450; followed by HC. LS followed by 430, 435, 440, 445 or 450; followed by BL. LS followed by 530, 535, 540, 545, 550; followed by BL. LS followed by 530, 535, 540, 545, 550; followed by BF. SLR followed by 370, 375, 380, 385, 390, 395 or 400; followed by ST. SLR followed by 390, 395, 400, 405, 410, 415 or 420; followed by HC. SLR followed by 430, 435, 440, 445 or 450; followed by HC. SLR followed by 430, 435, 440, 445 or 450; followed by BL. SLR followed by 530, 535, 540, 545, 550; followed by BL. SLR followed by 530, 535, 540, 545, 550; followed by BF.

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36" / ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

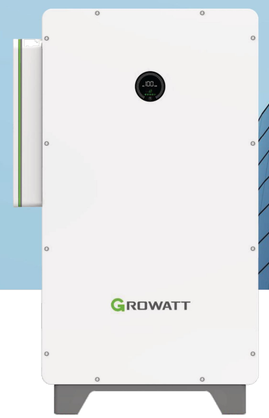
#	REVISION/UPDATE	DATE

E.S-2
SHEET NAME
MODULE CERTIFICATION
SHEET INFORMATION

WIT 28-55kW Hybrid Inverter

WIT 28-55K-HU-US L2

- Scalable system configuration, extend to 165kW
- Support UPS function and black start
- 100% unbalanced load when backup
- 110% continuous AC overloading capacity
- Support remote control of DG
- Grid-support functions



Preliminary Version

POWER-INGO TOMO-RROW

GROWATT

https://us.growatt.com

Proposed ESS is UL 9540 listed in accordance with CEC 706

Datasheet	WIT 28K-HU-US L2	WIT 35K-HU-US L2	WIT 40K-HU-US L2	WIT 55K-HU-US L2
Input Data (PV)				
Max. recommended PV power (for module STC)	54kW	75.6kW	86.4kW	108kW
Start voltage	195V			
Max. open circuit voltage of PV*1	630V			
MPPT nominal voltage/range	360V, 180V~550V			
Max. input current per MPP tracker	32A			
Max. short-circuit current per MPP tracker	40A			
No. of PV strings per MPP tracker	2			
No. of MPP trackers	5	7	8	10
Output Data (AC)				
AC nominal power/max. AC apparent power	28kW/30.8kVA	35kW/38.5kVA	40kW/44kVA	55kW/60.5kVA
Nominal AC voltage/range	208V/220V, -15%~10%			
AC grid frequency/range	60Hz, 55-65Hz			
Max. output current	85.6A@208V 80.8A@220V	106.9A@208V 101A@220V	122.2A@208V 115.5A@220V	168.1A@208V 158.8A@220V
Adjustable power factor	-1...+1			
THDi	<3% (@100% load)			
AC grid connection type	3P3W+PE/3P4W+PE			
Input Data (AC)				
AC nominal power	56kW	70kW	80kW	110kW
Max. AC apparent power	56kVA	70kVA	80kVA	110kVA
Nominal AC voltage/range	208V/220V, -15%~10%			
Nominal AC grid frequency/range	50/60Hz, 45-55Hz/55-65Hz			
Nominal input current	155.6A@208V 147A@220V	194.4A@208V 183.7A@220V	222.2A@208V 210A@220V	305.6A@208V 288.7A@220V
Max. input current	155.6A@208V 147A@220V	194.4A@208V 183.7A@220V	222.2A@208V 210A@220V	305.6A@208V 288.7A@220V
Backup Power (AC power)				
AC nominal power/Max. AC apparent power	28kW/33.6kVA	35kW/42kVA	40kW/48kVA	55kW/66kVA
Max. single phase power	9.3kW	11.6kW	13.3kW	18.3kW
Nominal AC voltage	120V/127V(L-N), 208V/220V(L-L)			
Nominal AC frequency	50/60Hz			
Max. output current	93.3A@208V 88.2A@220V	116.7A@208V 110A@220V	133.3A@208V 126A@220V	183.3A@208V 173.2A@220V
Overload capability	≤110%: Continues; 110%~120%: <10min; >120%: 200ms			
Load unbalance	100%			
THDv	<3% (Linear load)			
On/off grid transfer time	≤16.6ms			
Battery Data (DC)				
Battery voltage range	380V~650V, recommended @ 512V			
Max. charging / discharging current	79A	99A	113A	156A
Continuous charging / discharging power	31.7kW	39.7kW	45.3kW	62.3kW
BMS communication	RS485/CAN			
Types of battery	Lithium			
Efficiency				
Max. efficiency	98.2%			
Protection Devices				
PV reverse polarity protection	Yes			
Battery reverse protection	Yes			
AC/DC surge protection	Type II			
Insulation resistance monitoring	Yes			
Ground fault monitoring	Yes			
Grid monitoring	Yes			
Residual-current monitoring unit	Yes			
AC short-circuit protection	Yes			
String monitoring	Yes			
Anti-islanding protection	Yes			
PID protection	Yes			
AFCI function	Opt			
General				
Dimensions (W/H/D)	33.5/53.1/20.1inch (850/1350/510mm)			
Weight	153kg/337.3lbs		160kg/352.7lbs	
Operating temperature range	-22°F~+140°F, >122°F derating			
Altitude	13123ft(4000m)			
Topology	Transformerless			
Cooling	Smart air cooling			
Enclosure	IP66/NEMA 4X			
Display	OLED+LED/WIFI+APP			
Interfaces:RS485/CAN	Yes			
Interfaces:WiFi//4G/LAN	Opt			
Warranty: 5 / 10 years	Yes/Opt			
UL1741:2021, UL1741 SA/SB:2020, IEEE1547:2018, IEEE1547.1:2020, HECO Rule14, E-5000, CSIP, SA17-SA18, UL1998:2018, CEC, FCC Part 15, CSA C22.2.107.1				

