Dreyfuss+
Blackford
architecture

ADDENDUM NO. 2

February 24, 2026

Alchemist Public Market

D+B Project No. C3020.00
EDA Award No. 07-01-07939
URI: 123984

From: Dreyfuss + Blackford

To: Shannin Stein
Sam Greenlee
Katie Hanten

To: All Holders of the CONTRACT DOCUMENTS for: Alchemist Public Market

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents and previous Addenda as noted below. Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may subject Bidder to disqualification.

GENERAL:

Item No.	Description of Change
1	Clarification: The Owner is currently negotiating or has secured direct-from-vendor purchasing and/or in-kind contributions for the following items: • Complete lighting package (fixtures only) • Security system and environmental monitoring hardware (cameras, controllers, sensors, latches, keypads, alarms, etc.; excludes low-voltage wiring) o Contractor shall select an approved local installer for Verkada Security systems. Approved list can be found here https://www.verkada.com/find-partners/ • Four (4) all-electric commercial food trailers • Three (3) modified shipping containers • PV and BESS systems (including installation) • Public art installations • Bicycle/scooter/board station equipment • Switchgear The Contractor shall exclude the cost of procurement of the above-listed items from their bid. Unless otherwise indicated in the Contract Documents, the Contractor shall remain responsible for all required infrastructure, rough-ins, supports, coordination, and utility connections necessary to accommodate these Owner-furnished items. The Contractor shall coordinate scheduling and integration of Owner-furnished vendors into the project schedule and provide reasonable site access as required. Any additional Owner direct-purchase or in-kind items introduced after execution of the GC contract shall be coordinated with and agreed upon by the Contractor prior to finalization.

2 Responses to Bidder Questions:

- See attachments for responses to bidder questions.

MODIFICATIONS TO DRAWINGS:

Item No.	Location of Change	Description of Change
3	M1.1	Delta 9 revisions – Updated schedule in response to bidder question #48.
4	M2.1	Delta 9 revisions – Updated HVAC plans in response to bidder question #48

MODIFICATIONS TO THE PROJECT MANUAL:

Item No.	Location of Change	Description of Change
		None

ATTACHMENTS:

Addendum No. 2 Summary

Responses to Bidder Questions

Drawings

- Mechanical Sheets M1.1 & M2.1.
- Electrical Responsibility Matrix
- GRID Alternatives PV Permit Plans (For Reference Only)

Alchemist Public Market - Bid Questions

No.	Question	Response
Responses to questions 1-42 issued in Addendum No. 1		
5	There is no list of documents required to be provided with our bid. Please confirm that the only items that need to be submitted are the bid form, subcontractor list and bid bond.	Update to response from Addendum No. 1: In addition to the bid form, subcontractor list, and bid bond, bidders shall indicate in their proposal the number of calendar days from Notice to Proceed (NTP) required to mobilize and commence construction activities. Please also provide a preliminary construction schedule reflecting proposed sequencing and total duration."
17	Per the specifications, a $2,000,000 occurrence/$5,000,000 Aggregate General Liability Limit is required. Please confirm this limit can be met with the use of our Excess Policy.	Update to response from Addendum No. 1: The $2M per occurrence and $5M aggregate General Liability limits may be satisfied through a combination of primary and excess/umbrella coverage, provided the excess policy is follow-form and the total limits meet or exceed the specified requirements.
18	Per the specifications, Insurance must be provided & maintained for 10 years following the completion of the job. The standard requirement is for 2-3 years. Please confirm.	Update to response from Addendum No. 1: Contractor shall maintain Commercial General Liability insurance, including completed operations coverage, for a minimum of three (3) years following final completion of the Project
43	I cannot locate any bid bond form in the documents provided. Can we use our surety AIA/generic form if there isn't any?	See response to question #4 in Addendum No. 1.
44	Will the contractor be responsible for utility use charges?	No. Owner will be responsible for utility charges. Contractor will be responsible for implementing practices which reflect the energy efficency, sustainability, and affordability goals of the overall project.
45	Will the contractor be responsible for any building permit fees?	No. Owner is paying all permit fees.
46	Will the contractor be responsible for providing a separate office trailer for the inspector of record?	No
47	The "modular wall system" @ interior openings B6, B7, B8 are shown with perimeter framed doors and sidelites. The spec. calls out The basis of design to be a "Frameless glass" product. It does go on to call out a sliding aluminum door. Please clarify that these openings are to be provided as drawn with a framed door and sidelites?	Provide framed door and sidelite modular wall system at interior openings as shown on elevations on Sheet A2.41 and details on Sheet A9.20.
48	There is a size chart on sheet M1.0 however, ducts providing OSA to the FCU's are not sized and the FCU schedule does not indicate the CFM of OSA to the FCU's. Please clarify.	Outside air values added to FCU schedule. Floor plan updated to correct missing duct sizes. See updated sheets M1.1 and M2.1 included in Addendum No. 2 attachments.
49	Please confirm the Floor Finish required for G.N. Restroom 12. Finish Legend shows it as Tile Flooring TL-5; whereas Transition details shows it as CON-2 (Polished conc).	TL-5 floor finish confirmed. No flooring transition is needed between G.N. Restroom 12 and adjacent room.
50	Regarding Alchemist question 26; these city installation fees are shown elsewhere as well, not just sheet C5.00. Please confirm that ALL city fees shown in the plans are to be paid by the owner.	All City installation fees will be paid by Owner.

Alchemist Public Market - Bid Questions

No.	Question	Response
51	Are there any obligations related to SBE, MVE, WBE, DBE, and DVBE outside of what's described in Exhibit I and the Notice to Contractors? It currently reads like we are to make a good faith effort in meeting goals, then report on our labor hours throughout the project and on our subcontractor list. Is there any paperwork due with our bid?	Goals for minority participation shall be as prescribed by Appendix B-80 of the Federal Register notice published October 3, 1980 at 45 FR 65984-65991, or any subsequently published amendments. The “Standard Federal Equal Employment Opportunity Construction Contract Specifications” should be included in all Federally-assisted contracts and subcontracts. The goals and timetables for minority and female participation may not be less than those published pursuant to 41 CFR § 60-4.6. https://www.ecfr.gov/current/title-41/subtitle-B/chapter-60/part-60-4
52	Please clarify the pre-bid RFI deadline.	Final Addendum to be released Tuesday 2/24/26. Bids to be opened on March 2 at 2:01pm. Last day for bidder questions will be 2/20/2026 - 10 days before bid due date. Questions submitted after EOD on 2/20/2026 will not be addressed.
53	Please confirm that the owner is responsible for providing Builder's Risk coverage.	Alchemist CDC will carry Builder's Risk coverage. General Contractor and subcontractors are expected to carry out insurance coverage as listed in bid documents.
54	Please confirm that there are no self-performance requirements on this project (ie. The contractor must perform _% of this project with their own forces).	Confirmed.
55	Please confirm that there are no PLA or Skilled and Trained Workforce requirements on this project.	Confirmed. The only workforce training requirements connected to this project are included in the GRID Alternatives subcontract for solar and battery system installation and that is not part of this contract.
56	Please confirm that the modular wall system will be anchoring into drywall soffit above glass?	Confirmed. See detail section referenced in window elevation B7/A2.41
57	Is the contractor responsible for providing the arborist described in the Off-Site plans on sheet C1-2?	Yes
58	Is the contractor to provide any window coverings?	No
59	Note 15 on A2.12 mentions we are to provide exterior fire control doors. However, I do not see any fire control doors on the door schedule. Please clarify.	General note is regarding FIRE CONTROL ROOM access door. Not a rated door specifically.
60	Is the contractor responsible for the cushions/fabric FAB-1?	Yes
61	Is the contractor responsible for providing the branded signage shown on A3.03?	No. Branded signage and installation will be provided by Owner.
62	Fireproofing is shown on A9.10, but it's unclear where it occurs. Please clarify.	North exterior wall at Building B is a fire rated wall, but roof assembly should not require sprayed-on fireproofing.
63	Is the contractor to include the steel allowance in note 7, S1.01? If so, does the 2% apply to our whole bid, or only the steel bid?	Steel Bid Only.
64	Please confirm that the $10,000 artwork allowance is the only other allowance to be included in our bid.	Confirmed.
65	Is the contractor responsible for the design of the deferred approvals? Sheet S1.02 makes this unclear.	Yes. See Deferred Approval Note 1.

Alchemist Public Market - Bid Questions

No.	Question	Response
66	Is the metal deck filled? If so, with what and at what locations, most details appear that it is not, but some structural details show it filled.	There is no concrete fill over metal deck on this project. Details showing concrete fill over metal deck should be used for other pertinent information only.
67	Is there a confirmed refrigeration location? Can you verify that the ice machine's remote condener is within the required 75' distance?	The ice machine condenser is to be in the mechanical well. See A-2.31 - Roof Plan and M2.2 HVAC Roof Plan for location of condensing equipment at Building A.
68	Can you please send specs for the shelving for the walk-in merchandiser shelving? Is this part of the Anthony Doors package?	The merchandiser shelving is to be part of the Anthony doors package.
69	Please provide details related to the funding source for this project (is this funded by a specific grant)? This is being requested by our bonding company.	Project funding is being provided by a California Jobs First grant ($8.1 million awarded - approximately $6 million remaining post-design, permitting, and execution of pre-purchase contracts) and a Federal EDA grant ($3.9 million), as well as by ~$2 million in private funds. Both public grants have been awarded and are available for immediate billing. Private funds are funded and/or in final negotiations.
70	The BOD for Solar is not BABA compliant. The solar and BESS specs don't mention BABA. We can provide BABA pricing for the solar scope, but likely NOT the BESS scope just based on product available at the system size. (BABA modules cost 2x non-BABA). Please clarify the BABA requirement as it relates to solar.	The PV and BESS systems, will be provided under separate contract by the Owner (see specifications related to GRID Alternatives). Contractor shall not be responsible for procurement or installation of these systems. The Contractor shall be responsible for coordinating the Owner's PV/BESS contractor into the project schedule and sequencing and shall provide reasonable site access as required. The Contractor shall include all structural supports, roof preparation, electrical & conduit rough-ins, trenching rough-ins, feeders, pads, and associated infrastructure necessary to accommodate the PV/BESS systems in accordance with the Contract Documents and design intent. See GRID Alternatives drawings included in Addendum No. 2 for reference.
71	For all other scopes, how should the contractor proceed if the products specified in the bid documents are not BABA compliant?	Either a BABA-compliant comperable replacement should be proposed and approved by D+B or a request for waiver should be submitted to developer for funding reallocation or for waiver approval from EDA.
72	For the dimensions above the openings for b6 (3'-0"), b7 (3'-2"), b8 (3'-2")	Provide door opening widths as shown on the elevations on Sheet A2.41.
73	For elevation B6, door type 31B, longest standard manufacturer pull is 60" with mounting holes at 54" on Center. Will this suffice, or do we need to specifically apply what is called out (Ives PR-9266F)?	Provide longest standard modular wall system manufacturer door pull at Door 31B. Manufacturer door pulls at sliding Door 32 and 33 to match pull at Door 31B.
74	For the sliding doors with locking hardware, is the schlage callout in section 08 71 00 – 8, sub-section 2.03 required or can we utilize standard interchangable (SFIC) core and lever hardware standard from manufacturer (mfg standard is FSB)?	Provide Schlage core per specifications. Intent is for keying for all doors in project to match.

Alchemist Public Market - Bid Questions

No.	Question	Response
75	Subject: PV System: 1. Is there a BABA requirement for solar/battery equipment? There is not BABA compliant battery at this scale. BABA compliant solar panels (JA in BOD are not compliant) are about 2x the cost of standard offerings. 2. The SLD shows 208V inverters and battery on a 480V service and PV panel. We will need to design with 480V equipment. 3. Can we design the arrays in portrait orientation rather than landscape? Portrait lowers the amount of rail needed, therefore lowering labor and material costs. The drawn rooftop boundaries will need to be slightly overrun. (See attached preliminary layout adding 1 kW total DC power) 4. Would Sol-Ark 60kW/120kWh be an acceptable substitute for Fortress eSpire 50kW/122kWh BESS? 5. Has load analysis been completed for the backup functionality? Is 120kWh enough for the freezers/fridges on Panel L01?	The PV and BESS systems, will be provided under separate contract by the Owner (see specifications related to GRID Alternatives). Contractor shall not be responsible for procurement or installation of these systems. The Contractor shall be responsible for coordinating the Owner's PV/BESS contractor into the project schedule and sequencing and shall provide reasonable site access as required. The Contractor shall include all structural supports, roof preparation, electrical & conduit rough-ins, trenching rough-ins, feeders, pads, and associated infrastructure necessary to accommodate the PV/BESS systems in accordance with the Contract Documents and design intent. See GRID Alternatives drawings included in Addendum No. 2 for reference.
76	Subject: Food Service Equipment: 1.Are there any written specification for the food service equipment? 2. Are there any details / elevations for the Millwork counters item 0101,0112 and 0126?	1. No written specifications for food services are included. See Addendum No. 1 attachments for food service equipment cut sheets. 2. Yes, see architectural sheets A4.02 - A5.02 for custom casework plans and elevations, and A9.60 - A9.61 for casework details.
77	Subject: Door Hardware Sets: Door hardware sets are called out on door schedule (Sheet A2.40). However, information/ contents of hardware sets are missing from Project Manual. Please provide missing hardware sets.	Door hardware specifications and groups were issued in Addendum No. 1.
78	Subject: GN Restroom 12 Finish Sheet A2.51 shows "G.N. Restroom 12" to have TL-5 (Floor tile) flooring. However, the transition detail details on the same sheet show that restroom to have CON-2 (Polished Concrete) finish. Please clarify which one is to be followed. See Attached.	See response to Question #49 above.
79	1/ General note 1 on sheet C1-2 shows, that all construction materials and workmanship shall conform to the City of Sacramento standard specifications, dated November 2020 and all applicable addenda. Confirm that if there is a conflict between project plans/specifications and the City of Sacramento standard specifications, the project plans/specifications shall take precedence. Otherwise, please advise.	For the onsite work, the plans and specifications govern should there be a discrepancy. For the offsite work, the City of Sacramento standard drawings and specifications govern should there be a discrepancy.
80	2/ Part 2.11 od specification section 329000 shows, that mulch shall be 100 percent shredded fir with an average particle size of 2 inches such as Walk on Bark. However, the mulch schedule on sheet L2.00 shows recycled natural chip bark mulch. Please clarify the type of mulch. Walk On Bark	100 percent shredded fir with an average particle size of 2 inches such as Walk in Bark
81	3/ Confirm root barrier is not required the proposed trees. Otherwise, provide the requirements for installation of root barrier (minimum distance from trees to hardscape, length, depth).	No root barrier

Alchemist Public Market - Bid Questions

No.	Question	Response
82	4/ Part 3.04.D of specification section 329000 shows 90 days landscape maintenance period. However, mandatory notes for landscaping on sheet C1-2/offsite shows 6 months. Please clarify the duration of landscape maintenance period.	90 days landscape maintenance period
83	5/ Referring to shrub and groundcover schedule on sheet L2.00, is Violet shrub area to be furnished and installed by Owner? If it is furnished only by the Owner, please provide the size and spacing on center of Violet shrubs for bidding purposes.	Violets will be provided by owner and spacing will be 12" o.c.
84	6/ Referring to detail 9 on sheet C7.00, is Tensar Interax NXF 750 geogrid installed 3'' above Mirafi 140N non-woven filter fabric?	Correct.
85	7/ Part 3.03A of specification 328400 shows minimum 12 inches shall be covered for all non-pressure pvc lines and 18 inches for all pressure supply lines. However, irrigation note 14 on sheet L1.00 shows that 18'' cover over all mainline and lateral lines under landscape. Besides that, detail 15 on sheet C7.00 shows irrigation pipe to be installed at 30'' depth. Please clarify the installation depth for irrigation mainline and lateral line at landscape areas.	All irrigation lines shall be 24" under pavement, 18" for mainline, 12" for laterals and wiring when not under pavement.
86	8/ Clarify the type of irrigation system, potable or reclaimed?	Potable
87	9/ Provide details for the backflow preventer and flush valve as shown on sheet L1.00 for bidding purposes.	Refer to sheet C7.02, detail W-505 for the landscape irrigation backflow prevention device.
88	10/ The irrigation schedule on sheet L1-1 shows, that pipe sleeves are extended to 18" beyond edges of paving or construction. However, detail 6 on sheet L1-4 shows that mainline sleeve to extend 24'' beyond the back of curb or edge of pavement. Please clarify.	All irrigation sleeves shall extend 18" from edges of pavement.
89	11/ Part 2.02F of specification section 328400 shows, that install hydrometer in concrete box with fiber lid after brass gate valve and Y-strainer at point of water connection. However, hydrometer and Y-strainer are not shown on irrigation plans. Please confirm if hydrometer and Y-strainer are required or not. Also, provide the size and model number for Y-strainer if it is required.	Hydrometer isn't needed since we already have an irrigation water meter. The y-strainer isn't needed since this is not a reclaimed system.
90	RFI- Switchgear clarification •Please confirm all switchgear is to be installed by the electrician. •Please confirm all associated switchgear feeders are to be provided and installed by the electrician.	For clarification of OFCI and CFCI electrical equipment, see Electrical Responsibility Matrix included in Addendum No. 2 attachments.
91	1.Door schedule states hdw. group # 02 for door 30A but specs state group to be #02A. Which is correct? 2.I see spec section for exterior aluminum storefronts, but nothing describing interior "modular wall system". Are there specs for this product for Types B6; B7; B8 on window schedule? 3.Storefronts spec section does not include entrances. What Arcadia system is to be used for the exterior storefronts; Dimensions; Type; Door Types? Is 2"x 4-1/2" thermal system acceptable? I see medium stile full lite doors, but are they thermally rated?	1. Follow the door specification included in Addendum No. 1. Door Hardware schedule will be updated to match. 2. See Spec Section 102219.01 for Modular Wall Systems. 3. See Window General Note #1 and GLA-1/A8.00 for size (2" x 6") of thermally broken storefront. Provide thermally broken entrance doors as shown.

MAKE UP AIR UNIT

EQUIPMENT TAG_NEW	"AAON" MODEL NO	AREA SERVED	AIR FLOW (CFM)	HEATING CAPACITY (MBH)	COOLING CAPACITY (MBH)	EDB °F	EWB °F	SUPPLY AIR DISCHARGE TEMP		ESP (IN WG)	ELECTRICAL DATA				OPER WT (LBS)	MOUNTING DETAIL	CONTROL DETAIL	NOTES
								WINTER	SUMMER		HP	VOLT/PH	MOP	RPM				
MAU-1	RNA-050-DB3	KITCHEN	12000	470.6	572	105	72	70.00 °F	70 °F	1.50	5	460/3	225	993	7650	3/M5.1	4/M6.0	1, 2

NOTES:

1. PROVIDE WITH STRUCTURALLY CALC'D SPRING ISOLATED ROOF CURB, W/ 2" DEFLECTION SPRINGS.
2. UNIT SHALL BE INTERLOCKED WITH KITCHEN HOOD/EXHAUST SYSTEM FOR OUTSIDE AIR MAKE-UP WHEN HOOD IS ENABLED.

