Application Number:School Name:School District:01-121369Los Medanos ESPittsburgDSA File Number:Increment Number:Date Created:7-362023-11-30 13:21:07

### 2022 CBC

IMPORTANT: This form is only a summary list of structural tests and some of the special inspections required for the project.

Generally, the structural tests and special inspections noted on this form are those that will be performed by the Geotechnical Engineer of Record, Laboratory of Record, or Special Inspector. The actual complete test and inspection program must be performed as detailed on the DSA approved documents. The appendix at the bottom of this form identifies work NOT subject to DSA requirements for special inspection or structural testing. The project inspector is responsible for providing inspection of all facets of construction, including but not limited to, special inspections not listed on this form such as structural wood framing, high-load wood diaphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Title 24, Part 2, Chapter 17A (2022 CBC).

\*\*NOTE: Undefined section and table references found in this document are from the CBC, or California Building Code.

### **KEY TO COLUMNS**

1. TYPE	2. PERFORMED BY
Continuous – Indicates that a continuous special inspection is required	<b>GE (Geotechnical Engineer)</b> – Indicates that the special inspection shall be performed by a registered geotechnical engineer or his or her authorized representative.
	LOR (Laboratory of Record) – Indicates that the test or special inspection shall be performed by a testing laboratory accepted in the DSA Laboratory Evaluation and Acceptance (LEA) Program. See CAC Section 4-335.
Periodic – Indicates that a periodic special inspection is required	PI (Project Inspector) – Indicates that the special inspection may be performed by a project
Test – Indicates that a test is required	inspector when specifically approved by DSA.
	SI (Special Inspection) – Indicates that the special inspection shall be performed by an appropriately qualified/approved special inspector.

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:School Name:School District:01-121369Los Medanos ESPittsburgDSA File Number:Increment Number:Date Created:7-362023-11-30 13:21:07

### Geotechnical Reports: Project has a geotechnical report, or CDs indicate soils special inspection is required by GE

	S1. GENERAL:			
	Test or Special Inspection	Туре	Performed By	Code References and Notes
<b>V</b>	<ul> <li>a. Verify that:</li> <li>Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations.</li> <li>Foundation excavations are extended to proper depth and have reached proper material.</li> <li>Materials below footings are adequate to achieve the design bearing capacity.</li> </ul>	Periodic	GE*	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) form for exemptions.)

	S2. SOIL COMPACTION AND FILL:			
	Test or Special Inspection	Туре	Performed By	Code References and Notes
<b>✓</b>	a. Perform classification and testing of fill materials.	Test	LOR*	* Under the supervision of the geotechnical engineer.
V	<b>b.</b> Verify use of proper materials, densities and inspect lift thicknesses, placement and compaction during placement of fill.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative. (Refer to specific items identified in the Appendix (end of this form) form for exemptions where soils SI and testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil SI and test reporting requirements for the exempt items.)
<b>V</b>	c. Compaction testing.	Test	LOR*	* Under the supervision of the geotechnical engineer. (Refer to specific items identified in the Appendix (end of this form) for exemptions where soils testing may be conducted under the supervision of a geotechnical engineer or LOR's engineering manager. In such cases, the LOR's form DSA 291 shall satisfy the soil test reporting requirements for the exempt items.)

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:School Name:School District:01-121369Los Medanos ESPittsburgDSA File Number:Increment Number:Date Created:7-362023-11-30 13:21:07

S3. DRIVEN DEEP FOUNDATIONS (PILES):					
Test or Special Inspection	Туре	Performed By	Code References and Notes		
a. Verify pile materials, sizes and lengths comply with the requirements.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.		
<b>b.</b> Determine capacities of test piles and conduct additional load tests as required.	Test	LOR*	* Under the supervision of the geotechnical engineer.		
c. Inspect driving operations and maintain complete and accurate records for each pile.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.		
d. Verify locations of piles and their plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and record any pile damage.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.		
e. Steel piles.	Provide tests and inspections per STEEL section below.				
f. Concrete piles and concrete filled piles.	Provide tests and inspections per CONCRETE section below.				
<b>g.</b> For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	*	*	* As defined on drawings or specifications.		

S4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS):					
Test or Special Inspection	Туре	Performed By	Code References and Note		
a. Inspect drilling operations and maintain complete and accurate records for each pier.	Continuous		* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)		

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:	School Name:	School District:
01-121369	Los Medanos ES	Pittsburg
DSA File Number:	Increment Number:	Date Created:
7-36		2023-11-30 13:21:07

Test or Special Inspection	Туре	Performed By	Code References and Note
<b>b.</b> Verify pier locations, diameters, plumbness, bell diameters (if applicable), lengths and embedment into bedrock (if applicable); record concrete or grout volumes.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)
c. Confirm adequate end strata bearing capacity.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative. (See Appendix (end of this form) for exemptions.)
d. Concrete piers.	Provide tests a	nd inspections pe	r CONCRETE section below.