*1 The maximum open circuit voltage of PV string must be lower than the maximum input voltage of the battery system connected to the inverter.

SHENZHEN GROWATT NEW ENERGY CO.,LTD All rights reserved. All specifications are subject to change without notice.

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC

3214 STREET NAME, SAN YSIDRO, CA 9874

APN: 369852147852

#	REVISION/UPDATE	DATE

E.S-3

SHEET NAME

INVERTER SPECSHEET

SHEET INFORMATION

intertek
Total Quality. Assured.

AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant:	Shenzhen Growatt New Energy Co., Ltd	**Manufacturer:**	Guangdong Growatt New Energy Co., Ltd
Address:	4-13/F, Building A, Sino-German(Europe) Industrial Park, Hangcheng Ave, Bao'an District, Shenzhen	**Address:**	Growatt Industrial Park, No.17 Pingheng Road Pingtan Town, Huiyang District, Huizhou, Guangdong
Country:	CHINA	**Country:**	CHINA

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing Services Shenzhen Limited Guangzhou Branch

Control Number: *4003184* **Authorized by:** _____
for L. Matthew Snyder, Certification Manager

C ETL US
Intertek

This document supersedes all previous Authorizations to Mark for the noted Report Number.

This Authorization to Mark is for the exclusive use of Intertek's Client and is provided pursuant to the Certification agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Authorization to Mark. Only the Client is authorized to permit copying or distribution of this Authorization to Mark and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the agreement and in this Authorization to Mark. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

intertek
Total Quality. Assured.