VRF FAN COIL UNIT SCHEDULE

EQUIP TAG	"LG" MODEL	TYPE	SYSTEM SERVED	NOMINAL TONS	AIR FLOW [CFM]	MIN OA [CFM]	ESP [IN. W.G.]	COOLING CAP. [BTUH]		HEATING CAP [BTUH]	ELECTRICAL DATA			OPER. WT. [LBS]	MOUNTING DETAIL	CONTROL DETAIL	NOTES
								SENSIBLE	TOTAL		VOLT/PH	MCA	MOP				
FCU-1-1	ARNU363M2A4	DUCTED	HP-1	3	1031	360	0.24	27	36.2	41.4	208/1	2.9	15	105	8/M5.0	2/M6.0	1-3
FCU-1-2	ARNU073TRD4	CASSETTE	HP-1	0.7	264	30	-	5.5	7.5	5.5	208/1	0.25	15	35	9/M5.0	2/M6.0	1-3
FCU-1-3	ARNU053TRD4	CASSETTE	HP-1	0.5	264	25	-	4	5.5	6.2	208/1	0.25	15	35	9/M5.0	2/M6.0	1-3
FCU-1-4	ARNU483M3A4	DUCTED	HP-1	4	1482	195	0.23	36.3	48.2	55.1	208/1	3.1	15	115	8/M5.0	2/M6.0	1-3
FCU-2-1	ARNU483M3A4	DUCTED	HP-2	4	1550	150	0.23	36.8	48.8	56.3	208/1	3.1	15	115	8/M5.0	2/M6.0	1-3
FCU-2-2	ARNU423M3A4	DUCTED	HP-2	3.5	1260	130	0.24	31.1	41.8	47.8	208/1	2.9	15	105	8/M5.0	2/M6.0	1-3
FCU-2-3	ARNU483M3A4	DUCTED	HP-2	4	1600	170	0.23	37.4	49.8	57	208/1	3.1	15	115	8/M5.0	2/M6.0	1-3
FCU-2-4	ARNU243M3A4	DUCTED	HP-2	2	800	230	0.24	18.8	25.4	29.7	208/1	2.2	15	80	8/M5.0	2/M6.0	1-3
FCU-2-5	ARNU363M3A4	DUCTED	HP-2	3	1031	185	0.24	26.8	36.1	41.4	208/1	2.9	15	105	8/M5.0	2/M6.0	1-3
FCU-2-6	ARNU483M3A4	DUCTED	HP-2	4	1600	660	0.23	37.5	49.8	37.4	208/1	3.1	15	115	8/M5.0	2/M6.0	1-3
FCU-2-7	ARNU123TRD4	CASSETTE	HP-2	1	307	40	-	12.3	12.3	13.6	208/1	0.25	15	35	9/M5.0	2/M6.0	1-3

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NOTES:

1. UNIT SELECTED AT 105˚F DB / 70˚F WB SUMMER AMBIENT, 22˚F DB WINTER AMBIENT TEMPERATURE.
2. UNIT PROVIDED WITH INTEGRAL CONDESATE PUMP.
3. PROVIDE WITH 2" MERV-13 FILTERS IN FILTER BOXES AT DUCTED FAN COILS.

ENERGY RECOVERY VENTILATOR SCHEDULE

EQUIP TAG	"GREENHECK" MODEL	SUPPLY FAN		EXHAUST FAN		ELECTRICAL DATA			OUTSIDE AIR TEMPERATURE		EFFECTIVENESS		OPER . WT. [LBS]	MOUNTING DETAIL	NOTES	CONTROL DETAIL
		CFM	ESP [IN. W.G.]	CFM	ESP [IN. W.G.]	VOLT/PH	MCA	MOP	EDB °F	EWB °F	SUMMER [%]	WINTER [%]				
ERV-1	ECV-10L-VG-F	610	0.5	610	0.5	115/1	14.4	20	101	73	62.3	59.8	420	11/M5.0	1	2/M6.0
ERV-2	ECV-20L-VG-F	1525	0.5	1525	0.5	208/1	5.7	15	101	73	56.9	55.1	660	11/M5.0	1	2/M6.0

NOTES:

1. PROVIDE WITH MERV-13 FILTER ON THE OUTSIDE AND MERV-8 FILTER ON THE EXHAUST SIDE.

VRF HEAT PUMP SCHEDULE

EQUIP TAG	"LG" MODEL	COOLING CAP [MBH]	HEATING CAP [MBH]	VOLT/PH	ELECTRICAL DATA MODULE 1		OPER. WT. [LBS]	MOUNTING DETAIL	CONTROL DETAIL	NOTES
					MCA	MOP				
HP-1	ARUM096BTE5	96	108	460/3	16.4	25	610	6 & 7/M5.1	2/M6.0	1-4
HP-2	ARUM241BTE5	241	243	460/3	41.4	50	800	6 & 7/M5.1	2/M6.0	14

NOTES:

1. UNIT SELECTED AT 105˚F DB / 70˚F WB SUMMER AMBIENT, 22˚F DB WINTER AMBIENT TEMPERATURE.
2. PROVIDE UNIT WITH R-410A REFRIGERANT.
3. UNIT CONSISTS OF MULTIPLE HEAT PUMP MODULES. PROVIDE SEPARATE ELECTRICAL CONNECTIONS FOR EACH MODULE.
4. PROVIDE ELECTRONIC EXPANSION (EEV) KIT. MODEL # PRLK396A0.

VRF BRANCH SELECTOR SCHEDULE

EQUIP TAG	"LG" MODEL	# OF PORTS	SYSTEM SERVED	ELECTRICAL DATA			OPER. WT. [LBS]	MOUNTING DETAIL	CONTROL DETAIL
				VOLT/PH	MCA	MOP			
BS-1-1	PRHR043A	4	HP-1	208/1	0.06	15	45	10/M5.0	2/M6.0
BS-2-1	PRHR033A	3	HP-2	208/1	0.06	15	45	10/M5.0	2/M6.0

DIFFUSER, REGISTER & GRILLE SCHEDULE

SYMBOL	DESCRIPTION	KRUEGER	METALAIRE	PRICE	TITUS	TUTTLE & BAILEY
CD	MODULAR CORE SURFACE MOUNT CEILING DIFFUSER FLAT FRAME	1240 FRAME 22	9000-1	SMCD FRAME 1	MCD BORDER TYPE 1	SQD-SF
CDL	MODULAR CORE LAY-IN CEILING DIFFUSER FOR T-BAR CEILING 24x24 PANEL	1240 FRAME 23	9000-6P	SMCD FRAME 3	MCD BORDER TYPE 3	SQD-LT
PDS	ARCHITECTURAL PERFORATED DIFFUSER, SUPPLY	-	-	PDS	-	-
CR, CT, CE	CEILING RETURN, TRANSFER OR EXHAUST WITH " EGG CRATE CORE SURFACE MOUNT	EGC-5	CC5D	80	MODEL 50 F BORDER TYPE 1	CRE500-SF
CRL, CTL, CEL	CEILING RETURN, TRANSFER OR EXHAUST WITH " EGG CRATE CORE IN 24x24 PANEL FOR T-BAR CEILING	EGC-5TB	CC5D-TBD	80-TBP	MODEL 50 F BORDER TYPE 3	CRE500-LT
R, T, E *	CEILING OR SIDEWALL RETURN, TRANSFER OR EXHAUST GRILLE WITH 35° OR 45° HORIZONTAL BARS.	S 80 H	SRH	530L	350 RL	T70D
DL	HEAVY DUTY DUCT MOUNTED DRUM LOUVER WITH ROTATING DRUM	--	--	--	UD-DL	--
SDR, SDE	PERFORATED FACE SPIRAL DUCT MOUNTED RETURN OR EXHAUST GRILLE WITH CURVED FRAME.	--	--	--	S8F	--

NOTES:

1. ALL SYMBOLS NOTED MAY NOT BE USED. REFER TO PLANS FOR SIZE AND QUANTITY.
2. ALL SUPPLY AIR DIFFUSERS ARE 4 WAY BLOW UNLESS SHOWN OTHERWISE.
3. FURNISH ALL PRODUCTS OF A SINGLE MANUFACTURER.
4. COORDINATE DIFFUSER TYPE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
5. OPPOSED BLADE DAMPERS ARE NOT REQUIRED AT DIFFUSERS, REGISTERS OR GRILLES.
6. PROVIDE MANUAL AIR DAMPERS AT EACH BRANCH DUCT TO A SINGLE DIFFUSER, REGISTER OR GRILLE.

* ALUMINUM REGISTERS FOR SHOWERS AND DAMP AREAS

REGISTERED PROFESSIONAL ENGINEER
ANTHONY CODACCIA
M 29743
EXPIRES 6/30/26
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 5/16/25

RANCHO CORDOVA, CALIFORNIA

JD - AL	240156.00
PM - DESIGN TEAM	PROJECT NO.

PERMIT SET

	REVISION	BY	DATE
9	Addendum No.2		2/24/2026

ALCHEMIST COMMUNITY DEVELOPMENT CORPORATION

ALCHEMIST PUBLIC MARKET

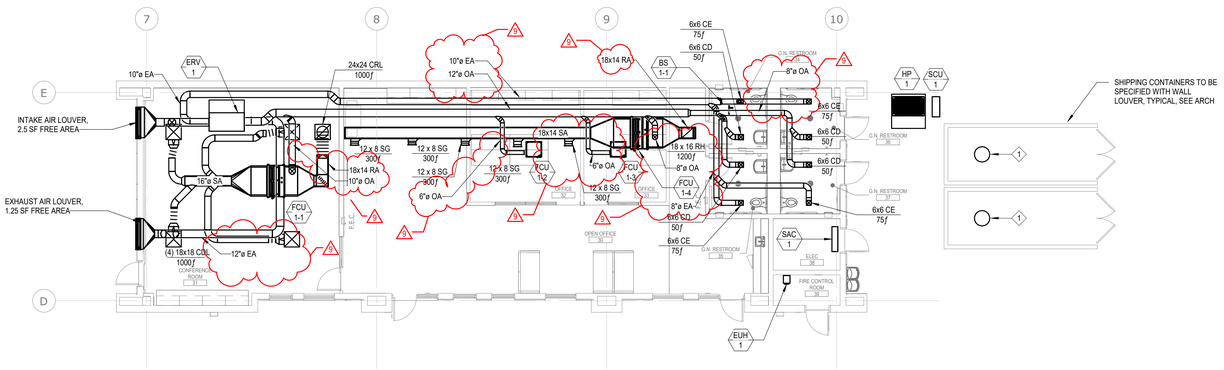
341 N. 10TH STREET, SACRAMENTO, CALIFORNIA 95811

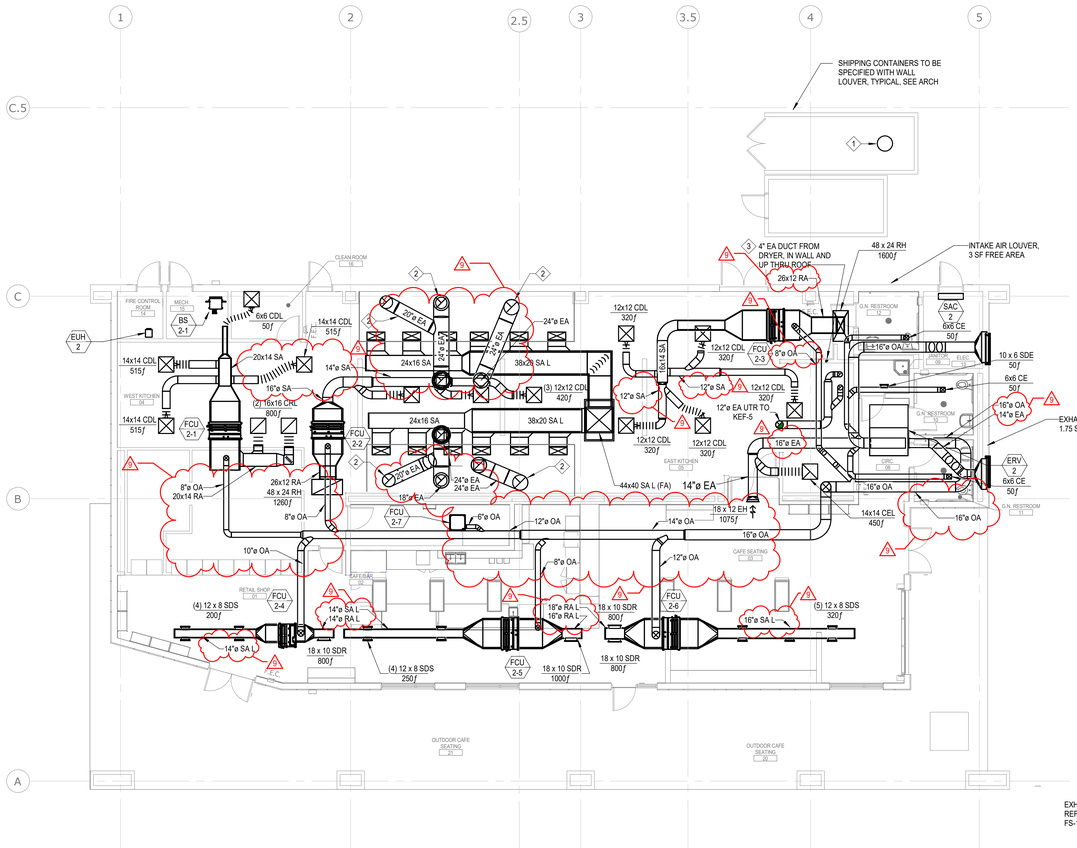
HVAC SCHEDULES

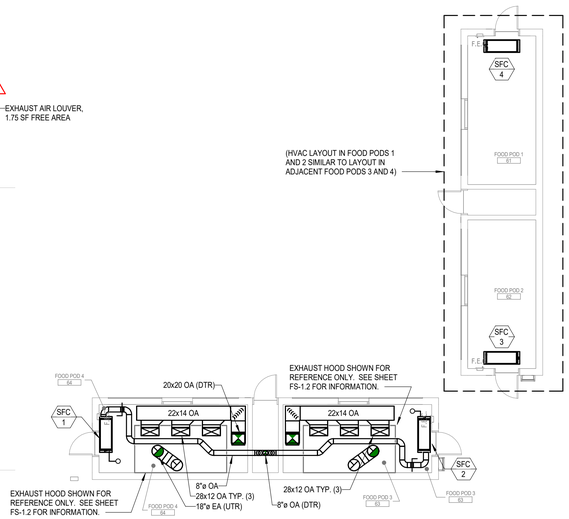
C3020.00

27 AUG 2025

M1.1







1 / M2.1 HVAC FLOOR PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES:

1. PROVIDE 1" INTERNAL DUCT LINING AT PLENUM BOXES OF FAN COIL UNITS.

KEYNOTES:

1. 'MASTER FLOW' MODEL GIC12 GALVANIZED 12" WIND TURBINE VENTILATOR ON SHIPPING CONTAINER ROOF. PROVIDE ADAPTER MOUNTING BASE FOR INTEGRATION WITH CORRUGATED ROOF.
2. GREASE EXHAUST DUCT SHALL BE UL 2221 LISTED DOUBLE WALL, ZERO CLEARANCE TYPE. DUCT SIZE INDICATED ON PLAN IS OUTER DIAMETER DIMENSION.
3. PRIOR TO INSTALLATION, CONFIRM DRYER EXHAUST DUCT SIZE AND ROUTING IN COORDINATION WITH OWNER PROVIDED DRYER MAKE/MODEL.

ALCHEMIST COMMUNITY DEVELOPMENT CORPORATION

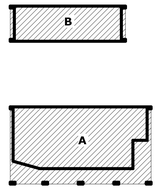
Dreyfuss+Blackford architecture

REGISTERED PROFESSIONAL ENGINEER — JD DAVIS — EXPIRES 6/30/26 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 5/16/25

capital engineering
RANCHO CORDOVA, CALIFORNIA

JD - AL	240156.00
PM - DESIGN TEAM	PROJECT NO.



KEY PLAN

PERMIT SET

THIS DRAWING IS NOT FINAL OR TO BE USED FOR CONSTRUCTION UNTIL IT IS SIGNED BY THE ARCHITECT/ENGINEER

	REVISION	BY	DATE
9	Addendum No.2		2/24/2026

ALCHEMIST COMMUNITY DEVELOPMENT CORPORATION

ALCHEMIST PUBLIC MARKET

341 N. 10TH STREET, SACRAMENTO, CALIFORNIA 95811

HVAC FLOOR PLAN

NORTH

C3020.00
AS SHOWN
27 AUG 2025

M2.1

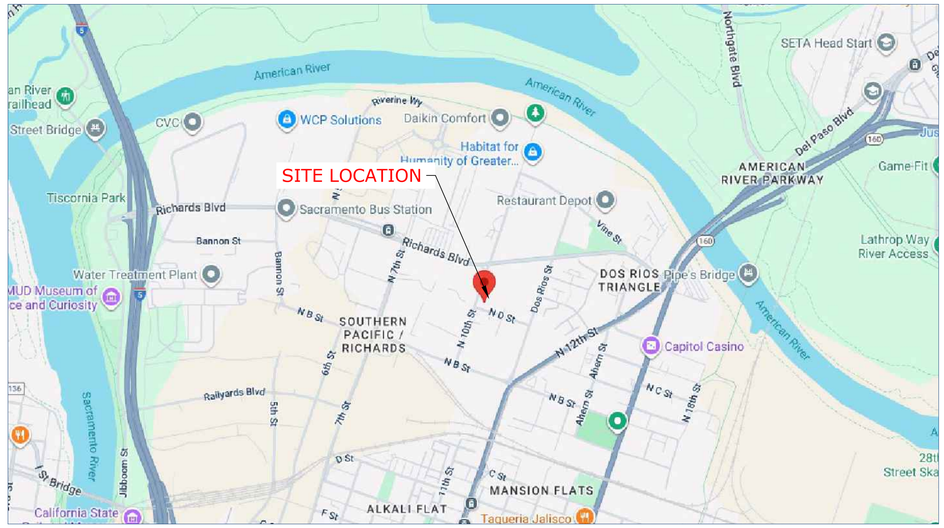
RESPONSIBILITY MATRIX

EQUIPMENT	OFCI	CFCI
MSB	•	
GENERATOR DOCKING STATION	•	
PHOTOVOLTAIC SYSTEM*		
BESS SYSTEM*		
METERS	•	
LDPV	•	
TX-S	•	
LO1	•	
PV DISC	•	
HP1	•	
HP2	•	
TX-P1	•	
TX-P2	•	
TX BREAKERS	•	
LP1	•	
LP2	•	
LP3	•	
LP4	•	
HK1	•	
TX-K	•	
LK1	•	
LK2	•	
HA	•	
HB	•	
TX-A	•	
TX-B	•	
LA	•	
LT	•	
LB	•	
INV-A		•
INV-B		•
PROJECT FEEDERS		•
PROJECT CONDUIT		•

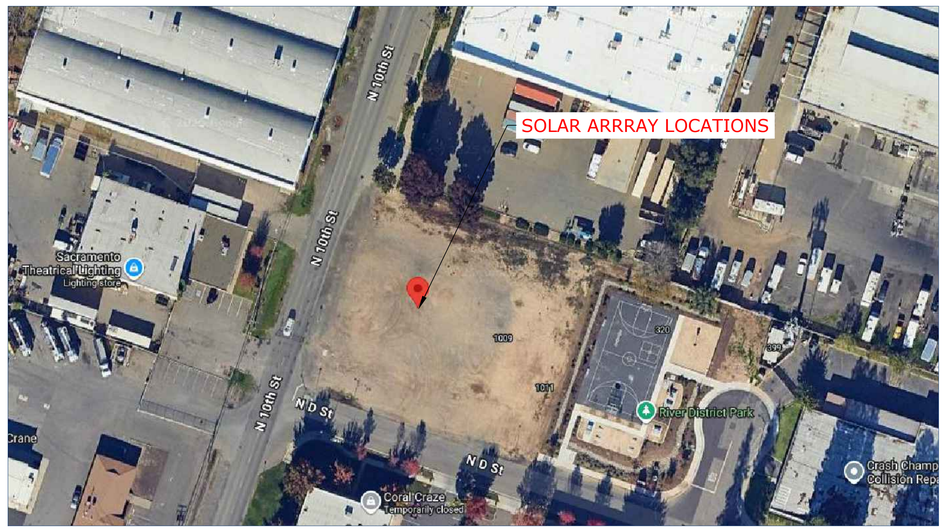
*Provided (furnished and installed) by Grid Alternatives (PV Contractor). Refer to Grid Alternatives bid package for clarification.