AUTHORIZATION TO MARK

Standard(s):	Grid Support Utility Interactive Equipment - Supplement SA to UL 1741:2021 Ed.3 - Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources [UL 1741:2021 Ed.3 (Supplement SA)] Grid Support Utility Interactive Inverters and Converters Based Upon IEEE 1547:2018 & IEEE 1547.1:2020 - Supplement SB to UL 1741:2021 Ed.3 - Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources [UL 1741:2021 Ed.3 (Supplement SB)] Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources [UL 1741:2021 Ed.3+R:18Oct2022] Power Conversion Equipment [CSA C22.2#107.1:2016 Ed.4+U1] IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces [IEEE 1547:2018] IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces [IEEE 1547.1:2020] Hawaiian Electric IEEE 1547.1-2020 Standard Source Requirements Document Version 2.0 [HECO SRD-IEEE-1547.1:2020 Ed.2.0]
Product:	Hybrid Inverter/AC Coupled Inverter
Brand Name:	Growatt
Models:	WIT 28K-H-US L2, WIT 35K-H-US L2, WIT 40K-H-US L2, WIT 55K-H-US L2 WIT 28K-A-US L2, WIT 35K-A-US L2, WIT 40K-A-US L2, WIT 55K-A-US L2 WIT 28K-HE-US L2, WIT 35K-HE-US L2, WIT 40K-HE-US L2, WIT 55K-HE-US L2 WIT 28K-HU-US L2, WIT 35K-HU-US L2, WIT 40K-HU-US L2, WIT 55K-HU-US L2 WIT 28K-AE-US L2, WIT 35K-AE-US L2, WIT 40K-AE-US L2, WIT 55K-AE-US L2 WIT 28K-AU-US L2, WIT 35K-AU-US L2, WIT 40K-AU-US L2, WIT 55K-AU-US L2 WIT 50K-H-US, WIT 63K-H-US, WIT 75K-H-US, WIT 100K-H-US WIT 50K-A-US, WIT 63K-A-US, WIT 75K-A-US, WIT 100K-A-US WIT 50K-HE-US, WIT 63K-HE-US, WIT 75K-HE-US, WIT 100K-HE-US WIT 50K-AE-US, WIT 63K-AE-US, WIT 75K-AE-US, WIT 100K-AE-US WIT 50K-HU-US, WIT 63K-HU-US, WIT 75K-HU-US, WIT 100K-HU-US WIT 50K-AU-US, WIT 63K-AU-US, WIT 75K-AU-US, WIT 100K-AU-US

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36"
	ANSI D

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852
HOMEOWNER INFO

#	REVISION/UPDATE	DATE

E.S-4
SHEET NAME
INVERTER CERTIFICATION
SHEET INFORMATION

REV N : 01/12/2026



Commercial Battery System

APX 86~114kWh

- 86kWh~114kWh for 220V&208V WIT inverters
- Module level energy optimization
- Support to mix new and old battery modules in one system
- Easy installation with modular and stacked design
- Long lifespan, 10 years warranty

Preliminary Version

POWER-INGO TOMO-RROW

GROWATT

www.ginverter.com

NOTE: ENERGY STORAGE SYSTEM (GROWATT APX 86.0H-S1-US) IS UL 9540 LISTED.

Datasheet	APX 86.0H-S1-US	APX 100.3H-S1-US	APX 114.6H-S1-US
System demo			
Control module	APX 1000140-C1-US		
Number of power modules	1		
Battery module	APX 14.3P-B1-US		
Battery module energy	14.33kWh		
Number of battery modules	6	7	8
Nominal energy	86.01kWh	100.35kWh	114.68kWh
Rated energy	77.41kWh	90.31kWh	103.21kWh
Max output power *1	43kW	50kW	57kW
Peak output power	60kW,60s	70kW,60s	80kW,60s
Dimension (W/H/D) /column*2	920/1733/510mm /1 36.4/68.2/20.0inch /1	920/1981/510mm /1 36.2/78.0/20.0inch /1	920/1237/510mm /2 36.2/48.7/20.0inch /2
Compatible inverter	WIT 28-55kW/208V&220V series inverter		
Weight	853kg/1881lbs	988kg/2179lbs	1142kg/2517lbs
Nominal voltage	512V		
Operating voltage range	372V~630V		
Output full load voltage range	410V~585V		
Nominal capacity	280Ah(@25℃)		
Rated capacity	252Ah(@25℃)		
Battery type	Cobalt Free Lithium Iron Phosphate (LFP)		
DoD	90%		
Ingress protection	IP66/NEMA 4X		
Installation*3	Floor installation		
Operating ambient temperature	-10℃~50℃/14℉~122℉		
Relative humidity	5%~95%		
Cooling	Smart air cooling		
Altitude	≤4000m (13123ft)		
Warranty	10 years		
Control Module	**APX 1000140-C1-US**		
Dimension(W/D/H)	920/510/135mm 36.2 /20.0 /5.3inch		
Weight	25kg/55.1lbs		
Communication port	CAN		
Operating voltage range	250V~950V		
Max.continuous current	140A		
Peak current	196A,60s		
Monitoring parameters	SOC, system voltage, current, cell voltage,cell temperature, PCBA temperature		
Battery Module	**APX 14.3P-B1-US**		
Nominal energy	14.33kWh		
Expansion ability	Max. 14 units in series up to 200kWh		
Nominal voltage	80V		
Operating voltage range	0~105V		
Rated power	7.16kW		
Max. continuous current	140A		
Peak current	196A,60s		
Dimensions(W/D/H)	920/510/248mm 36.2/20.0 /9.6inch		
Weight	135kg/297.6lbs		
UN38.3, UL1973, UL9540, UL9540A, FCC			

*1 Depending on the max. battery charge/discharge power of the inverter.
*2 Including control module (APX 1000140-C1-US).
*3 Floor installation requires extra base (W/H/D=920/110/510mm).
* Nominal charge/discharge current and power derating will occur related to temperature and SOC.

SHENZHEN GROWATT NEW ENERGY CO.,LTD All rights reserved. All specifications are subject to change without notice.

GROWATT USA INC.Address: 9227 Reseda Blvd. #435 Northridge, CA 91324. Sales Hotline : 818 800 9455 Service Hotline : 1866 686 0298
Email: usa@ginverter.com

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

#	REVISION/UPDATE	DATE

E.S-5
SHEET NAME
BATTERY SPECSHEET
SHEET INFORMATION

Test Verification of Conformity

Verification Number: 230926092GZU-VOC001

On the basis of the tests undertaken, the sample<s> of the below product have been found to comply with the requirements of the referenced specification<s>/standard<s> at the time the tests were carried out. This verification is part of the full test report<s> and should be read in conjunction with it <them>.

Applicant Name & Address:	Shenzhen Growatt New Energy Co., Ltd. 4-13/F, Building A, Sino-German (Europe) Industrial Park, Hangcheng Ave, Bao'an District, Shenzhen, China
Product Description:	Lithium-ion battery system
Ratings & Principle Characteristics:	See Appendix: Test Verification of Conformity
Models/Type References:	APX 86.0H-S1-US, APX 100.3H-S1-US, APX 114.6H-S1-US, APX 129.0H-S1-US, APX 143.3H-S1-US, APX 157.6H-S1-US, APX 172.0H-S1-US, APX 186.3H-S1-US, APX 200.7H-S1-US
Brand Names:	GROWATT
Specification<s>/Standards:	ANSI/CAN/UL 9540A:2019 Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems Unit level test (clause 9.1-9.8)
Verification Issuing Office Name & Address:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch. Room101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu District, Guangzhou, Guangdong, China
Date of Tests:	02 Jan., 2024 –04 Jan., 2024
Test Report Number(s):	230926093GZU-001, 12 Mar., 2024

Additional information in Appendix.

Jason Fu

Signature

Name: Jason Fu
Position: Supervisor
Date: 13 March 2024

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 230926092GZU—VOC001.

Ratings & Principle Characteristics:

Model	APX 86.0H-S1-US	APX 100.3H-S1-US	APX 114.6H-S1-US	APX 129.0H-S1-US	APX 143.3H-S1-US
Nominal energy(kWh):	86.01	100.35	114.68	129.02	143.36
Rated energy (kWh):	77.41	90.31	103.21	116.11	129.02
Nominal voltage (V):	512	512	512	820	820
Weight(kg):	853	988	1142	1277	1412
Module series and/or parallel configuration:	6S1P	7S1P	8S1P	9S1P	10S1P
Total number of cells:	96	112	128	144	160

Jason Fu

Signature

Name: Jason Fu
Position: Supervisor
Date: 13 March 2024

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

APPENDIX: Test Verification of Conformity

This is an Appendix to Test Verification of Conformity Number: 230926092GZU—VOC001.