ALCHEMIST PUBLIC MARKET
58.80kW PHOTOVOLTAIC 341 N. 10TH STREET, SACRAMENTO, CA 95811

VICINITY MAP



AERIAL VIEW



GENERAL CONDUCTOR INSULATION KEY

DC CONDUCTORS	
POSITIVE(UNGROUNDED)	RED
NEGATIVE(UNGROUNDED)	BLACK
120/208V (OR) 240V AC CONDUCTORS	
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
480/277V AC CONDUCTORS	
PHASE A	BROWN
PHASE B	ORANGE
PHASE C	YELLOW
NEUTRAL	WHITE OR GREY
GROUND	GREEN OR BARE Cu

SHEET CATALOG

INDEX NO.	DESCRIPTION
CS-1.0	COVER SHEET
GN-1.0	GENERAL NOTES
T-1.0	SITE PLAN
S-1.0	STRUCTURAL DETAILS-1
S-1.1	STRUCTURAL DETAILS-2
E-1.0	ELECTRICAL STRINIGNG LAYOUT
E-1.1	ELECTRICAL ELEVATION DETAILS
E-1.2	ELECTRICAL MOUNTING DETAILS
E-1.3	ELECTRICAL LINE DIAGRAM
E-1.4	ELECTRICAL CALCULATIONS
PL-1.0	ELECTRICAL PLACARDS -1
PL-1.1	ELECTRICAL PLACARDS -2
SS-1.0	SPEC SHEETS-1
SS-1.1	SPEC SHEETS-2

DESIGN PARAMETERS

DC SYSTEM SIZE: 58.80kW
AC SYSTEM SIZE: 60.00kW
EXPOSURE CATEGORY: C
RISK CATEGORY: II
WIND SPEED (ASCE 7-16): 94 MPH
SNOW LOAD (ASCE 7-16): 0 PSF

AHJ

CA-CITY OF SACRAMENTO

UTILITY (ELECTRICAL)

UTILITY: SMUD
METER NO:

SYSTEM SUMMARY:

QTY	NAME	DESCRIPTION
98	MODULES	JA SOLAR JAM72D40-600/MB (600W)
1	INVERTERS	ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
98	MLPE	AP SMART RSD-S-PLC

APPLICABLE CODES:

THE INSTALLATION OF SOLAR ARRAYS AND PHOTOVOLTAIC POWER SYSTEMS SHALL COMPLY WITH THE FOLLOWING CODES:
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA BUILDING CODE
2022 CALIFORNIA FIRE CODE
2022 CALIFORNIA ENERGY CODE
ADDITIONALLY, CONFORM TO ALL LOCAL ORDINANCES AND REQUIREMENTS

ENGINEERING SCOPE OF WORK:

1. GENOM'S PERMIT DRAWINGS ARE INTENDED TO BE PRELIMINARY DRAFT FOR A LICENSED PROFESSIONAL ENGINEER TO REVIEW AND APPROVE.
2. REGARDLESS OF JURISDICTIONAL REQUIREMENT, IT IS HIGHLY RECOMMENDED THAT A LICENSED PROFESSIONAL ENGINEER OR AN EOR REVIEWS AND APPROVES THE FINAL DESIGN OF ALL THE COMPONENTS OF THEIR RESPECTIVE DISCIPLINE (STRUCTURAL/ELECTRICAL) SHOWN ON THESE PERMIT DRAWINGS.

811 Know what's below. CALL before you dig.

CALL AT LEAST TWO WORKING DAYS BEFORE YOU DIG

DIG ALERT

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING LOCATIONS, CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

CONTRACTOR INFORMATION

GRID ALTERNATIVES

REGISTERED PROFESSIONAL ENGINEER — THOMAS LUONG — E22478 — ELECTRICAL — STATE OF CALIFORNIA
01/26/2026

LICENSED PROFESSIONAL ENGINEER — MANAN JAYANT BHALJA — C 83841 — EXP. 3/31/2027 — CIVIL — STATE OF CALIFORNIA
01/23/2026

SYSTEM INFORMATION

58.80kW DC SYSTEM, **60.00kW** AC SYSTEM
MODULES: (98)JA SOLAR JAM72D40-600/MB (600W)
INVERTER(S): (1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
MLPE: (98) AP SMART RSD-S-PLC

PROJECT INFORMATION

NAME: ALCHEMIST PUBLIC MARKET
PROJECT NO: GA-082525
ADDRESS: 341 N. 10TH STREET, SACRAMENTO, CA 95811
COORDINATES: 38.593650, -121.487320
APN: 00101110010000
AHJ: CA-CITY OF SACRAMENTO
UTILITY: SMUD

REVISION

REV	DATE	DESCRIPTION
A	1/21/2026	PERMIT PLANS

SCALE: NTS
DATE: 1/21/2026 | PAGE NO: CS-1.0
DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

GENOM Powered By Design

COVER SHEET

GENERAL NOTES:

GENERAL NOTES:
1. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY AND LIABILITY FOR COMPLIANCE WITH REGULATIONS PER FEDERAL OSHA, CAL/ OSHA AND LOCAL REGULATIONS PERTAINING TO WORK PRACTICES, PROTECTION OF WORKERS AND VISITORS TO THE SITE.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT SITE PRIOR TO COMMENCING WORK.
3. WORK REQUIRED UNDER THIS CONTRACT INCLUDES ALL LABOR AND MATERIALS, EQUIPMENT ETC. NECESSARY AND REASONABLY INCIDENTAL TO COMPLETE THE PROJECT. ALL MATERIALS SHALL BE IN NEW AND UNUSED CONDITION AND OF HIGH QUALITY IN EVERY RESPECT.
4. MANUFACTURER'S MATERIAL, EQUIPMENT, ETC. SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
5. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL UTILITY AS-BUILT PLANS AND THE LOCATIONS OF ALL EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES, STRUCTURES, PAVEMENT OR IMPROVEMENTS.
6. ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH ALL APPLICABLE LOCAL CODES AND ORDINANCES BY EXPERIENCED WORKERS AND A LICENSED CONTRACTOR WHO SHALL OBTAIN ALL NECESSARY PERMITS AND PAY ALL REQUIRED FEES.
7. GOOD HOUSEKEEPING IS EXPECTED. TRASH SHALL BE REMOVED AS FREQUENTLY AS NEEDED TO ENSURE A TIDY AND SAFE WORK ENVIRONMENT.
8. ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CONSTRUCTION SPECIFICATIONS.
9. ALL PV SYSTEM COMPONENTS SHALL BE LISTED BY A RECOGNIZED TESTING AGENCY.
10. PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING MATERIALS SHALL BE PROTECTED FROM ANY PHYSICAL DAMAGE DURING CONSTRUCTION

PLANNING DEPARTMENT NOTES:
THE INSTALLATION OF THE PV SOLAR SYSTEM WILL NOT IMPEDE OR ALTER EXISTING FIRE ACCESS PATHS
TTHE INSTALLATION OF THE PV SOLAR SYSTEM WILL NOT BE VISIBLE FROM STREET LEVEL DUE TO THE EXISTING PARAPET WALL

FIRE REQUIREMENT INFORMATION:
PHOTOVOLTAIC SYSTEM DESIGN IS IN ACCORDANCE WITH CEC 2022 1204.3
ACCESS TO SYSTEMS FOR BUILDINGS, OTHER THAN THOSE CONTAINING GROUP R-3 OCCUPANCIES, SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS 1204.3.1 THROUGH 1204.3.3.
EXCEPTIONS:
1. DETACHED, NON-HABITABLE GROUP U STRUCTURES INCLUDING, BUT NOT LIMITED TO, DETACHED GARAGES SERVING GROUP R-3 BUILDINGS, PARKING SHADE STRUCTURES, CARPORTS, SOLAR TRELLISES AND SIMILAR STRUCTURES.
2. ROOF ACCESS, PATHWAYS AND SPACING REQUIREMENTS NEED NOT BE PROVIDED WHERE THE FIRE CODE OFFICIAL HAS DETERMINED THAT ROOFTOP OPERATIONS WILL NOT BE EMPLOYED.

ROOF ACCESS POINTS:
1.ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.
PERIMETER PATHWAYS:
1. THERE SHALL BE A MINIMUM 6-FOOT-WIDE CLEAR PERIMETER AROUND THE EDGES OF THE ROOF.
a. EXCEPTION: WHERE EITHER AXIS OF THE BUILDING IS 250 FEET OR LESS, THE CLEAR PERIMETER AROUND THE EDGES OF THE ROOF SHALL BE PERMITTED TO BE REDUCED TO A MINIMUM 4 FEET WIDE. A MINIMUM OF 42" SHALL BE PERMITTED WHEN THE SHORTEST EDGE OF THE BUILDING IS LESS THAN 250 FT.
INTERNAL PATHWAYS:
INTERIOR PATHWAYS SHALL BE PROVIDED BETWEEN ARRAY SECTIONS TO MEET THE FOLLOWING REQUIREMENTS:
1. PATHWAYS SHALL BE PROVIDED AT INTERVALS NO GREATER THAN 150 FEET (45.7 M) THROUGHOUT THE LENGTH AND WIDTH OF THE ROOF.
2. A MINIMUM 4-FOOT-WIDE PATHWAY IN A STRAIGHT LINE TO ROOF STANDPIPES OR VENTILATION HATCHES.
3. A MINIMUM 4-FOOT-WIDE PATHWAY AROUND ROOF ACCESS HATCHES WITH NOT LESS THAN AT LEAST ONE MINIMUM 4-FOOT-WIDE PATHWAY TO A PARAPET OR ROOF EDGE.
SMOKE VENTILATION:
THE SOLAR INSTALLATION SHALL BE DESIGNED TO MEET THE FOLLOWING REQUIREMENTS:
1. WHERE NONGRAVITY-OPERATED SMOKE AND HEAT VENTS OCCUR, A MINIMUM 4-FOOT-WIDE PATHWAY SHALL BE PROVIDED BORDERING ALL SIDES.
2.SMOKE VENTILATION OPTIONS BETWEEN ARRAY SECTIONS SHALL BE ONE OF THE FOLLOWING:
a. A MINIMUM 8-FOOT-WIDE PATHWAY.
b. WHERE GRAVITY-OPERATED DROPOUT SMOKE AND HEAT VENTS OCCUR, A MINIMUM 4-FOOT-WIDE PATHWAY ON NOT LESS THAN ONE SIDE.
c. A MINIMUM 4-FOOT-WIDE PATHWAY BORDERING 4-FOOT BY 8-FOOT “VENTING CUTOUTS” EVERY 20 FEET ON ALTERNATING SIDES OF THE PATHWAY.

LOCATIONS OF DC CONDUCTORS:
CONDUIT, WIRING SYSTEMS, AND RACEWAYS FOR PHOTOVOLTAIC CIRCUITS SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE RIDGE OR HIP OR VALLEY AND FROM THE HIP OR VALLEY AS
CLOSE AS POSSIBLE TO AN OUTSIDE WALL TO REDUCE TRIP HAZARDS AND MAXIMIZE VENTILATION OPPORTUNITIES. CONDUIT RUNS BETWEEN SUB ARRAYS AND TO DC COMBINER BOXES
SHALL BE INSTALLED IN A MANNER THAT MINIMIZES THE TOTAL AMOUNT OF CONDUIT ON THE ROOF BY TAKING THE SHORTEST PATH FROM THE ARRAY TO THE DC COMBINER BOX. THE DC
COMBINER BOXES SHALL BE LOCATED SUCH THAT CONDUIT RUNS ARE MINIMIZED IN THE PATHWAYS BETWEEN ARRAYS. DC WIRING SHALL BE INSTALLED IN METALLIC CONDUIT OR
RACEWAYS WHEN LOCATED WITHIN ENCLOSED SPACES IN A BUILDING. CONDUIT SHALL RUN ALONG THE BOTTOM OF LOAD BEARING MEMBERS

ELECTRICAL NOTES FOR NEW PHOTOVOLTAIC SYSTEM:
1. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED , LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION.
2. ALL INVERTERS, PV MODULES, PV PANELS, AC PV MODULES AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PV POWER SYSTEM SHALL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4(D)
3. THIS SYSTEM IS TO CONNECT TO THE CLIENT'S EXISTING ELECTRICAL SYSTEM, THE POINT OF INTERCONNECTION (POI).
4. ALL PV SOURCE AND INVERTER INPUT CIRCUITS SHALL HAVE INDIVIDUAL CIRCUIT PROTECTION FOR TESTING AND ISOLATION. A DISCONNECT IS LOCATED AT THE INVERTER FOR EACH INVERTER INPUT CIRCUIT FROM PV ARRAY COMBINER BOXES.
5. ALL DISCONNECTS, PULL/SPLICE BOXES, ENCLOSURES, AND COMBINERS SHALL BE SECURED FROM UNAUTHORIZED PERSONNEL BY LOCK OR LOCATION.

WIRING AND WIRING METHODS:
1. EXPOSED PV SOLAR MODULE WIRING AND PV SOURCE CIRCUITS TO BE UV RESISTANT 1,000V PV WIRE, 90° C, AND RATED FOR WET CONDITIONS.
2. ALL EXPOSED CABLES, SUCH AS MODULE LEADS SHALL BE SECURED IN A NEAT WORKMAN LIKE MANNER TO PREVENT CHAFFING, SWINGING, AND EXCEEDING MINIMUM BEND RADIUS WITH PROPER MECHANICAL SUNLIGHT RESISTANT MEANS AND ROUTED TO AVOID DIRECT EXPOSURE TO SUNLIGHT AT ALL TIMES.
3. ALL FIELD WIRING THAT IS NOT COLOR CODED SHALL BE TAGGED AT BOTH ENDS WITH PERMANENT WIRE MARKERS TO IDENTIFY POLARITY AND GROUND.
4. FLEXIBLE METAL CONDUIT IS SUITABLE FOR INSTALLATION IN DRY LOCATIONS. SHOULD IT BE EMPLOYED, SUPPORTS WILL BE NO MORE THAN 12 INCHES FROM BOXES (JUNCTION BOX, CABINETS OR CONDUIT FITTING) AND NO MORE THAN 48 INCHES APART.
5. LIQUID TIGHT FLEXIBLE METAL AND NON-METALLIC CONDUIT IS SUITABLE FOR INSTALLATION IN WET AND DRY LOCATIONS. SHOULD IT BE EMPLOYED,SUPPORTS WILL BE NO MORE THAN 12 INCHES FROM BOXES (JUNCTION BOX, CABINETS, OR CONDUIT FITTING) AND NO MORE THAN 36 INCHES APART.
6. PVC CONDUIT AND FITTINGS SHALL NOT BE USED ON ROOFTOP CONDITIONS OR EXPOSED TO DIRECT SUNLIGHT. WHEN USED IN ACCEPTABLE LOCATION CONDUIT SHALL BE SCHEDULE 80 UV RESISTANT UNLESS NOTED OTHERWISE.
7. FUSES AND WIRES SUBJECT TO TEMPERATURES CONDITIONS GREATER THAN 100°F OR TRANSFORMER INRUSH CURRENT SHALL BE SIZED ACCORDINGLY.
8. THE PHOTOVOLTAIC SOURCE CIRCUITS AND PHOTOVOLTAIC OUTPUT CIRCUITS OF THIS PROPOSED SOLAR SYSTEM SHALL NOT BE CONTAINED IN THE SAME RACEWAY CABLE TRAY, CABLE, OUTLET BOX, JUNCTION BOX, OR SIMILAR FITTING AS FEEDERS OR BRANCH CIRCUITS OF OTHER SYSTEMS UNLESS THE CONDUCTORS OF THE DIFFERENT SYSTEMS ARE SEPARATED BY A PARTITION OR ARE CONNECTED TOGETHER.
9. ALL TERMINATIONS SHALL HAVE ANTI-OXIDANT COMPOUND AND BE TORQUED PER DEVICE LISTING, OR MANUFACTURER'S RECOMMENDATIONS.
10. SPLIT BOLTS /SPLICES / CONNECTORS ARE PERMITTED ON THE AC CONDUCTORS AND SHALL BE INSULATED WITH APPROVED MEANS. SPLICES ON THE DC CONDUCTORS IS NOT PERMITTED IN ANY LOCATION.

GROUNDING - SEE ELECTRICAL DIAGRAM AND ELECTRICAL DETAILS FOR MORE GROUNDING INFORMATION:
1. ONLY ONE CONNECTION TO DC CIRCUITS AND AC CIRCUITS WILL BE USED FOR SYSTEM GROUNDING (REFERENCED TO THE SAME POINT).
2. EQUIPMENT GROUNDING CONDUCTORS AND SYSTEM GROUNDING ELECTRODE CONDUCTORS WILL HAVE AS SHORT A DISTANCE TO THE GROUNDING CONNECTION POINT AS PRACTICABLE AND A MINIMUM NUMBER OF TURNS. (REF. CEC 690.42-IN)
3. TO ENSURE PROPER GROUNDING, NON-CURRENT CARRYING METAL PARTS SHALL BE INSTALLED, NOTING THAT PAINT AND FINISH SHALL BE PROPERLY REMOVED WHERE IT MAY INSULATE AN ENCLOSURES BONDING CONNECTION CEC 250.96). APPLY NO-LOX OR OTHER SIMILAR ANTI-OXIDANT COMPOUND TO EXPOSED SURFACES.
4. THE CONNECTION TO THE MODULE OF THE PROPOSED SOLAR ELECTRIC SYSTEM SHALL BE SO ARRANGED THAT REMOVAL OF A MODULE FROM THE PHOTOVOLTAIC SOURCE CIRCUIT DOES NOT INTERRUPT A GROUND TO ANOTHER PHOTOVOLTAIC SOURCE CIRCUIT.
5. GROUNDING SYSTEM COMPONENTS SHALL BE APPROVED FOR THEIR PURPOSE, INCLUDING BUT NOT LIMITED TO GROUND RODS, GROUNDING LUGS, GROUNDING CLAMPS, ETC. GROUNDING DEVICES EXPOSED TO THE ENVIRONMENT SHALL BE RATED FOR DIRECT BURIAL.
6. UNDERGROUND OR INACCESSIBLE CONNECTIONS OF GROUNDING CONDUCTORS SHALL ONLY BE MADE VIA EXO-THERMIC WELDS. THE USE OF MECHANICAL CONNECTIONS ARE ACCEPTABLE FOR ACCESSIBLE ABOVE GROUND LOCATIONS.
7. ALL METALLIC CONDUITS SHALL BE INSTALLED AND TERMINATED WITH INSULATED GROUND BUSHINGS.

GROUND FAULT PROTECTION:
1. PHOTOVOLTAIC INVERTERS SHALL BE EQUIPPED WITH DC GROUND FAULT PROTECTION. INVERTERS ARE ALSO EQUIPPED WITH ANTI-ISLANDING CIRCUITRY.

DISCONNECTING MEANS:
1. MEANS SHALL BE PROVIDED TO ISOLATE EACH SOURCE CIRCUIT FROM THE SYSTEM.
2. WHERE A CIRCUIT GROUNDING CONNECTION IS NOT DESIGNED TO BE AUTOMATICALLY INTERRUPTED AS PART OF THE GROUND-FAULT PROTECTION, A SWITCH OR CIRCUIT BREAKER USED AS A DISCONNECTING MEANS SHALL NOT HAVE A POLE ON THE GROUNDED CONDUCTOR.
3. THE GROUNDED CONDUCTOR MAY HAVE A BOLTED OR TERMINAL DISCONNECTING MEANS TO ALLOW MAINTENANCE OR TROUBLESHOOTING BY QUALIFIED PERSONNEL.
4. EQUIPMENT SUCH AS PHOTOVOLTAIC SOURCE CIRCUITS, OVER CURRENT DEVICES, AND BLOCKING DIODES SHALL BE PERMITTED ON THE PHOTOVOLTAIC SIDE OF THE PHOTOVOLTAIC DISCONNECTING MEANS.
5. MEANS SHALL BE PROVIDED TO DISCONNECT INVERTERS FROM ALL UNGROUNDED CONDUCTORS OF ALL SOURCES. IF THE EQUIPMENT IS ENERGIZED FROM MORE THAN ONE SOURCE, THE DISCONNECTING MEANS SHALL BE GROUPED AND IDENTIFIED.
6. A SINGLE DISCONNECTING MEANS SHALL BE PERMITTED FOR THE COMBINED OUTPUT OF ONE OR MORE INVERTERS IN A GRID INTERACTIVE SYSTEM.
7. DISCONNECTING MEANS SHALL BE PROVIDED TO DISCONNECT A FUSE FROM ALL SOURCES OF SUPPLY IF THE FUSE IS ENERGIZED FROM BOTH DIRECTIONS AND IS ACCESSIBLE TO OTHER THAN QUALIFIED PERSONS. SUCH A FUSE IN A PHOTOVOLTAIC SOURCE CIRCUIT SHALL BE CAPABLE OF BEING DISCONNECTED INDEPENDENTLY OF FUSES IN OTHER PHOTOVOLTAIC SOURCE CIRCUITS

CONTRACTOR INFORMATION

GRID ALTERNATIVES

REGISTERED PROFESSIONAL ENGINEER — THOMAS LUONG — E22478 — ELECTRICAL — STATE OF CALIFORNIA
01/26/2026

LICENSED PROFESSIONAL ENGINEER — MANAN JAYANT BHALIA — C 83841 — EXP. 3/31/2027 — CIVIL — STATE OF CALIFORNIA
01/23/2026

SYSTEM INFORMATION

58.80kW DC SYSTEM, **60.00kW** AC SYSTEM
MODULES: (98)JA SOLAR JAM72D40-600/MB (600W)
INVERTER(S): (1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
MLPE: (98) AP SMART RSD-S-PLC

PROJECT INFORMATION

NAME: ALCHEMIST PUBLIC MARKET
PROJECT NO: GA-082525
ADDRESS: 341 N. 10TH STREET, SACRAMENTO, CA 95811
COORDINATES: 38.593650, -121.487320
APN: 00101110010000
AHJ: CA-CITY OF SACRAMENTO
UTILITY: SMUD

REVISION

REV	DATE	DESCRIPTION
A	1/21/2026	PERMIT PLANS

SCALE: NTS
DATE: 1/21/2026 | PAGE NO: GN-1.0
DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

GENOM Powered By Design

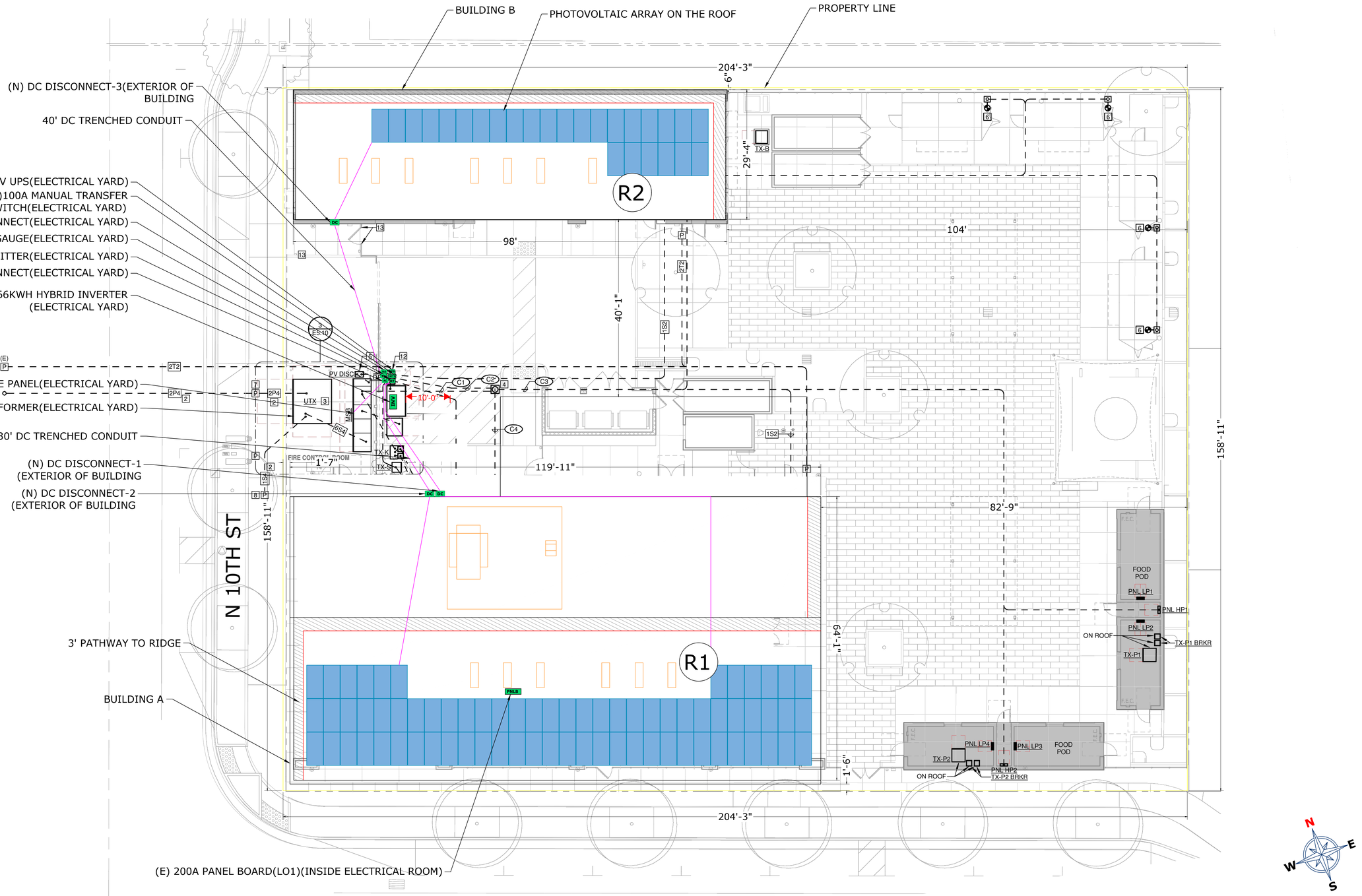
GENERAL NOTES

ENLARGED SITE PLAN :

LEGEND:

UM	UTILITY METER
AC	AC DISCONNECT
CT	CT CBINET
PV	PV PRODUCTION METER
MSP	MAIN SERVICE GEAR
DAS	DAS MONITORING
PNLB	AC PANEL BOARD
XFMR	UTILITY TRANSFORMER
ACCP	AC ACCUMULATION PANEL
	STRINGING
	TRENCH
	PROPERTY LINE
	GATE / FENCE
	DRIVE WAY

ARRAY	QUANTITY	MODULE TILT	AZIMUTH
ROOF - R1	72	18°	200°
ROOF - R2	26	18°	200°



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REVISION

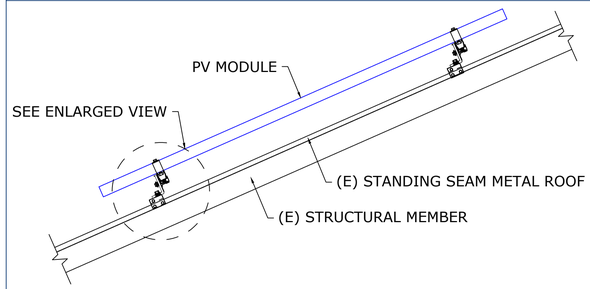
REV	DATE	DESCRIPTION
A	1/21/2026	PERMIT PLANS

SCALE: 3/32"=1'-0"
DATE: 1/21/2026 PAGE NO: T-1.0
DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

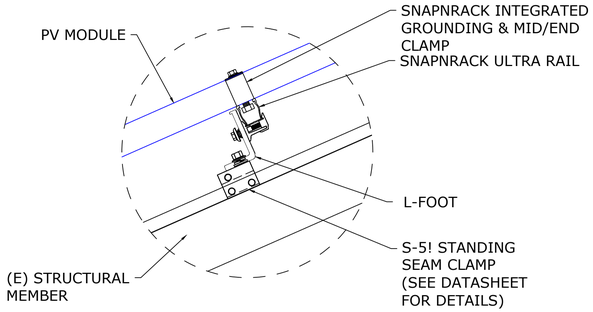
GENOM Powered By Design

SITE PLAN

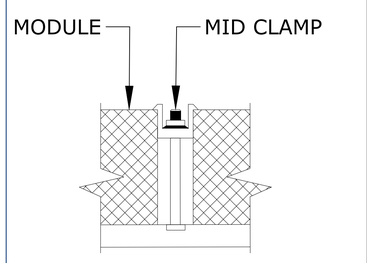
ATTACHMENT DETAILS- S-5-U! STANDING SEAM WITH SNAPNRACK ULTRARAIL

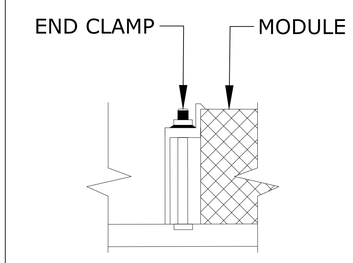


ATTACHMENT DETAIL
Scale: NTS



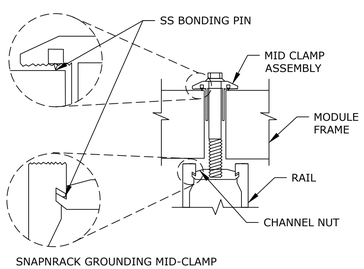
ENLARGED VIEW
Scale: NTS





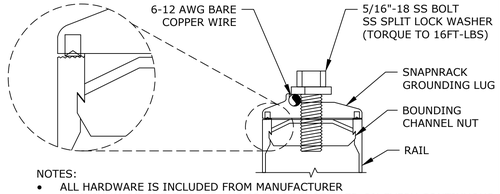
GROUNDING DETAILS

MODULE TO MODULE & MODULE TO RAIL



SNAPNRACK GROUNDING MID-CLAMP
SCALE: NTS

SNAPNRACK GROUNDING



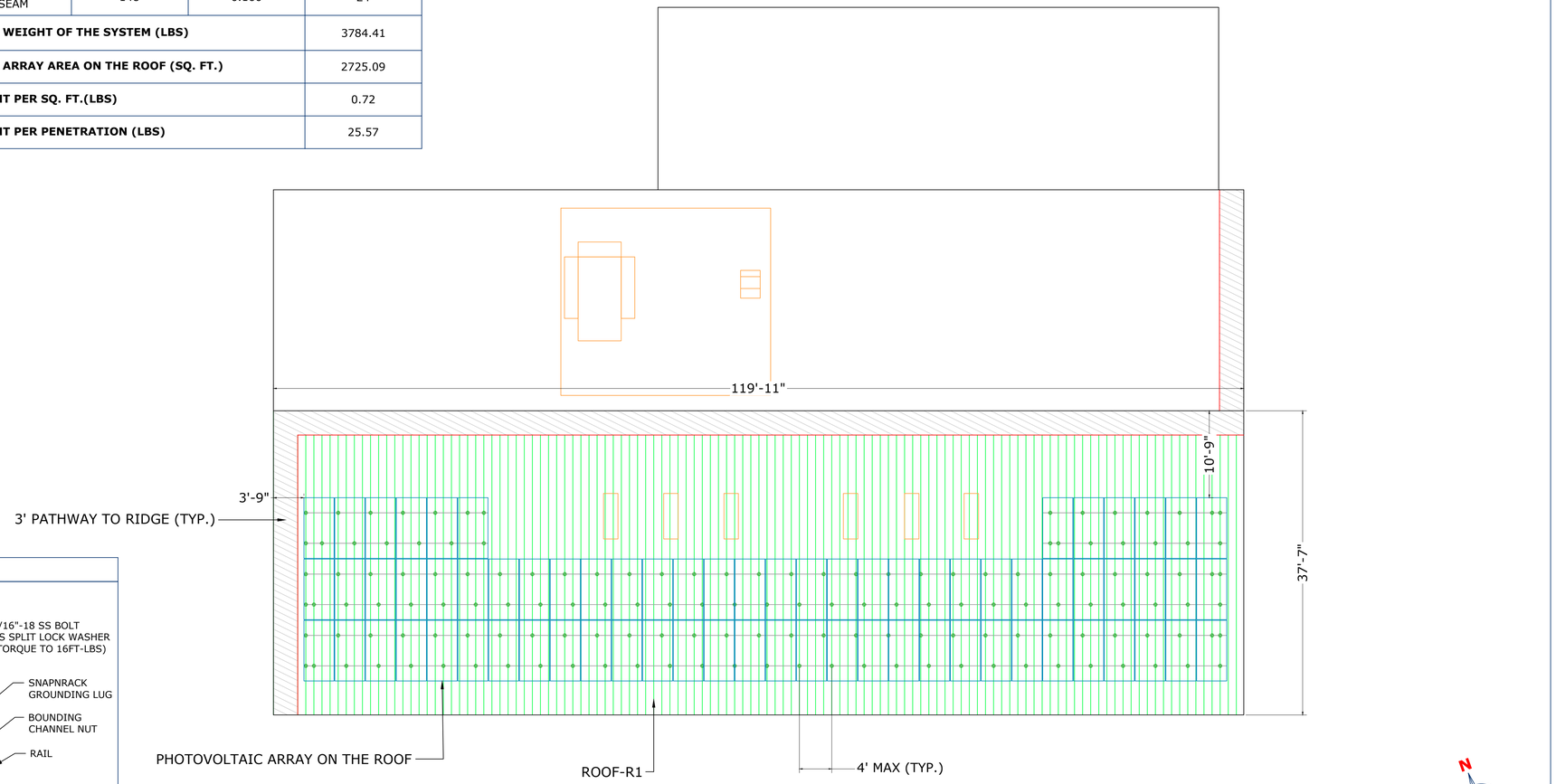
NOTES:
- ALL HARDWARE IS INCLUDED FROM MANUFACTURER
- A MINIMUM OF ONE GROUND LUG IS TO BE INSTALLED ON EVERY CONTINUOUS ROW OF MODULES
- GROUNDING LUG MAY BE INSTALLED IN EITHER RAIL CHANNEL
- GROUNDING LUG MAY BE INSTALLED SO GROUND WIRE IS PARALLEL OR PERPENDICULAR TO RAIL
- ENSURE SPLIT LOCK WASHER IS INSTALLED ON TOP OF COPPER WIRE. SCALE:NTS

SITE INFORMATION - WIND SPEED: 94 MPH AND SNOW LOAD: 0 PSF

SR. NO	AZIMUTH	PITCH	NO. OF MODULES	ARRAY AREA (SQ. FT.)	ROOF TYPE	ATTACHMENT	ROOF EXPOSURE	FRAME TYPE	SEAM SPACING	MAX RAIL SPAN	MAX CANTILEVER
ROOF - R1	200°	18°	72	2002.1	METAL ROOF	S-5-U! STANDING SEAM	ATTIC	METAL SEAM	1'-0"	4'-0"	1'-4"

DEAD LOAD CALCULATIONS

BOM	QUANTITY	LBS/UNIT	TOTAL WEIGHT (LBS)
MODULES	72	46.30	3333.60
MID-CLAMP	136	0.170	23.12
END-CLAMP	16	0.300	4.80
RAIL LENGTH	479	0.790	378.41
SPLICE BAR	32	0.650	20.80
S-5-U! STANDING SEAM	148	0.160	24
TOTAL WEIGHT OF THE SYSTEM (LBS)			3784.41
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			2725.09
WEIGHT PER SQ. FT.(LBS)			0.72
WEIGHT PER PENETRATION (LBS)			25.57



CONTRACTOR INFORMATION

GRID ALTERNATIVES

LICENSED PROFESSIONAL ENGINEER
MANAN JAYANT BHALJA
C 83841
EXP. 3/31/2027
CIVIL
STATE OF CALIFORNIA

01/23/2026

SYSTEM INFORMATION

58.80kW DC SYSTEM, **60.00kW** AC SYSTEM
MODULES: (98)JA SOLAR JAM72D40-600/MB (600W)
INVERTER(S): (1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
MLPE: (98) AP SMART RSD-S-PLC

PROJECT INFORMATION

NAME: ALCHEMIST PUBLIC MARKET
PROJECT NO: GA-082525
ADDRESS: 341 N. 10TH STREET, SACRAMENTO, CA 95811
COORDINATES: 38.593650, -121.487320
APN: 00101110010000
AHJ: CA-CITY OF SACRAMENTO
UTILITY: SMUD

REVISION

REV	DATE	DESCRIPTION
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DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

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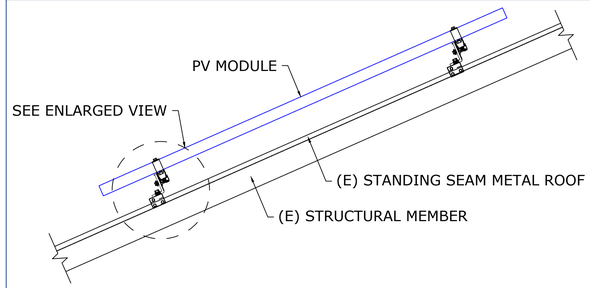
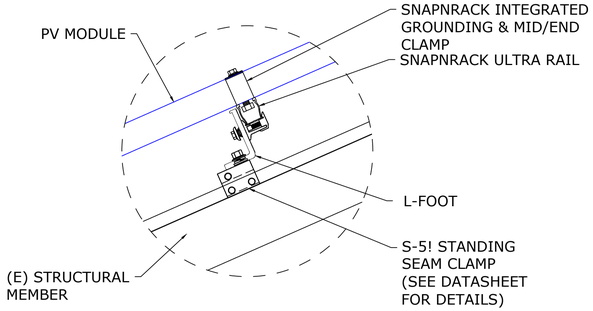
STRUCTURAL DETAILS-1