Ratings & Principle Characteristics:

Model	APX 157.6H-S1-US	APX 172.0H-S1-US	APX 172.0H-S1-US	APX 200.7H-S1-US
Nominal energy (kWh):	157.69	172.03	186.36	200.70
Rated energy (kWh):	141.92	154.82	167.72	180.63
Nominal voltage (V):	820	820	820	820
Weight(kg):	1547	1682	1817	1952
Module series and/or parallel configuration:	11S1P	12S1P	13S1P	14S1P
Total number of cells:	176	192	208	224

Jason Fu

Signature

Name: Jason Fu
Position: Supervisor
Date: 13 March 2024

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36"
	ANSI D

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

E.S-6
SHEET NAME
BATTERY CERTIFICATION
SHEET INFORMATION

E-CURB® SYSTEM

PENETRATION SEAL
WITH SILICONE SEALANT

Technical Data Sheet | **Polyether Technology** | **CSI Section No. 07 12 13**

CHEM LINK
Construction & Maintenance
Telephone: 800-826-1681
Fax: 269-679-4448
353 E. Lyons Street
Schoolcraft, MI 49087
www.chemlink.com

Last Revision: 07/16/20
Document No. DS1358S

Product Description

E-Curb penetration seals provide a high performance watertight solution designed to protect your largest investment with versatile, precast components and pourable sealants. The **E-Curb** System includes three components: 1) precast curbs, 2) DuraSil Silicone Adhesive/Sealant for bonding the curb to the roof's surface and to prime the penetration, and 3) a silicone self-leveling pourable sealant to fill the curbs, creating a monolithic, leak-proof seal. CHEM LINK's **E-Curb** System can usually be installed in under 15 minutes and never requires flashing or mechanical attachment.

E-Curbs are highly versatile for sealing penetrations on silicone roof coatings as well as around HVAC, mechanical, solar panel mounts, electrical, and any type of structural supports.

When properly installed, this system forms a durable, waterproof rubber seal around penetrations. An extended manufacturers warranty against leaks is activated with submittal of a completed warranty card.

Special Characteristics

- Rapid installation - "Slip-fit" light weight curb design significantly reduces labor.
- Excellent adhesion to most roofing materials.
- No flashing or mechanical attachment required.
- Service Temp -80°F to 400°F (-62°C to 204°C)
- For sloped roof applications, substitute **DuraSil®** non-slump adhesive/sealant for **DuraSil SL**.

Restrictions

- Silicone roof coatings vary in quality, please test and evaluate prior to installation.
- Please contact customer service for application guidelines with temperatures below 32°F (0°C).
- Do not install if rain is anticipated within 4 hours
- Do not prime bonding surfaces with asphalt primer.
- **E-Curb** kits are designed to contain enough **DuraSil SL** to fill each curb with displacement in consideration. Refer to our penetration calculator under Contractor Resources at chemlink.com to verify volumes.
- To provide an adequate rubber seal, maintain a 1" distance between penetrations and inside edge of the **E-Curb**.



E-Curb System Components

- **E-Curb** exterior rings, straights, and corners.
- **DuraSil** Silicone Adhesive/Sealant used for bonding the **E-Curb** components, sealing and priming the penetration.
- **DuraSil SL** pourable silicone sealer, used to form a durable, watertight seal around the roof penetration

E-Curb precast form components are composed of lightweight nylon resin. The **E-Curb** is 2-inches high and is available in a variety of shapes and sizes.
Standard sizes include bisected circular pieces with inside diameters of 3, 4, 5, 6 or 9 inches; corner pieces with a 2-inch radius; straight pieces in 3-inch or 8-inch lengths; and a 4.5" x 3.4" rectangle. The outer surface is impervious to ice, corrosion, UV (ultraviolet) light and ponding water.

DuraSil is a neutral cure RTV silicone, adhesive sealant, designed for higher temperature applications up to 400°F (204°C). Cartridges of **DuraSil** are supplied in each **E-Curb** kit.
Components are also sold separately.