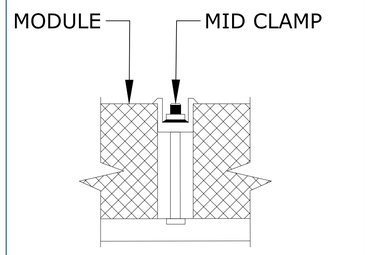
ATTACHMENT DETAILS- S-5-U! STANDING SEAM WITH SNAPNRACK ULTRARAIL

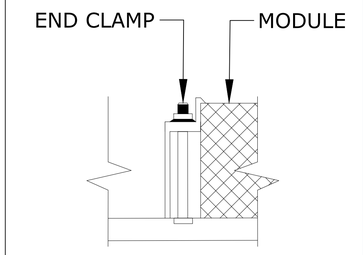


ATTACHMENT DETAIL
Scale: NTS



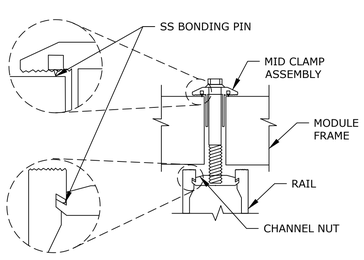
ENLARGED VIEW
Scale: NTS





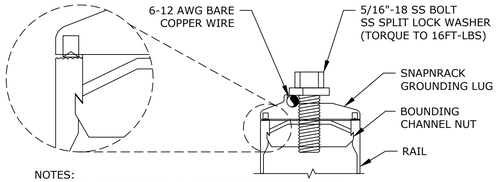
GROUNDING DETAILS

MODULE TO MODULE & MODULE TO RAIL



SNAPNRACK GROUNDING MID-CLAMP
SCALE: NTS

SNAPNRACK GROUNDING



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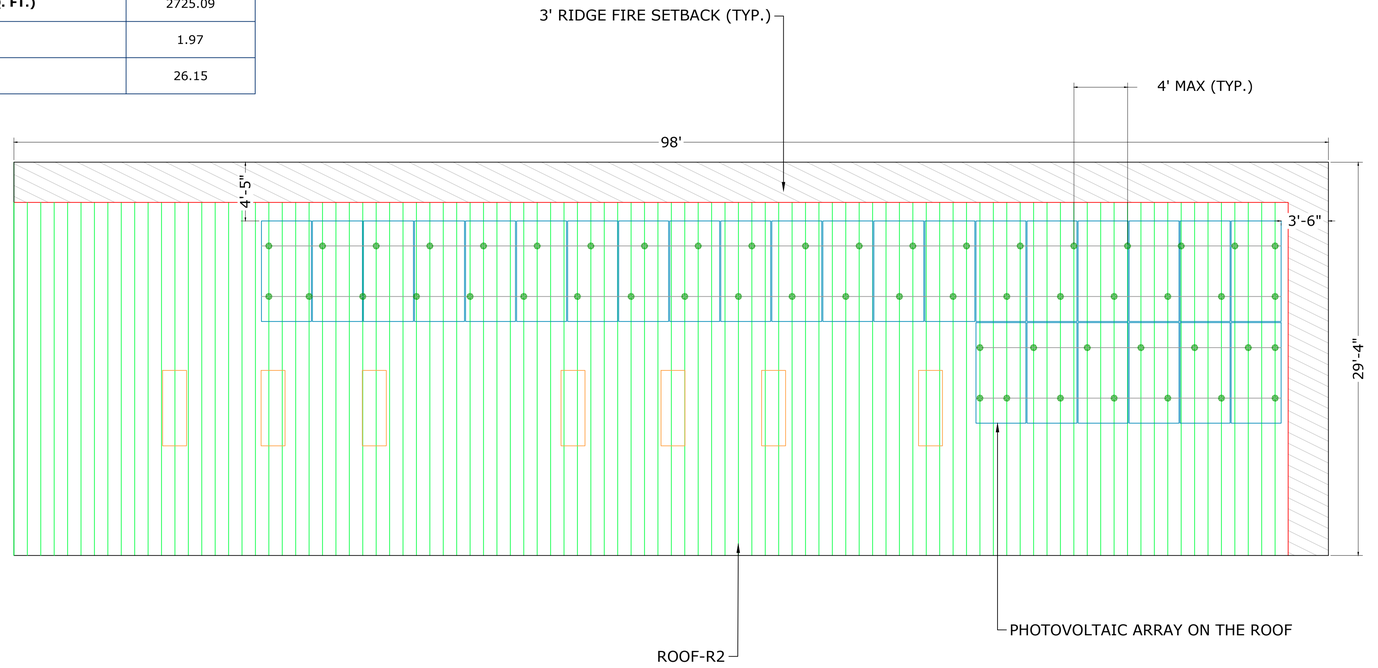
SITE INFORMATION - WIND SPEED: 94 MPH AND SNOW LOAD: 0 PSF

SR. NO	AZIMUTH	PITCH	NO. OF MODULES	ARRAY AREA (SQ. FT.)	ROOF TYPE	ATTACHMENT	ROOF EXPOSURE	FRAME TYPE	SEAM SPACING	MAX RAIL SPAN	MAX CANTILEVER
ROOF - R2	200°	18°	26	723.0	METAL ROOF	S-5-U! STANDING SEAM	ATTIC	METAL SEAM	1'-0"	4'-0"	1'-4"

DEAD LOAD CALCULATIONS

BOM	QUANTITY	LBS/UNIT	TOTAL WEIGHT (LBS)
MODULES	26	46.30	1203.80
MID-CLAMP	50	0.170	8.50
END-CLAMP	4	0.300	1.20
RAIL LENGTH	196	0.790	154.84
SPLICE BAR	14	0.650	9.10
S-5-U! STANDING SEAM	53	0.160	8
TOTAL WEIGHT OF THE SYSTEM (LBS)			1385.92
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			2725.09
WEIGHT PER SQ. FT.(LBS)			1.97
WEIGHT PER PENETRATION (LBS)			26.15



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REVISION

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DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

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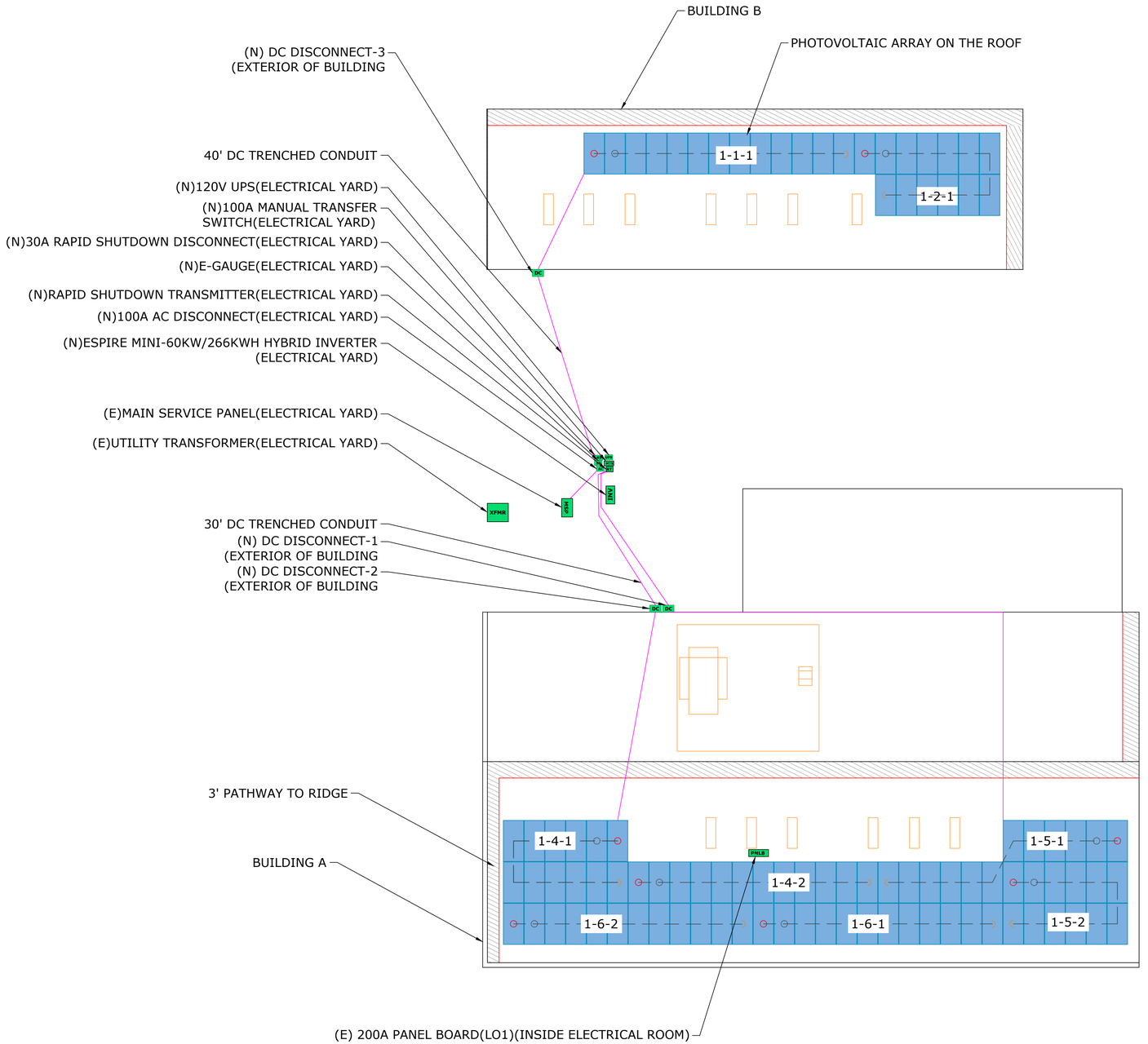
STRUCTURAL DETAILS-2

ELECTRICAL STRINGING LAYOUT :



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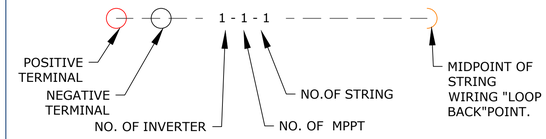

STRING	QTY.
1-1-1	13
1-2-1	13
1-4-1	12
1-4-2	12
1-5-1	12
1-5-2	12
1-6-1	12
1-6-2	12
TOTAL	98

WIRING AND WIRING METHODS:

1. EXPOSED PV SOLAR MODULE WIRING AND PV SOURCE CIRCUITS TO BE UV RESISTANT 1,000V PV WIRE, 90° C, AND RATED FOR WET CONDITIONS.
2. ALL EXPOSED CABLES, SUCH AS MODULE LEADS SHALL BE SECURED IN A NEAT WORKMAN LIKE MANNER TO PREVENT CHAFFING, SWINGING, AND EXCEEDING MINIMUM BEND RADIUS WITH PROPER MECHANICAL SUNLIGHT RESISTANT MEANS AND ROUTED TO AVOID DIRECT EXPOSURE TO SUNLIGHT AT ALL TIMES.
3. ALL FIELD WIRING THAT IS NOT COLOR CODED SHALL BE TAGGED AT BOTH ENDS WITH PERMANENT WIRE MARKERS TO IDENTIFY POLARITY AND GROUND.
4. FLEXIBLE METAL CONDUIT IS SUITABLE FOR INSTALLATION OF AC CONDUCTORS IN DRY LOCATIONS. SHOULD IT BE EMPLOYED, SUPPORTS WILL BE NO MORE THAN 12 INCHES FROM BOXES (JUNCTION BOX, CABINETS OR CONDUIT FITTING) AND NO MORE THAN 48 INCHES APART.
5. LIQUID TIGHT FLEXIBLE METAL AND NON-METALLIC CONDUIT IS SUITABLE FOR INSTALLATION IN WET AND DRY LOCATIONS. SHOULD IT BE EMPLOYED, SUPPORTS WILL BE NO MORE THAN 12 INCHES FROM BOXES (JUNCTION BOX, CABINETS, OR CONDUIT FITTING) AND NO MORE THAN 36 INCHES APART.
6. PVC CONDUIT AND FITTINGS SHALL NOT BE USED ON ROOFTOP CONDITIONS OR EXPOSED TO DIRECT SUNLIGHT.WHEN USED IN ACCEPTABLE LOCATION CONDUIT SHALL BE SCHEDULE 80 UV RESISTANT UNLESS NOTED OTHERWISE.
7. FUSES AND WIRES SUBJECT TO TEMPERATURES CONDITIONS GREATER THAN 100°F OR TRANSFORMER INRUSH CURRENT SHALL BE SIZED ACCORDINGLY.
8. THE PHOTOVOLTAIC SOURCE CIRCUITS AND PHOTOVOLTAIC OUTPUT CIRCUITS OF THIS PROPOSED SOLAR SYSTEM SHALL NOT BE CONTAINED IN THE SAME RACEWAY CABLE TRAY, CABLE, OUTLET BOX, JUNCTION BOX, OR SIMILAR FITTING AS FEEDERS OR BRANCH CIRCUITS OF OTHER SYSTEMS UNLESS THE CONDUCTORS OF THE DIFFERENT SYSTEMS ARE SEPARATED BY A PARTITION OR ARE CONNECTED TOGETHER.
9. ALL TERMINATIONS SHALL HAVE ANTI-OXIDANT COMPOUND AND BE TORQUED PER DEVICE LISTING, OR MANUFACTURER'S RECOMMENDATIONS.
10. NO PVC CONDUIT ALLOWED ON ROOF, UNLESS OPEN ENDED WIRE MANAGEMENT <10'.

CONTRACTOR INFORMATION

GRID ALTERNATIVES

REGISTERED PROFESSIONAL ENGINEER
THOMAS LUONG
E22478
ELECTRICAL
STATE OF CALIFORNIA
01/26/2026

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INVERTER(S): (1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
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REVISION

REV	DATE	DESCRIPTION
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SCALE: 1/8" = 1'-0"
DATE: 1/21/2026 | PAGE NO: E-1.0
DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

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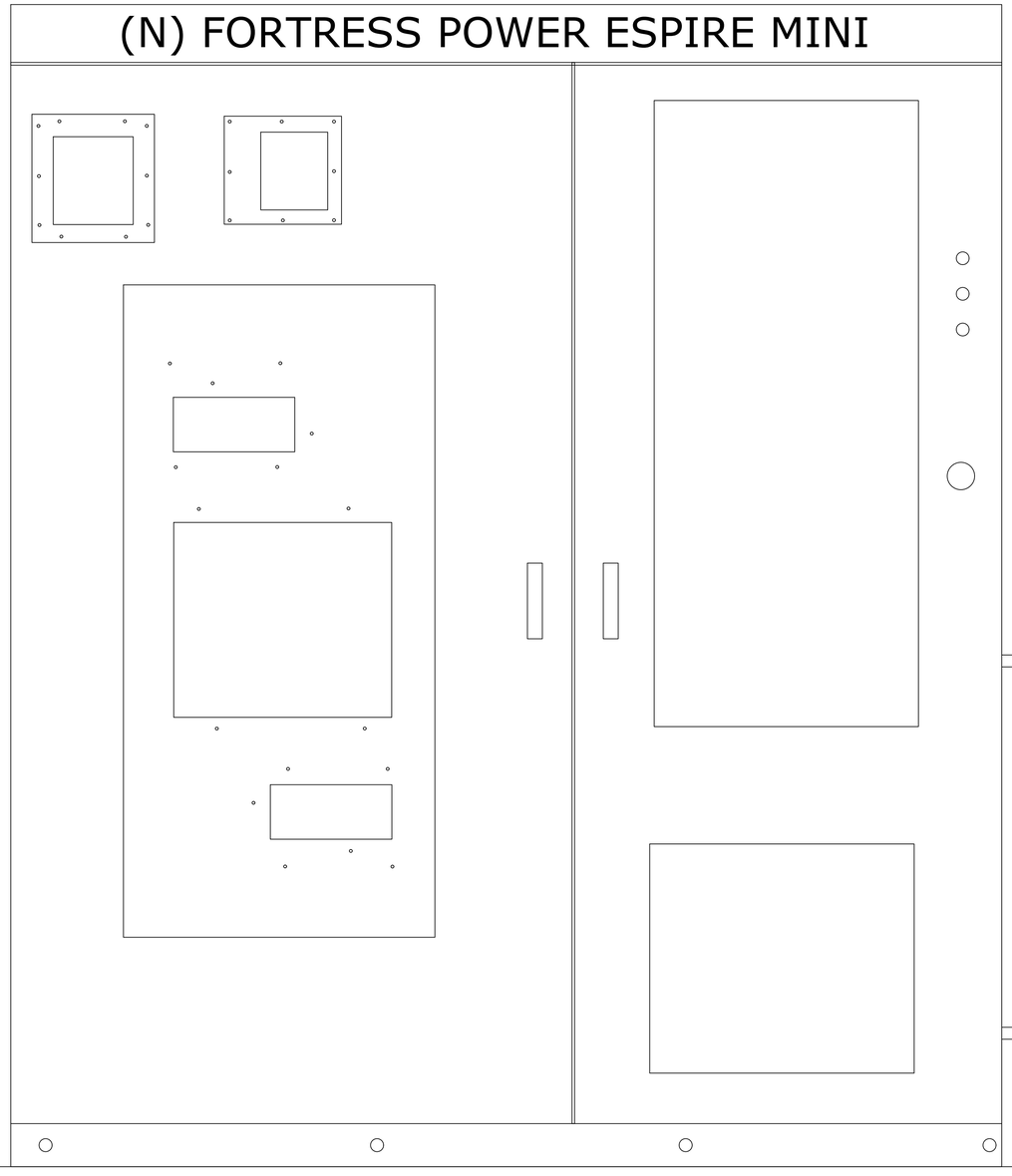
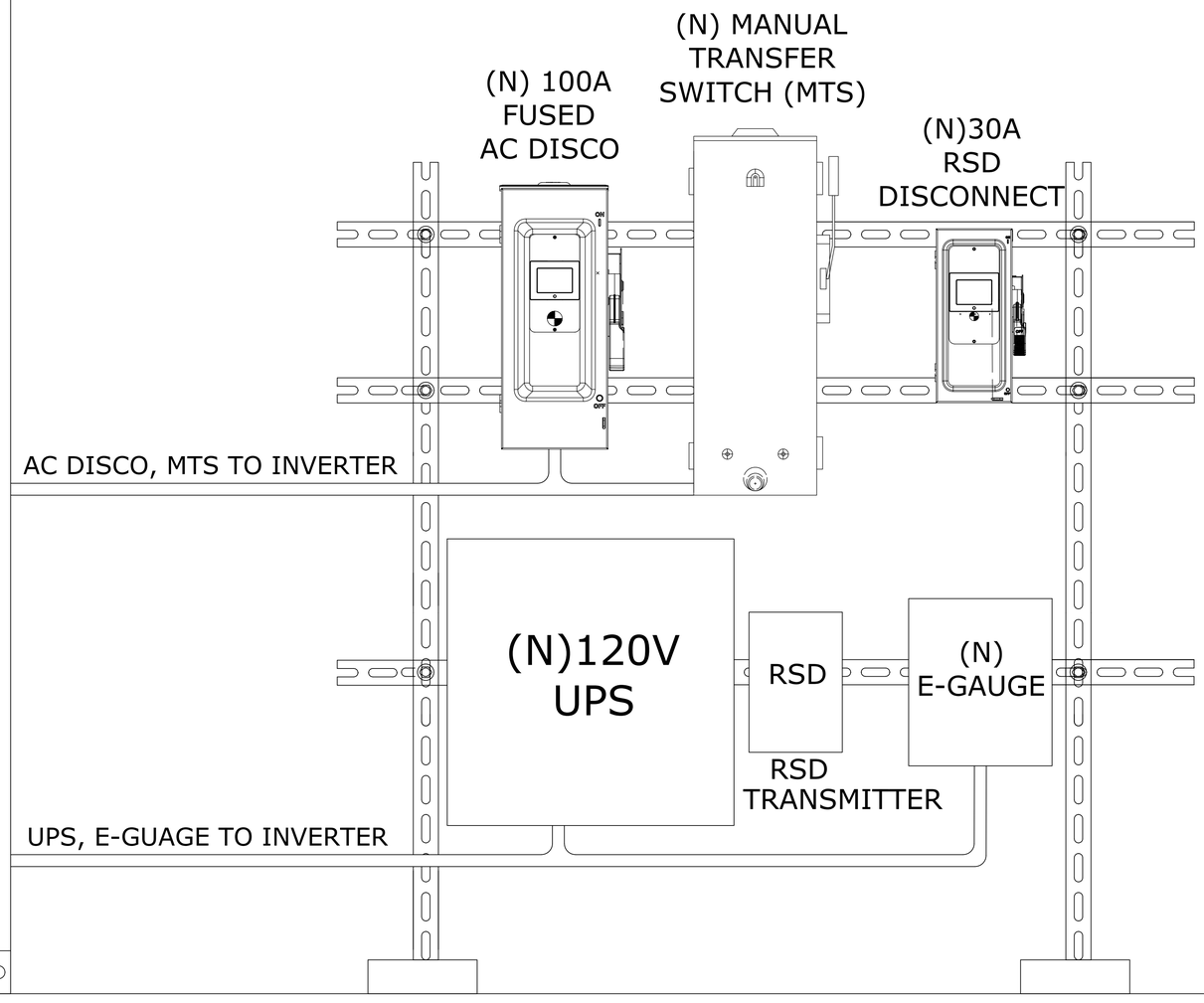
ELECTRICAL STRINGING LAYOUT

ELECTRICAL ELEVATION DETAILS:

EQUIPMENT ELEVATION DETAILS (ELECTRICAL YARD)





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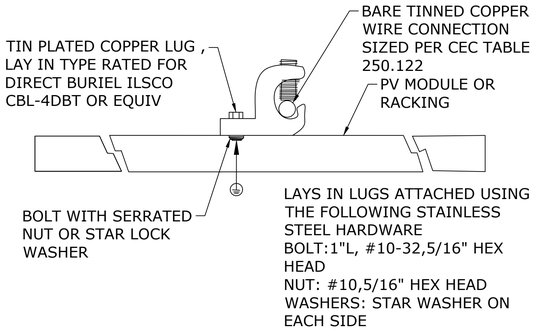
ELECTRICAL ELEVATION DETAILS

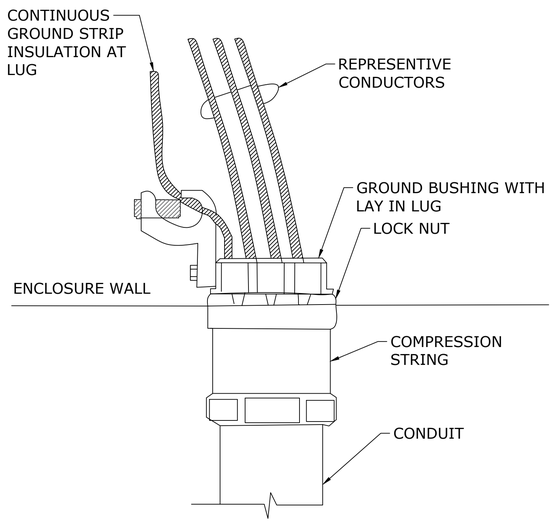
ELECTRICAL MOUNTING DETAILS:

GROUND LUG DETAILS

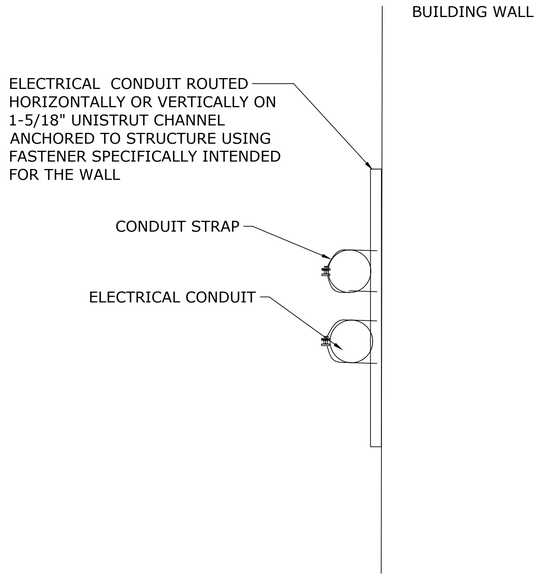


NOTE: DETAIL DRAWINGS ARE FOR REFERENCE ONLY

CONDUIT BODY GROUNDING DETAILS



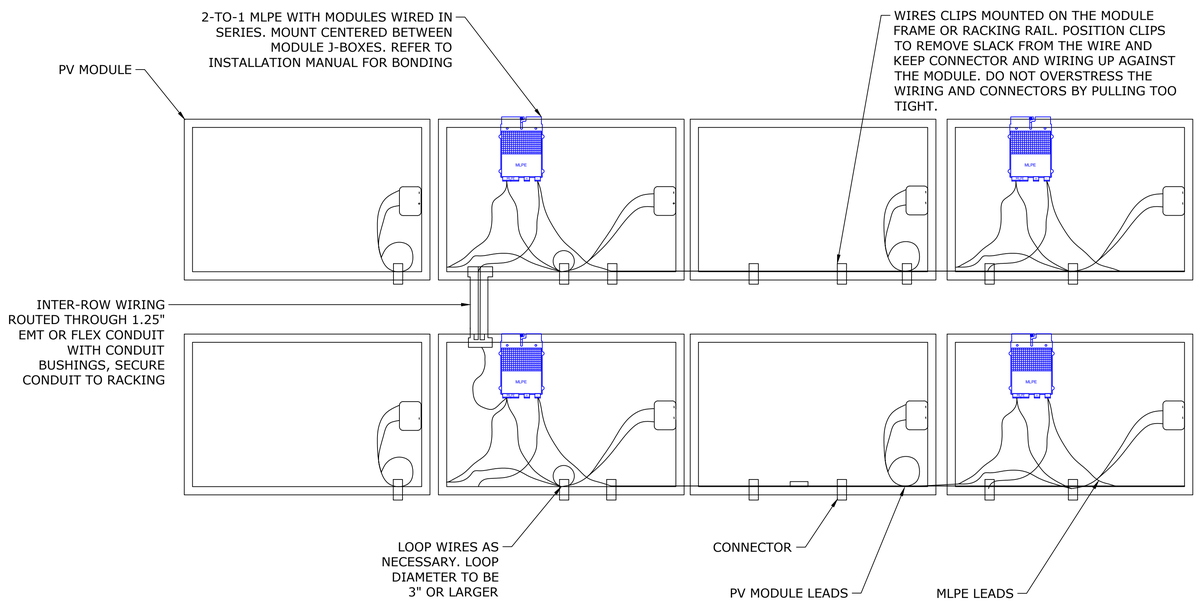
CONDUIT WALL ANCHORING



GROUNDING - SEE ELECTRICAL DIAGRAM AND ELECTRICAL DETAILS FOR MORE GROUNDING INFORMATION:

1.ONLY ONE CONNECTION TO DC CIRCUITS AND AC CIRCUITS WILL BE USED FOR SYSTEM GROUNDING (REFERENCED TO THE SAME POINT).
2.EQUIPMENT GROUNDING CONDUCTORS AND SYSTEM GROUNDING ELECTRODE CONDUCTORS WILL HAVE AS SHORT A DISTANCE TO THE GROUNDING CONNECTION POINT AS PRACTICABLE AND A MINIMUM NUMBER OF TURNS.
3.TO ENSURE PROPER GROUNDING, NON-CURRENT CARRYING METAL PARTS SHALL BE INSTALLED, NOTING THAT PAINT AND FINISH SHALL BE PROPERLY REMOVED WHERE IT MAY INSULATE AN ENCLOSURES BONDING CONNECTION.APPLY NO-LOX OR OTHER SIMILAR ANTI-OXIDANT COMPOUND TO EXPOSED SURFACES.
4.THE CONNECTION TO THE MODULE OF THE PROPOSED SOLAR ELECTRIC SYSTEM SHALL BE SO ARRANGED THAT REMOVAL OF A MODULE FROM THE PHOTOVOLTAIC SOURCE CIRCUIT DOES NOT INTERRUPT A GROUND TO ANOTHER PHOTOVOLTAIC SOURCE CIRCUIT.
5.GROUNDING SYSTEM COMPONENTS SHALL BE APPROVED FOR THEIR PURPOSE, INCLUDING BUT NOT LIMITED TO GROUND RODS, GROUNDING LUGS, GROUNDING CLAMPS, ETC. GROUNDING DEVICES EXPOSED TO THE ENVIRONMENT SHALL BE RATED FOR DIRECT BURIAL.
6.UNDERGROUND OR INACCESSIBLE CONNECTIONS OF GROUNDING CONDUCTORS SHALL ONLY BE MADE VIA EXO-THERMIC WELDS. THE USE OF MECHANICAL CONNECTIONS ARE ACCEPTABLE FOR ACCESSIBLE ABOVE GROUND LOCATIONS.
7.ALL METALLIC CONDUITS SHALL BE INSTALLED AND TERMINATED WITH INSULATED GROUND BUSHINGS.

STRINGING WIRING



CONTRACTOR INFORMATION

GRID ALTERNATIVES

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DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

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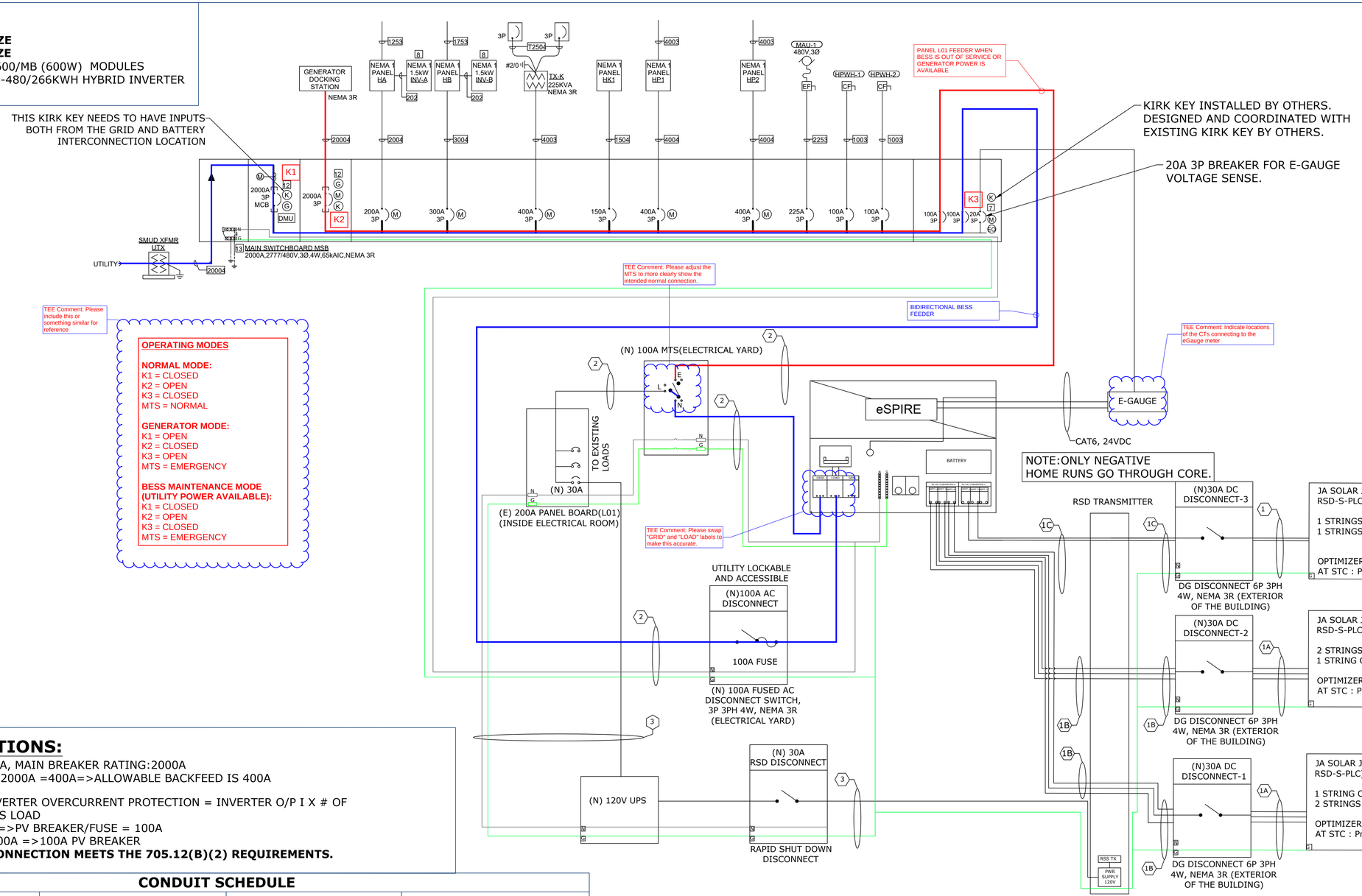
ELECTRICAL MOUNTING DETAILS

ELECTRICAL LINE DIAGRAM:

SYSTEM INFO:

58.80 kW **DC SYSTEM SIZE**
60.00 kW **AC SYSTEM SIZE**
(98)JA SOLAR JAM72D40-600/MB (600W) MODULES
(1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
(98) AP SMART RSD-S-PLC



TEE Comment: Please include this or something similar for reference

OPERATING MODES

NORMAL MODE:
K1 = CLOSED
K2 = OPEN
K3 = CLOSED
MTS = NORMAL

GENERATOR MODE:
K1 = OPEN
K2 = CLOSED
K3 = OPEN
MTS = EMERGENCY

BESS MAINTENANCE MODE (UTILITY POWER AVAILABLE):
K1 = CLOSED
K2 = OPEN
K3 = CLOSED
MTS = EMERGENCY

OCPD CALCULATIONS:

MAIN PANEL RATING:2000A, MAIN BREAKER RATING:2000A
120% RULE: (2000AX1.2)-2000A =400A=>ALLOWABLE BACKFEED IS 400A

OCPD CALCULATIONS: INVERTER OVERCURRENT PROTECTION = INVERTER O/P I X # OF INVERTERS X CONTINUOUS LOAD
=(72.2AX1)X1.25=90.25A=>PV BREAKER/FUSE = 100A
ALLOWABLE BACKFEED 400A =>100A PV BREAKER
THE DESIGNED INTERCONNECTION MEETS THE 705.12(B)(2) REQUIREMENTS.

CONDUIT SCHEDULE

TAG ID	NO OF PARALLEL FEEDERS	MIN CONDUIT SIZE	CONDUCTOR	NEUTRAL	GROUND
1	-	1-1/4" EMT/PVC	(4) 10 AWG PV WIRE 2K	NONE	(1) 6 AWG BARE COPPER
1A	-	1-1/4" EMT/PVC	(6) 10 AWG PV WIRE 2K	NONE	(1) 6 AWG BARE COPPER
1B	-	1-1/4" EMT/PVC	(6) 10 AWG XHHW-2 (CU)	NONE	(1) 6 AWG BARE COPPER
1C	-	1-1/4" EMT/PVC	(4) 10 AWG XHHW-2 (CU)	NONE	(1) 6 AWG BARE COPPER
2	-	1-1/4" EMT	(3) 3 AWG THHN/THWN-2 (CU)	(1) 3 AWG THHN/THWN-2 (CU)	(1) 8 AWG THHN/THWN-2 (CU)
3	-	3/4" EMT	(3) 10 AWG THHN/THWN-2 (CU)	(1) 10 AWG THHN/THWN-2 (CU)	(1) 8 AWG THHN/THWN-2 (CU)

MODULE SPECIFICATION

MODEL	JA SOLAR JAM72D40-600/MB (600W)
MODULE POWER @ STC	600W
OPEN CIRCUIT VOLTAGE (Voc)	54.30V
MAX POWER VOLTAGE (Vmp)	45.50V
SHORT CIRCUIT VOLTAGE (Isc)	14.15A
MAX POWER CURRENT (Imp)	13.19A

INVERTER SPECIFICATION

MODEL	ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
POWER RATING	60000W
MAX OUTPUT CURRENT	72.2A
MAX DC VOLTAGE	830V

MLPE SPECIFICATION

MODEL	AP SMART RSD-S-PLC
MAX INPUT VOLTAGE	80 VDC
MAX OUTPUT CURRENT	15 ADC

CONTRACTOR INFORMATION

GRID ALTERNATIVES

REGISTERED PROFESSIONAL ENGINEER
THOMAS LUONG
E22478
ELECTRICAL
STATE OF CALIFORNIA
01/26/2026

SYSTEM INFORMATION

58.80kW DC SYSTEM, **60.00kW** AC SYSTEM
MODULES: (98)JA SOLAR JAM72D40-600/MB (600W)
INVERTER(S): (1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
MLPE: (98) AP SMART RSD-S-PLC

PROJECT INFORMATION

NAME: ALCHEMIST PUBLIC MARKET
PROJECT NO: GA-082525
ADDRESS: 341 N. 10TH STREET, SACRAMENTO, CA 95811
COORDINATES: 38.593650, -121.487320
APN: 00101110010000
AHJ: CA-CITY OF SACRAMENTO
UTILITY: SMUD

REVISION

REV	DATE	DESCRIPTION
A	1/21/2026	PERMIT PLANS

SCALE: NTS
DATE: 1/21/2026 | PAGE NO: E-1.3
DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

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ELECTRICAL LINE DIAGRAM-1

ELECTRICAL CALCULATIONS:

SYSTEM INFO:

58.80 kW DC SYSTEM SIZE
60.00 kW AC SYSTEM SIZE
(98)JA SOLAR JAM72D40-600/MB (600W) MODULES
(1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
(98)AP SMART RSD-S-PLC

SYSTEM CHARACTERISTICS:

OPERATING VOLTAGE	=	(MODULE V_{MP}) X (# MODULES / STRING) =45.50V X 13=591.50V
MAX OPEN CIRCUIT VOLTAGE	=	{[((TEMP COEF V_{OC}) X (V_{OC})) / 100] X [LOW TEMP - STC TEMP] + V_{OC}} X (# MODULES / STRING)
	=	[(-0.275 %/°C X54.30V) / 100] X [-3°C - 25 °C] +54.30V} X 13=760.25V
OPERATING CURRENT	=	(MODULE I_{MP}) * (# STRINGS) =13.19A X 6=79.14A
SHORT CIRCUIT CURRENT	=	1.25 X (MODULE I_{SC}) X (# STRINGS) = 1.25 X 14.15 A X 6=106.13A

DC WIRE SIZING

MAX CIRCUIT CURRENT = (MODULE I_{SC}) X (HIGH IRRADIANCE)[690.8(A)(1)] X (CONTINUOUS LOAD)[690.53]

=	14.15	X	1.25	X	1.25	=	22.11A				

ADJUSTED CONDUCTOR AMPACITY = (HIGH TEMP) [PER TABLE 310.15(B)(2)(a)] X (CONDUIT FILL) [PER TABLE 310.15(B)(3)(a)] X (CONDUCTOR AMPACITY) [PER TABLE 310.15(B)(16)]

=	0.91	X	0.8	X	40	=	29.12A				

TERMINAL RATING, [PER NEC 110.14(C)] - 10 AWG, 75°C RATED						=	35.00A
35.00A	>	22.11A	SO THE TERMINAL RATING GOVERNS THE CONDUCTOR SIZING				
ALSO,		29.12A	>	22.11A	, AND 10 AWG IS SUFFICIENT.		