DuraSil SL is a self-leveling neutral cure silicone sealant designed for use in pitch pans and warranted **E-Curb** penetration seals suitable for hot pipe applications up to 400°F (204°C). 2 liter pouches of **DuraSil SL** are supplied in each **E-Curb** kit.
Components are also sold separately.

Made in the USA - ISO 9001:2015 certified

SWR INSTITUTE | AAMA American Architectural Manufacturers Association | NRCA NATIONAL ROOFING CONTRACTORS ASSOCIATION MEMBER

Step 1
Remove all previously applied caulk, mastic, cement, asphalt, and other contaminants from penetrations with a wire brush. Clean all smooth substrates with isopropyl or denatured alcohol. Seal the base of each penetration with **DuraSil**. Coat penetrations with **DuraSil** to 3" above the roof line.



Step 2
Apply a 1/4" bead of **DuraSil** to the entire bottom inside and ouside perimeter of the **E-Curb**. Apply 1 additional 1/4" bead of **DuraSil** down the center of each perimeter bead. Do not tool the beads flat. Place the **E-Curb** section on the roof surface to form a half circle around the penetration(s). Press down firmly until **DuraSil** extrudes from the outside edges.



Step 3
Apply **DuraSil** to the second section of **E-Curb** as described above. Place the second section of curb on the roof surface to form a circle with the first section. Press firmly in place until excess adhesive extrudes from the outside edges. Apply a bead of **DuraSil** around the outside base of the installed **E-Curb**, and tool to form a smooth fillet.



Step 4
Screw the provided nozzle onto the **DuraSil SL** pouch, cut tip and squeeze material into **E-Curb** to fill. When complete, remove nozzle, squeeze out excess air, and reseal with cap.



All properties described in this document are derived from testing conducted in laboratory conditions. Properties and performance will vary depending on environmental conditions and application technique. Test and evaluate to determine appropriate usage. Visit www.chemlink.com for the Safety Data Sheet, Technical Data Guides and full warranty for this product.

LIMITED WARRANTY: ***CHEM LINK*** warrants this product's performance, provided it is properly stored and applied within 1 year. If this ***CHEM LINK*** material is proved to be defective, return remaining product and purchase receipt for refund or replacement of product exclusive of labor or cost of labor. This is the sole and exclusive remedy for defects or failure of this product. User must read and follow the direction of the current Technical Data Guide and SDS prior to product use. User determines suitability of product for intended use and assumes all risks. Manufacturer shall not be liable for damages (including consequential or incidental damages) in excess of the purchase price, except where such exclusion or limitation is prohibited by state law. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; except for the above express warranty given by manufacturer, the product is sold with all faults. ***CHEM LINK*** SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS. This warranty gives you specific legal rights, and you may also have other rights in the U.S. which vary from state to state. For warranty claim information, call 800-826-1681.

CHEM LINK® A SOPREMA® GROUP COMPANY

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36"
	ANSI D

CONTRACTOR INFO:

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

HOMEOWNER INFO

#	REVISION/UPDATE	DATE

E.S-7
SHEET NAME
ATTACHMENT SPECSHEET
SHEET INFORMATION

VENUS SYSTEM:

Residential Roof System

*Patent Pending



COMPOSITION SHINGLE



3IN STANDOFF



FLAT TILE



SPANISH TILE

Product Detail:

Orion's Venus System is the most versatile system available. Ideal for Residential roof tops, our rail system is suitable for composition shingle, flat or Spanish tile, and even metal roofs. The Venus system has been install on pitched roofs and even flat commercial roofs. We offer a number of attachments: standoffs, flashing, and adjustable tilts, all for your specific solar needs.

Features:

- Aluminum 6005
- Available in clear or black finish
- Integrated and simplified grounding
- Complete roof attachment kits
- Code compliant across the US
- Fast and precise installation with pre-assembled and minimum quantity of components

15 Year Warranty
Twice the protection offered by competitors.

Fire Rated Class A
Type 1 and Type 2

Pre-Assembled
Labor Saving

Integral Grounding
Streamlines equipment grounding.