AC WIRE SIZING:

MAX AC OUTPUT CURRENT = (MAX INVERTER OUTPUT) X (CONTINUOUS LOAD) [PER NEC 690.52]

=	72.2	X	1.25	=	90.25A						

ADJUSTED CONDUCTOR AMPACITY = (HIGH TEMP) [PER TABLE 310.15(B)(2)(a)] X (CONDUIT FILL) [PER TABLE 310.15(B)(3)(a)] X (CONDUCTOR AMPACITY) [PER TABLE 310.15(B)(16)]

=	0.91	X	1.0	X	115	=	104.65A				

TERMINAL RATING, [PER NEC 110.14(C)] - 3 AWG, 75°C RATED						=	100.00A
100.00A	>	90.25A	SO THE TERMINAL RATING GOVERNS THE CONDUCTOR SIZING				
ALSO,		104.65A	>	90.25A	, AND 3 AWG IS SUFFICIENT.		

INVERTER OVER CURRENT PROTECTION = (INVERTER MAX CURRENT) X (CONTINUOUS LOAD)

=	72.2	X	1.25	=	90.25A	->	100A OVERCURRENT PROTECTION				

MODULE SPECIFICATION

MODEL	JA SOLAR JAM72D40-600/MB (600W)
MODULE POWER @ STC	600W
OPEN CIRCUIT VOLTAGE (Voc)	54.30V
MAX POWER VOLTAGE (Vmp)	45.50V
SHORT CIRCUIT VOLTAGE (Isc)	14.15A
MAX POWER CURRENT (Imp)	13.19A

INVERTER SPECIFICATION

MODEL	ESPIRE MINI-60-90-266-480/266 KWH HYBRID INVERTER
POWER RATING	60000W
MAX OUTPUT CURRENT	72.2A
MAX DC VOLTAGE	830V

MLPE SPECIFICATION

MODEL	AP SMART RSD-S-PLC
MAX INPUT VOLTAGE	80 VDC
MAX OUTPUT CURRENT	15 ADC

ELECTRICAL NOTE:

1.THIS INSTALLATION IS TO BE CONSIDERED SUPERVISED.ALL NEW ADDITIONS AND ALTERATIONS TO ANY EQUIPMENT IDENTIFIED IN THIS DOCUMENT MUST BE MADE WITH ENGINEERING SUPERVISION AND ALL WORK MUST BE COMPLETED BY QUALIFIED PERSONNEL.
2.ALL EQUIPMENT AND TERMINALS MUST BE MINIMUM 75°C RATED.
3.ALL CONDUCTORS ARE COPPER, UNLESS OTHERWISE SPECIFIED.
4.ALL TERMINATIONS OF ALUMINUM CONDUCTORS SHALL BE PROPERLY INSTALLED WITH BEST PRACTICE PROCEDURES THAT INCLUDE BUT NOT LIMITED TO: USE OF TERMINATION EQUIPMENT RATED FOR ALUMINUM AT THE CONDUCTOR TEMPERATURE, CURRENT, AND VOLTAGE; ALLOWANCE FOR MOVEMENT DUE TO THERMAL EXPANSION/CONTRACTION; EXPOSED ALUMINUM SHALL BE PROPERLY COATED WITH ANTI-OXIDATION COMPOUND; TERMINALS ARE TORQUE AND MARKED TO REQUIRED SETTINGS WITH CALIBRATED DEVICE.
5.TAP DISCONNECTS ARE WITHIN THE 10 FOOT PER TAP RULE.
6.TAPS ARE MADE USING LISTED DEVICES.

VOLTAGE DROP CALCULATION:

DC VOLTAGE DROP CALCULATION

SOURCE	TERMINATION	TAG	CONDUIT TYPE	CURRENT (ISC)	STRING VOLTAGE AT 2%DB (VMP)	#SET OF PARALLEL CONDUCTOR	CONDUCTOR	CONDUCTOR MATERIAL	RESISTENCE AT 75 DEG C	RESISTENCE AT 2%DB	MAX CONDUTOR LENGTH(ft)	%V.DROP
MODULES	INVERTER	1&1A	EMT/PVC	14.15	591.5	1	C AWG 10	Cu	0.00124	0.001075787	50	0.26%
MODULES	INVERTER	1B&1C	EMT/PVC	14.15	591.5	1	C AWG 10	Cu	0.00124	0.001075787	60	0.31%
											AVERAGE Vdrop	0.28%

3 PHASE AC VOLTAGE DROP CALCULATION

SOURCE	TERMINATION	TAG	CONDUIT TYPE	CURRENT	VOLTAGE	#SET OF PARALLEL CONDUCTOR	CONDUCTOR	CONDUCTOR MATERIAL	RESISTANCE AT 75 DEG C	RESISTANCE AT 2%DB	MAX CONDUTOR LENGTH(ft)	%V.DROP
INVERTER	FUSED AC DISCONNECT	2	EMT	72.2	480	1	G AWG 03	Cu	0.00025	0.000216893	10	0.06%
INVERTER	MANUAL TRANSFER SWITCH	2	EMT	72.2	480	1	G AWG 03	Cu	0.00025	0.000216893	10	0.06%
				COLLECTION TO POI								
FUSED AC DISCONNECT	POI	2	EMT	72.2	480	1	G AWG 03	Cu	0.00025	0.000216893	10	0.06%
											AVERAGE Vdrop	0.11%
											TOTAL AVERAGE SYSTEM VDROP	0.40%

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DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

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ELECTRICAL CALCULATIONS

ELECTRICAL PLACARDS:

⚠ WARNING

ELECTRIC SHOCK HAZARD

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

DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION
AC DISCONNECT,POINT OF INTERCONNECTION
[PER CODE: CEC 690.13(B)]

WARNING-ELECTRIC SHOCK HAZARD
NO USER SERVICEABLE PARTS INSIDE
CONTACT AUTHORIZED SERVICE
PROVIDE FOR ASSISTANCE

LABEL LOCATION
INVERTER, JUNCTION BOXES(ROOF),
AC DISCONNECT
[PER CODE: CEC 690.13]

WARNING:PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION
CONDUIT, COMBINER BOX
[PER CODE: CEC690.31(G)(3)]

MAXIMUM DC VOLTAGE

OF PV SYSTEM

LABEL LOCATION: DC
DISCONNECT/INVERTER/PV
DIST. EQUIPMENT
PER CODE: CEC 690.53

MAXIMUM SYSTEM VOLTAGE(Voc) 830 V

LABEL LOCATION
DC DISCONNECT[PER CODE: CEC 690.53]

PV SYSTEM

DISCONNECT

LABEL LOCATION
DC DISCONNECT
[PER CODE: CEC690.13(B)]

SYSTEM LABELING REQUIREMENTS:
LABELS MUST BE OF REFLECTIVE PHENOLIC MATERIAL WITH WHITE LETTERS AND RED BACKGROUND.
LABELS TO BE MECHANICALLY FASTENED AND PLACED AS REQUIRED PER NEC 690.
LABELS TO BE IN A CAPITALIZED ARIAL FONT WITH A MINIMUM OF 3/8" IN HEIGHT.
DC CONDUIT LABEL MADE OF DURABLE ADHESIVE MATERIALS PLACED EVERY 10 FEET AND NEAR ALL JUNCTIONS AND PENETRATIONS.
LABELS SHOWN FOR REFERENCE ONLY, CONTRACTOR RESPONSIBLE TO MEET LOCAL AUTHORITY AND UTILITY REQUIREMENTS.

WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVER-CURRENT DEVICE

LABEL LOCATION
POINT OF INTERCONNECTION
(PER CODE: CEC 705.12(B)(2)
[NOT REQUIRED IF PANEL BOARD IS RATED NOT LESS THAN SUM OF AMPERE RATINGS OF ALL OVERCURRENT DEVICES SUPPLYING IT]

MAIN PV SOLAR DISCONNECT

LABEL LOCATION
DISCONNECT, POINT OF INTERCONNECTION
[PER CODE: CEC690.13(B)]

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION
INVERTER
[PER CODE: CEC 690.12(D)(2)]

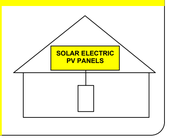
PHOTOVOLTAIC SYSTEM AC DISCONNECT SWITCH

RATED AC OPERATING CURRENT 72.20 AMPS AC
AC NOMINAL OPERATING VOLTAGE 208 VAC

LABEL LOCATION
AC DISCONNECT , POINT OF INTERCONNECTION
[PER CODE: CEC 690.54]

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
AC DISCONNECT , DC DISCONNECT,POINT OF INTERCONNECTION
(PER CODE: CEC690.56(C)(1)(A))

⚠ WARNING
DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION
POINT OF INTERCONNECTION
[PER CODE: CEC705.12(D)(4)]

CAUTION: SOLAR CIRCUIT

LABEL LOCATION
MARKINGS PLACED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLES AT LEAST EVERY 10 FT, AT TURNS AND ABOVE/BELOW PENETRATIONS AND ALL COMBINER/JUNCTION BOXES.
(PER CODE: IFC605.11.1.4)

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL LOCATION
WEATHER RESISTANT MATERIAL, DURABLE ADHESDIVE, UL969 AS STANDARD TO WEATHER RATING (UL LISTING OF MARKINGS NOT REQUIRED), MIN 3/8" LETTER HEIGHT ARIAL OR SIMILAR FONT NON-BOLD,PLACED WITHIN THE MAIN SERVICE DISCONNECT,PLACED ON THE OUTSIDE OF THE COVER WHEN DISCONNECT IS OPERATED WITH THE SERVICE PANEL CLOSED.
(PER CODE: CEC690.15 ,690.13(B))

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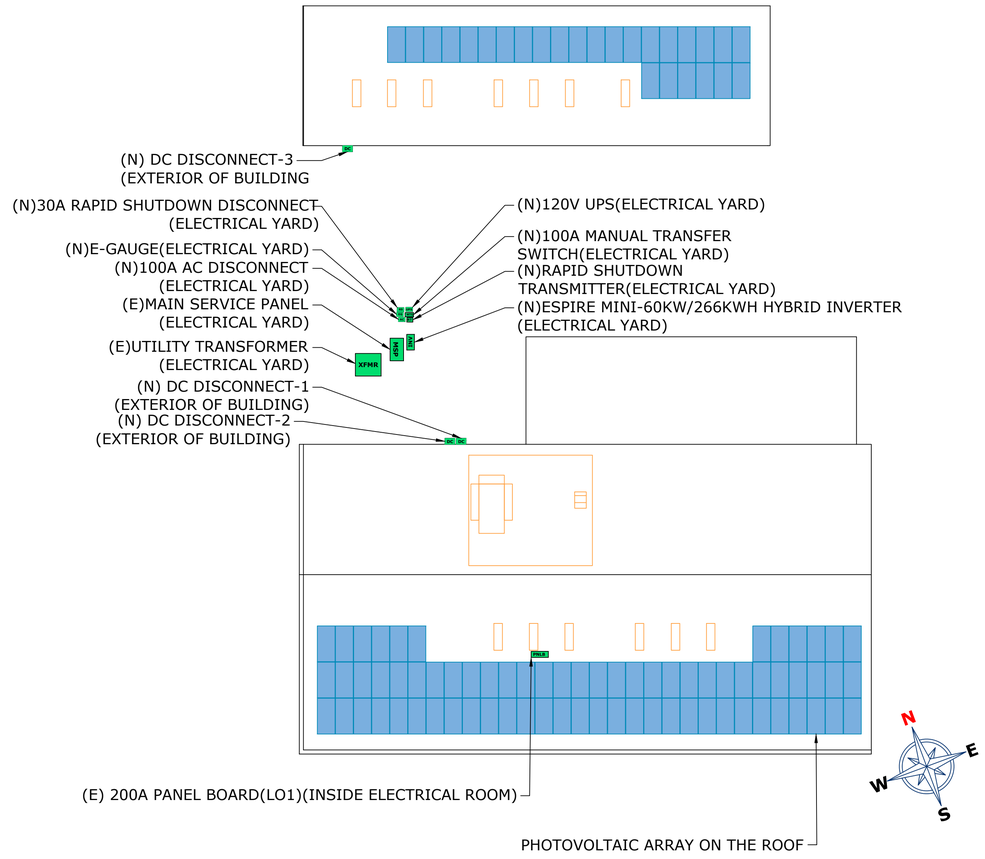
ELECTRICAL PLACARDS

ELECTRICAL PLACARDS:

WARNING: ⚠

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



ALL PLACARDS SHALL BE OF WEATHER PROOF CONSTRUCTION, BACKGROUND ON ALL PLACARDS SHALL BE RED WITH WHITE LETTERING U.O.N.
PLACARD SHALL BE MOUNTED DIRECTLY ON THE EXISTING UTILITY ELECTRICAL SERVICE.
FASTENERS APPROVED BY THE LOCAL JURISDICTION

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ELECTRICAL PLACARDS

SPECSHEETS

Harvest the Sunshine 605W

JA SOLAR

ASSEMBLED IN THE USA

JAM72D40 MB-US n-Type Double Glass Bifacial Modules

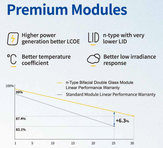
Premium Cells

n-Bycium+ 16BB — MBB Half-Cell Technology

26% (Up To) — Cell Conversion Efficiency

Premium Modules

- Higher power generation better LCOE
- n-type with very lower LID
- Better temperature coefficient
- Better low irradiance response

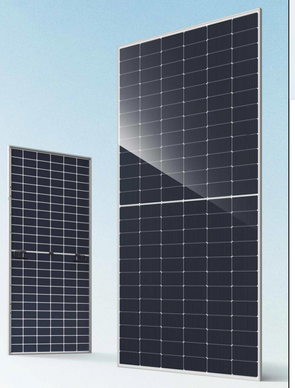


1% 1st year Degradation — 0.4% Annual Degradation Over 30 years

12 year product warranty — 30 year linear power output warranty

Comprehensive Certificates

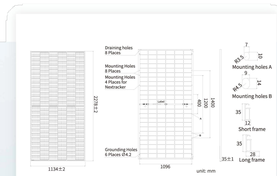
- IEC 61215, IEC 61730, UL 61215, UL 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems
- IEC 62941: 2019 Terrestrial photovoltaic (PV) modules - Quality system for PV module manufacturing



DEEP BLUE 4.0 PV

JAM72D40 MB-US n-Type Double Glass Bifacial Modules

DEEP BLUE 4.0



MECHANICAL PARAMETERS

Cell	Mono
Weight	31.8kg
Dimensions	2278±2mm×1134±2mm×35±1mm
Cable Cross Section Size	4mm²(IEC), 12 AWG(UL)
No. of cells	144(6×24)
Junction Box	IP68, 3diodes
Connector	QC 4.10-35U MC4-EVO2
Cable Length (Including Connector)	1300mm(+)/1300mm(-)
Front Glass/Back Glass	2.0mm/2.0mm
Packaging Configuration	31pcs/Pallet, 589pcs/40HQ Container

Customized frame color and cable length available upon request

ELECTRICAL PARAMETERS AT STC

TYPE	JAM72D40 -580/MB-US	JAM72D40 -585/MB-US	JAM72D40 -590/MB-US	JAM72D40 -595/MB-US	JAM72D40 -600/MB-US	JAM72D40 -605/MB-US
Rated Maximum Power(Pmax) [W]	580	585	590	595	600	605
Open Circuit Voltage (Voc) [V]	53.50	53.70	53.90	54.10	54.30	54.50
Maximum Power Voltage(Vmp) [V]	44.70	44.90	45.10	45.30	45.50	45.70
Short Circuit Current(Isc) [A]	13.95	14.00	14.05	14.10	14.15	14.20
Maximum Power Current(Imp) [A]	12.98	13.03	13.09	13.14	13.19	13.24
Module Efficiency [%]	22.5	22.6	22.8	23.0	23.2	23.4
Power Tolerance	0~+3%					
Temperature Coefficient of Isc(α_Isc)	+0.045%/°C					
Temperature Coefficient of Voc (β_Voc)	-0.250%/°C					
Temperature Coefficient of Pmax(γ_Pmp)	-0.290%/°C					
STC	Irradiance 1000W/m², cell temperature 25°C, AM1.5G					

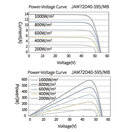
Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

ELECTRICAL CHARACTERISTICS WITH 10% SOLAR IRRADIATION RATIO

TYPE	JAM72D40 -580/MB-US	JAM72D40 -585/MB-US	JAM72D40 -590/MB-US	JAM72D40 -595/MB-US	JAM72D40 -600/MB-US	JAM72D40 -605/MB-US
Rated Max Power(Pmax) [W]	626	632	637	643	648	653
Open Circuit Voltage(Voc) [V]	53.50	53.70	53.90	54.10	54.30	54.50
Max Power Voltage(Vmp) [V]	44.70	44.90	45.10	45.30	45.50	45.70
Short Circuit Current(Isc) [A]	15.07	15.12	15.17	15.23	15.28	15.34
Max Power Current(Imp) [A]	14.02	14.07	14.14	14.19	14.25	14.30
Irradiation Ratio (rear/front)	10%					

* For Nextracker installations, maximum static load please take compatibility approve letter between JA Solar and Nextracker for reference.

CHARACTERISTICS



OPERATING CONDITIONS

Maximum System Voltage	1500V DC
Operating Temperature	-40°C~+85°C
Maximum Series Fuse Rating	30A
Maximum Static Load, Front*	5400Pa(112 lb/ft²)
Maximum Static Load, Back*	2400Pa(50 lb/ft²)
NOCT	45±2°C
Bifaciality	80%±5%
Safety Class	Class II
Fire Performance	UL Type 29/Class C

USA Subsidiary JA Solar USA
2570 North First Street, Suite 360 San Jose,CA 95131,USA
Tel:1-408-586-0000 Fax:1-408-956-9505
E-mail: sales@jasolar.com marketing@jasolar.com www.jasolar.com

Version No.: Global-EN-20250627A

APsmart

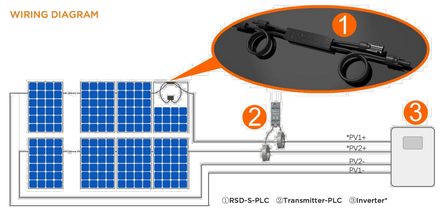
Raising the bar in innovative DC MLPE solar power systems

RSD-S-PLC

RAPID SHUTDOWN DEVICE

- ✓ Meets NEC 2017, 2020&2023 (690.12) requirements
- ✓ Executes rapid shutdown of system when Transmitter-PLC signal is absent
- ✓ Meets SunSpec requirements

WIRING DIAGRAM



①RSD-S-PLC ②Transmitter-PLC ③Inverter*

*Homerun only PV+ cable through core.
*If the inverter includes an integrated SunSpec-certified Rapid Shutdown Transmitter, remove the external transmitter-PLC in the wiring diagram.

The RSD-S-PLC meets SunSpec requirements, maintaining normal function by continually receiving a heartbeat signal from the APsmart Transmitter. The RSD executes rapid system shutdown when the Transmitter signal is absent. Users can manually execute rapid shutdown using Transmitter breaker switch.*(1)(2)

*(1) RSD-S-PLC does not have automatic shutdown function for arc detection. When the system is abnormal, the transmitter signal is cut off by pulling the gate, which triggers shutdown.
*(2) RSD-S-PLC is designed to reduce the risk of fire suppression but does not solve the risk of a arc fire.

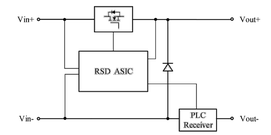
REV3.2 2025-06-16

TECHNICAL DATA

MODEL	RSD-S-PLC
INPUT DATA (DC)	
Input Operating Voltage Range	10.5-80V
Maximum Cont. Input Current (Imax)	15A
Maximum Short Circuit Current (Isc)	25A*
OUTPUT DATA (DC)	
Output Operating Voltage Range	10.5-80V
Maximum System Voltage	1000V/1500V
Maximum Series Fuse Rating	30A
MECHANICAL DATA	
Operating Ambient Temperature Range	-40°F to +185°F (-40 °C to + 85 °C)
Dimensions (without cable & connectors)	5.5" x 1.3" x 0.7"(140 mm x 32 mm x 18 mm)
Cable Length	Input 250mm/Output 1200mm
Cable Cross Section Size	UL:12AWG
Connector	Input: Stäubli MC4 PV-KBT4&KST4 or Customized Output: APsystems specified or Customized
Enclosure Rating	NEMA Type 6P/IP68
Protection Temperature	100°C
FEATURES & COMPLIANCE	
Communication	PLC
Safety Compliance	NEC 2017, 2020&2023 (690.12); UL1741; CSA C22.2 No. 330-17; IEC/EN62109-1; 2PFG2305
EMC Compliance	FCC Part15; ICES-003;IEC/EN61000-6-1/-2/-3/-4

*Only upgrade the authentication parameters, no other changes.

WORKING SCHEMATIC DIAGRAM



ORDERING INFORMATION

415002	1500V UL, 12m cable, Stäubli MC4 PV-KBT4&KST4
415OXX*	1500V UL, 15A, 12m cable, Customized connector

*please see the RSD Series Ordering Information

APsmart
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+1-866-374-8538 | support@APsmartGlobal.com | APsmartGlobal.com

REV3.2 2025-07-07

eSpire Mini

FULLY INTEGRATED, PRE-CONFIGURED ENERGY STORAGE SOLUTION

FORTRESS POWER

ONE SOLUTION FOR ALL

- Large Residential - Light Commercial
- Microgrid, Backup, Off-Grid, Peak Shaving, Time of Use, Self-Supply, Demand Response, and VPP
- AC and DC Coupling Options
- Scalable Energy Storage Capacity
- Indoor and Outdoor Installation

Sample Applications

Residential homes & Multi-family dwelling — Grocery Stores & Convenience Stores — Charging Stations & Service Areas — Schools, Banks, & Hospitals

Product Features

Turnkey Solution for Fast Install
Fully integrated, pre-configured package system reduces on-site installation time; includes inverter(s), battery trays, racks, BMS, Microgrid Controller, HVAC, fire suppression, islanding switch, and outdoor rated enclosure.

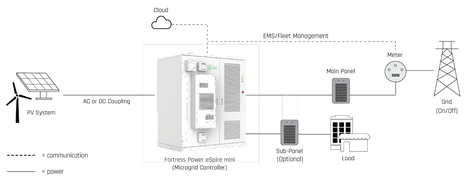
Built-in Microgrid Controls
Ability to integrate with solar, genset, wind, micro-turbines, utility, or other distributed energy resources.

Adaptive Intelligent EMS / Fleet Management
Intelligent software to reduce electricity cost, prepare for resiliency, and maximize return on investment. Remote operation and maintenance for multiple sites.

Safe Technology & Multi-level Protection
Tier 1 Lithium Iron Phosphate (LFP) chemistry for the highest level of safety, thermal stability, and reliability. An integrated, multi-level Battery Management System (BMS) monitors, optimizes, and balances the system.

Easy & Flexible to scale (Easy scalability)
This outdoor rated, modular solution can be expanded depending on the energy and power requirement at either 208Vac or 480Vac with a maximum of 2 units in parallel.

Excellent Local Support
Our US based technical support team can help you from project design to completion.



eSpireMini_022224

		Three-Phase 208 VAC			Three-Phase 480 VAC		
	PCS Rated AC Power	30 kW	40 kW	50 kW	40 kW	60 kW	90 kW
AC Data	Rated Grid Voltage	Three-Phase 208 VAC			Three-Phase 480 VAC		
	AC Rated Current	83.3 A	111 A	138.8 A	48.1 A	72.2 A	108.3 A
	Grid Voltage Range	± 15%					
	Output THDi	≤ 3%					
	Automatic Transfer Switch timing	20ms					
	Grid Frequency Range	50 Hz / 60 Hz ±2.5%					
	Grid Connected Power Factor	1.0 leading to 1.0 lagging (Adjustable)					
	Wiring Configuration	3 Phase 4 Wire (3P4W Configuration)					

	Battery Capacity	81/122/184 kWh	81 kWh	122/184/245 kWh	81 kWh	122/184/245 kWh	184/245/266 kWh
DC Data	String Rack Configuration	1P8S/1P12S /2P9S	1P8S	1P12S/2P9S /2P12S	1P8S	1P12S/2P9S /2P12S	2P9S/2P12S /2P13S
	Rack Nominal Voltage	410/614/460 VDC	410 VDC	614/460/614 VDC	410 VDC	614/460/614 VDC	460/614/665 VDC
	Battery Chemistry	Lithium Iron Phosphate					
	Cell Spec (Nominal voltage/Capacity)	3.2 VDC / 100 Ah					
	Pack Configuration	2P16S					
	Pack Spec (Nominal voltage/Capacity)	51.2 VDC / 200 Ah					
	Pack Nominal Energy	10.24 kWh					
	Voltage Range	310 – 750 VDC					
	BMS Communication Interface	RS485 via Serial, Ethernet via Cat 5 or Cat 6					
	BMS Communication Protocol	Modbus RTU, Modbus TCP					

	PV Input Power	45 kW	90 kW	90 kW	90 kW	90 kW	135 kW
PV Input (DC-Coupled only)	PV Input Voltage Range	200 – 830 VDC					
	MPPT per charge controller	3					
	Strings per MPPT	2					
	Current Rating per MPPT	35 A					

General Data	Dimensions without Clearance (W x D x H)	82.7in x 51.18in x 97.05in (2100mm x 1300mm x 2465mm)
	Weight of Whole System	Up to 8860 lbs
	Enclosure Degree of Protection	NEMA 3R / IP54
	Operating Temperature Range	5 °F to 122 °F (-15 °C to 50 °C)
	Relative Humidity	0 – 90% Non Condensing
	Max Altitude	10,000 ft (3,000 m)
	Noise Level	70 dB
	Thermal Management System	HVAC (Forced Air)
	Communication Interface	RS485, Ethernet, HMI
	Warranty	10 years, 70% Retention with 8,000 cycles @ 25 °C
	Certificates	UL1973, UL9540(A), UL1741-SB, IEEE-1547, IEEE-519, UL9540, SGIP, CEC, OGPe

www.FortressPower.com • Sales@FortressPower.com • 877-497-6937

eSpireMini_022224

RENEWABLE ENERGY SOLUTIONS — FORTRESS POWER

	Model Number	MINI-60-90-266-480
AC Data	PCS Rated AC Power (kW)	60
	Rated Voltage (AC)	480
	Rated Grid Voltage Range	+-15%
	AC Rated Current (A)	72.2
	Output THDi	<=3%
	Automatic Transfer Switch Time	20ms
	Grid Frequency Range	60 Hz +-2.5%
	Grid Connected Power Factor	1 Leading/Lagging (Adjustable)
	Wiring Configuration	3P4W
DC Data	Battery Capacity (kWh)	266
	Battery Chemistry	LFP
	Cell Spec (Nominal Voltage/Capacity)	3.2 VDC / 100Ah
	Pack Spec (Nominal Voltage/Capacity)	51.2 VDC / 200Ah
	Pack Nominal Energy (kWh)	10.24
	Voltage Range	310-750 VDC
	BMS Communication Interface	RS485 Via Serial, Ethernet via Cat 5 or Cat 6
	BMS Communication Protocol	Modbus RTU, Modbus TCP
PV Input (DC Coupled only)	PV Input Power (kW)	90
	PV Input Voltage Range	200-830 VDC
	MPPT per charge controller	3 (Two Charge Controller(s))
	Strings per MPPT	2
	Current Rating per MPPT	35 A
General Data	Width (Ft.)	6.9
	Depth (Ft.)	4.3
	Height (Ft.)	8.1
	Weight (lbs)	8415
	Enclosure Degree of Protection	NEMA 3R / IP 54
	Min. Operating Temperature Range (C)	-15
	Max. Operating Temperature Range (C)	50
	Relative Humidity	0-90% Non Condensing
	Max Altitude	10,000 Ft (3,000 m)
	Noise Level	70 dB
	Thermal Management System	HVAC (Forced Air)
	Communication Interface	RS485, Ethernet, HMI
	Warranty	10 years, 70% retention with 8,000 cycles @ 25 C
	Certificates	UL1973, UL9540(A), UL1741-SB, IEEE-1547, IEEE-519, UL9540, SGIP, CEC

GENERAL INQUIRY / SUPPORT
✉: INFO@RENEWABLENERGYS.COM
🖳: https://renewable-energysolutions.com/
☎: 858-366-4665

CONTRACTOR INFORMATION

GRID ALTERNATIVES

REGISTERED PROFESSIONAL ENGINEER — THOMAS LUONG — E22478 — ELECTRICAL — STATE OF CALIFORNIA
01/26/2026

LICENSED PROFESSIONAL ENGINEER — MANAN JAYANT BHALJA — C 83841 — EXP. 3/31/2027 — CIVIL — STATE OF CALIFORNIA
01/23/2026

SYSTEM INFORMATION

58.80kW DC SYSTEM, **60.00kW** AC SYSTEM
MODULES: (98)JA SOLAR JAM72D40-600/MB (600W)
INVERTER(S): (1)ESPIRE MINI-60-90-266-480/266KWH HYBRID INVERTER
MLPE: (98) AP SMART RSD-S-PLC

PROJECT INFORMATION

NAME: ALCHEMIST PUBLIC MARKET
PROJECT NO: GA-082525
ADDRESS: 341 N. 10TH STREET, SACRAMENTO, CA 95811
COORDINATES: 38.593650, -121.487320
APN: 00101110010000
AHJ: CA-CITY OF SACRAMENTO
UTILITY: SMUD

REVISION

REV	DATE	DESCRIPTION
A	1/21/2026	PERMIT PLANS

SCALE: NTS
DATE: 1/21/2026 PAGE NO: SS-1.0
DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

GENOM Powered By Design

SPEC SHEETS-1

SPECSHEETS

DESCRIPTION:
SNAPNRACK, ULTRA RAIL ALL PURPOSE L FOOT (90 DEG)

PART NUMBER(S):
242-01223, 242-01239

UNITS: IN, LB, DEG [MM, KG, DEG] | SHEET: 1:2

DOC NUMBER: SNR-DC-01334
DRAWN BY: D.RYAN
REV: E | DATE: 5/6/2025

SNR SOLAR LLC
775 FIERO LANE, SUITE 200
SAN LUIS OBISPO, CA 93401 USA
EMAIL: CONTACT@SNAPNRACK.COM

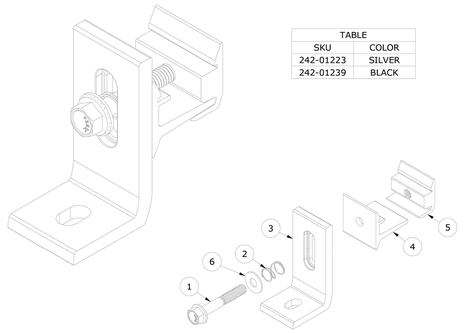


TABLE	
SKU	COLOR
242-01223	SILVER
242-01239	BLACK

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	BOLT, FLANGE, SERRATED, 5/16IN-18 X 2IN, SS
2	1	SNAPNRACK, TOPSPEED UNIVERSAL, MOUNT SPRING, SS
3	1	SNAPNRACK, AP90 L FOOT, STEPPED, SILVER / BLACK
4	1	SNAPNRACK, ULTRA RAIL MOUNT THRU PRC, SILVER / BLACK
5	1	SNAPNRACK, ULTRA RAIL MOUNT TAPPED PRC, SILVER / BLACK
6	1	5/16IN X 3/4IN SS FLAT WASHER

MATERIALS:	6000 SERIES ALUMINUM, STAINLESS STEEL
DESIGN LOAD (LBS):	405 UP, 788 DOWN, 213 SIDE
ULTIMATE LOAD (LBS):	N/A
TORQUE SPECIFICATION:	12 FT-LBS
CERTIFICATION:	UL 2703, FILE E359313
WEIGHT (LBS):	0.36

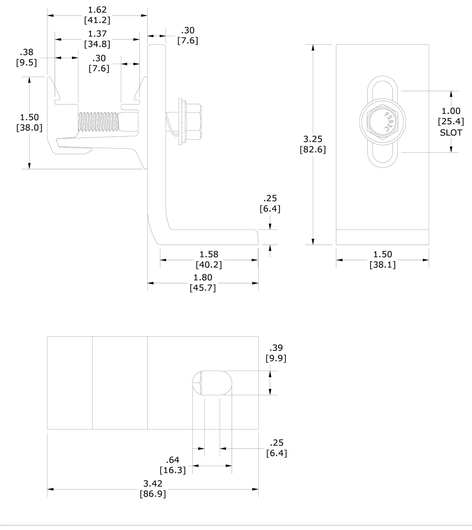
DESCRIPTION:
SNAPNRACK, ULTRA RAIL ALL PURPOSE L FOOT (90 DEG)

PART NUMBER(S):
242-01223, 242-01239

UNITS: IN, LB, DEG [MM, KG, DEG] | SHEET: 2:2

DOC NUMBER: SNR-DC-01334
DRAWN BY: D.RYAN
REV: E | DATE: 5/6/2025

SNR SOLAR LLC
775 FIERO LANE, SUITE 200
SAN LUIS OBISPO, CA 93401 USA
EMAIL: CONTACT@SNAPNRACK.COM



DESCRIPTION:
SNAPNRACK, TDS, UR-45 RAIL (USA)

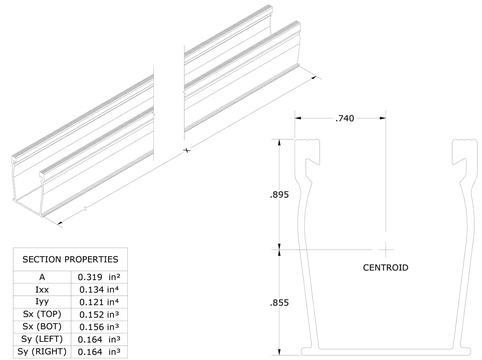
PART NUMBER(S):
232-10095-USA, 232-10096-USA, 232-10097-USA, 232-10130-USA

UNITS: IN, LB, DEG [MM, KG, DEG] | SHEET: 1:1

DOC NUMBER: SNR-DC-01451
DRAWN BY: H.WULFEKOETTER
REV: C | DATE: 4/1/2025

SNR SOLAR LLC
775 FIERO LANE, SUITE 200
SAN LUIS OBISPO, CA 93401 USA
EMAIL: CONTACT@SNAPNRACK.COM

UR-45 RAIL PROPERTIES			
SKU	FINISH	RAIL LENGTH (X)	WEIGHT (lb)
232-10095-USA	MILL	172 in	5.55
232-10096-USA	BLACK	172 in	5.55
232-10097-USA	MILL	94 in	3.03
232-10130-USA	MILL	186 in	6.00



SECTION PROPERTIES	
A	0.319 in²
Ixx	0.134 in⁴
Iyy	0.121 in⁴
Sx (TOP)	0.152 in³
Sx (BOT)	0.156 in³
Sy (LEFT)	0.164 in³
Sy (RIGHT)	0.164 in³

MATERIALS:	6005-T5 ALUMINUM
DESIGN LOAD (LBS):	N/A
ULTIMATE LOAD (LBS):	N/A
TORQUE SPECIFICATION:	N/A FT-LBS
CERTIFICATION:	UL 2703, FILE E359313
WEIGHT (LBS):	VARIES, SEE PROPERTIES TABLE

S-5!®
The Right Way!®

S-5-U and S-5-U Mini

S-5-U Clamp

The S-5-U clamp is by far our most popular and most versatile clamp. It fits about 85% of the standing seam profiles manufactured in North America—including most structural and architectural profiles. It can be used on vertically oriented seams and, by rotating the clamp 90 degrees, it can also be used on most horizontal 2" seam profiles.

Its simple design, generous dimensioning, and multiple hole orientations are what make the S-5-U clamp so versatile for use with the S-5!® snow retention products, such as ColorGard®, as well as with other heavy-duty applications.

Installation is as simple as setting the specially patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5! clamps.

S-5-U Mini Clamp

The S-5-U Mini is a bit shorter than the S-5-U and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.

The S-5-U clamp is our most popular and versatile clamp, fitting about 85% of the standing seam profiles in North America.

The right way to attach almost anything to metal roofs!

888-825-3432 | www.S-5.com |

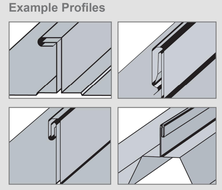
S-5!®
The Right Way!®

The strength of the S-5-U clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but not pierce it—leaving the roof manufacturer's warranty intact.

The **S-5-U and S-5-U Mini clamps** are each furnished with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. A structural aluminum attachment clamp, the S-5-U is compatible with most common metal roofing materials excluding copper. All included hardware is stainless steel. Please visit **www.S-5.com** for more information including CAD details, metallurgical compatibilities and specifications.

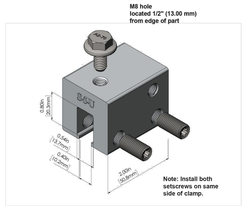
The S-5-U clamp has been tested for load-to-failure results on most major brands and profiles of standing seam roofing. The independent lab test data found at www.S-5.com can be used for load-critical designs and applications. S-5!® holding strength is unmatched in the industry.

Example Profiles

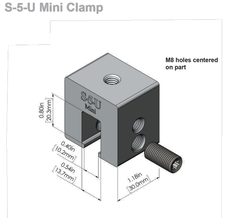


For horizontal seams under 0.65", do not use this clamp. Visit www.S-5.com for more detailed information and proper clamp usage.

S-5-U Clamp



S-5-U Mini Clamp



Please note: All measurements are rounded to the second decimal place.

S-5!® Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 150 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

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CONTRACTOR INFORMATION

GRID ALTERNATIVES

REGISTERED PROFESSIONAL ENGINEER
THOMAS LUONG
E22478
ELECTRICAL
STATE OF CALIFORNIA
01/26/2026

LICENSED PROFESSIONAL ENGINEER
MANAN JAYANT BHALJA
C 83841
EXP. 3/31/2027
CIVIL
STATE OF CALIFORNIA
01/23/2026

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UTILITY: SMUD

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SCALE: NTS
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DRAFTED BY: NAVEEN
CHECKED BY: PRIYANGA

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