UL Listed
UL2703
UL1703

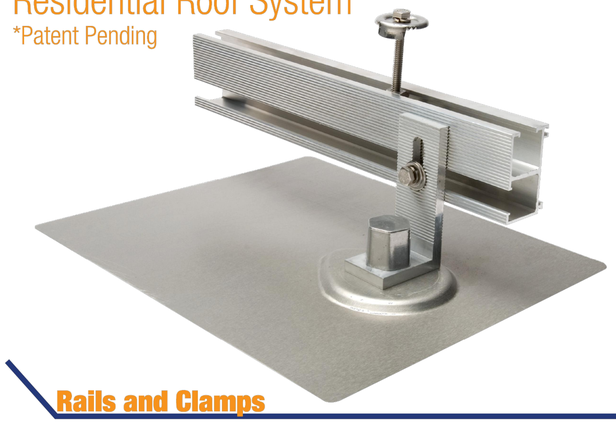
ARA
Buy American Act Compliant

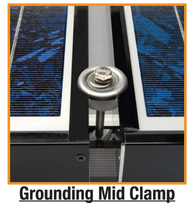
©2015 Orion Solar Racking, www.orionracking.com T: (310) 409-4616 F: (310) 409-4617

VENUS SYSTEM:

Residential Roof System

*Patent Pending





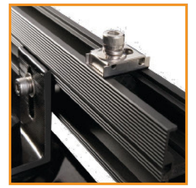
Grounding Mid Clamp



Grounding End Clamp

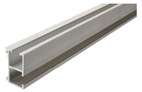


Grounding Splice Bar



Smart Ground Clip

Rails and Clamps



Orion Rails
Made from 6005 Aluminum, these rails are the backbone of the system. Available in Mill, Clear Anodized or Black Anodized.



Grounding Splice Bar
Our splice bars splice two rails together and continue the grounding for an easier installation.



Grip Mid Clamps
Our Mid Clamps not only mount two adjacent modules, but also have integrated grounding from both modules to the rails.



End Clamps
We can provide either Grounding End Clamps or Universal End clamps for your solar needs.

Roof Attachments



Composition Shingle
Available in the economy or the SMART edition, this kit provides a three-part waterproofing system that will mount your system.



Standoffs
Available in 3" or 6", raise your modules to a higher standard.



Tile Hooks
Available for Flat or Spanish Tile, these hooks mount to rafters without the need to drill into the tile.



Metal Roof
Penetrate the rafter with our hanger bolts, or clamp the seams with our standing seam clamps.

Grounding and Accesories



Adjustable Legs
These legs can adjust your tilt to 10-60 degrees. Works easily with our system.



Grounding Lug
Complete the grounding with our smart ground clip.



Microinverter Attachments
Mount and ground your microinverter to our system with our Star Washer Assembly.



Wire Clips
Available in Stainless Steel or Black Plastic for all your wire management needs.

©2015 Orion Solar Racking, www.orionracking.com T: (310) 409-4616 F: (310) 409-4617

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36"
	ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC
3214 STREET NAME, SAN YSIDRO, CA 9874
APN: 369852147852

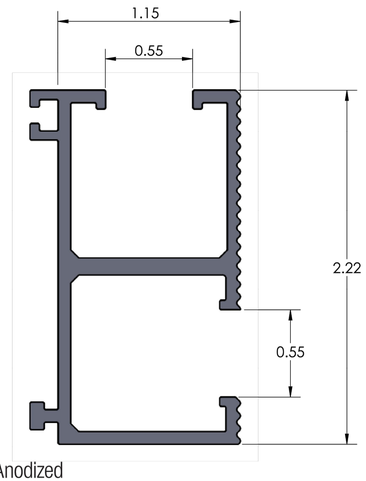
#	REVISION/UPDATE	DATE

E.S-8
SHEET NAME
ATTACHMENT SPECSHEET
SHEET INFORMATION

Orion Standard Rail



Part #	Length	Finish
GR-R-STD-85-MILL GR-R-STD-132-MILL GR-R-STD-170-MILL GR-R-STD-208-MILL	85 132 170 208	Mill
GR-R-STD-85-CLR GR-R-STD-132-CLR GR-R-STD-170-CLR GR-R-STD-208-CLR	85 132 170 208	Anodized Clear
GR-R-STD-85-BLK GR-R-STD-132-BLK GR-R-STD-170-BLK GR-R-STD-208-BLK	85 132 170 208	Anodized Black



Features:

- 6005 T5 Aluminum
- Available in Mill, Clear Anodized, or Black Anodized
- Conforms to UL STD 1703 and 2703
- Weight:

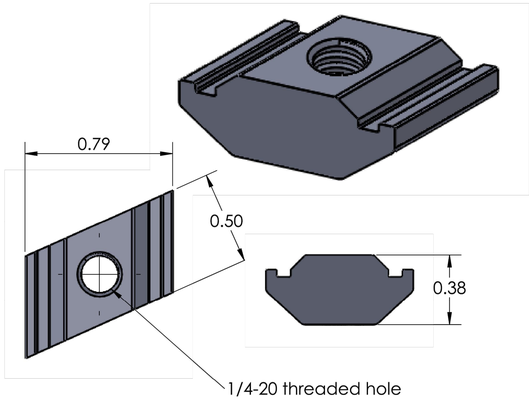
Length	Weight (lbs)
85	5.01
132	7.78
179	10.02
208	12.25

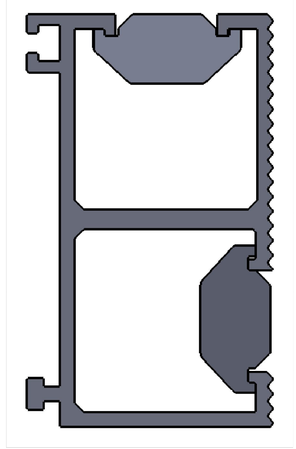
©2015 Orion Solar Racking, www.orionracking.com T: (310) 409-4616 F: (310) 409-4617

ORION Racking System Data Sheet

Orion Standard Rail

- Diamond Shaped Channel Nut exclusively for our rail.
- All attachments will use this channel nut.
- 6063 T5 Aluminum





Rail Span Chart

GROUND SNOW LOAD (PSF)	ORION RACKING MAX. RAIL SPAN (FT) FOR ROOF ZONE 1*					
	EXPOSURE B WIND SPEEDS (MPH)			EXPOSURE C WIND SPEEDS (MPH)		
	110	130	150	110	130	150
0	8	6	4	6	6	4
10	8	6	4	6	6	4
20	6	6	4	6	6	4
30	6	6	4	6	4	2
40	6	6	4	6	4	2
50	6	6	4	6	4	2
60	6	6	4	6	4	2
70	4	6	4	4	4	2
80	4	6	4	4	4	2
90	2	6	4	2	4	2

* Maximum Building Height Considered = 30 ft

GROUND SNOW LOAD (PSF)	ORION RACKING MAX. RAIL SPAN (FT) FOR ROOF ZONE 2*					
	EXPOSURE B WIND SPEEDS (MPH)			EXPOSURE C WIND SPEEDS (MPH)		
	110	130	150	110	130	150
0	6	6	4	6	4	2
10	6	6	4	6	4	2
20	6	6	4	6	4	2
30	6	6	4	6	4	2
40	6	6	4	6	4	2
50	6	6	4	6	4	2
60	6	6	4	6	4	2
70	4	6	4	4	4	2
80	4	6	4	4	4	2
90	2	6	4	2	4	2

* Maximum Building Height Considered = 30 ft

©2015 Orion Solar Racking, www.orionracking.com T: (310) 409-4616 F: (310) 409-4617

CONTRACTOR INFO:

DATE	01/22/2025
PROJECT ID	SP-2
CREATED BY	AK
CHECKED BY	SSN
SCALE	
SHEET SIZE	24"X 36" ANSI D

HOMEOWNER INFO

OFFICE BUILDING, INC

3214 STREET NAME, SAN YSIDRO, CA 9874

APN: 369852147852

#	REVISION/UPDATE	DATE

SHEET INFORMATION

E.S-9

SHEET NAME

RAIL SPECSHEET