S5. RETAINING WALLS:					
Test or Special Inspection	Туре	Performed By	Code References and Notes		
a. Placement, compaction and inspection of backfill.	Continuous	GE*	1705A.6.1. * By geotechnical engineer or his or her qualified representative. (See section S2 above).		
<b>b.</b> Placement of soil reinforcement and/or drainage devices.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.		
c. Segmental retaining walls; inspect placement of units, dowels, connectors, etc.	Continuous	GE*	* By geotechnical engineer or his or her qualified representative. See DSA IR 18-2.		
d. Concrete retaining walls.	Provide tests and inspections per CONCRETE section below.				
e. Masonry retaining walls.	Provide tests a	nd inspections pe	r MASONRY section below.		

Table 1705A.6, Table 1705A.7, Table 1705A.8

Application Number:	School Name:	School District:
01-121369	Los Medanos ES	Pittsburg
DSA File Number:	Increment Number:	Date Created:
7-36		2023-11-30 13:21:07

S6. OTHER SOILS:						
Test or Special Inspection	Туре	Performed By	Code References and Notes			
a. Soil Improvements	Test	GE*	Submit a comprehensive report documenting final soil improvements constructed, construction observation and the results of the confirmation testing and analysis to CGS (California Geological Survey) for final acceptance.  * By geotechnical engineer or his or her qualified representative.			
b. Inspection of Soil Improvements	Continuous	GE*	* By geotechnical engineer or his or her qualified representative.			
c.						

Table 1705A.3; ACI 318-19 Sections 26.12 & 26.13

Application Number:School Name:School District:01-121369Los Medanos ESPittsburgDSA File Number:Increment Number:Date Created:7-362023-11-30 13:21:07

	C1. CAST-IN-PLACE CONCRETE					
	Test or Special Inspection	Туре	Performed By	Code References and Notes		
<b>V</b>	a. Verify use of required design mix.	Periodic	SI	Table 1705A.3 Item 5, 1910A.1.		
<b>V</b>	<b>b.</b> Identifiy, sample, and test reinforcing steel.	Test	LOR	1910A.2; ACI 318-19 Ch.20 and Section 26.6.1.2; DSA IR 17-10. (See Appendix (end of this form) for exemptions.)		
<b>V</b>	c. During concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	Test	LOR	<b>Table 1705A.3 Item 6</b> ; ACI 318-19 Sections 26.5 & 26.12.		
<b>V</b>	d. Test concrete (f'c).	Test	LOR	<b>1905A.1.17</b> ; ACI 318-19 Section 26.12.		
7	e. Batch plant inspection: Eliminated	See Notes	SI	Default of 'Continuous' per 1705A.3.3. If approved by DSA, batch plant inspection may be reduced to 'Periodic' subject to requirements in Section 1705A.3.3.1, or eliminated per 1705A.3.3.2. See IR 17-13. (See Appendix (end of this form) for exemptions.)		
	f. Welding of reinforcing steel.	Provide spec	ial inspection pe	r STEEL, Category S/A4(d) & (e) and/or S/A5(g) & (h) below.		

C2. PRESTRESSED / POST-TENSIONED CONCRETE (IN ADDITION TO SECTION C1):						
Test or Special Inspection Type Performed By Code References and Notes						
a. Sample and test prestressing tendons and anchorages.	Test	LOR	1705A.3.4, 1910A.3			
<b>b.</b> Inspect placement of prestressing tendons.	Periodic	SI	1705A.3.4, Table 1705A.3 Items 1 & 9.			

Table 1705A.3; ACI 318-19 Sections 26.12 & 26.13

Application Number:School Name:School District:01-121369Los Medanos ESPittsburgDSA File Number:Increment Number:Date Created:7-362023-11-30 13:21:07

Test or Special Inspection	Туре	Performed By	Code References and Notes
c. Verify in-situ concrete strength prior to stressing of post-tensioning tendons.	Periodic	SI	<b>Table 1705A.3 Item 13.</b> Special inspector to verify specified concrete strength test prior to stressing.
d. Inspect application of post-tensioning or prestressing forces and grouting of bonded prestressing tendons.	Continuous	SI	<b>1705A.3.4</b> , <b>Table 1705A.3 Item 9</b> ; ACI 318-14 Section 26.13

C3. PRECAST CONCRETE (IN ADDITION TO SECTION C1):				
Test or Special Inspection	Туре	Performed By	Code References and Notes	
a. Inspect fabrication of precast concrete members.	Continuous	SI	ACI 318-19 Section 26.13.	
<b>b.</b> Inspect erection of precast concrete members.	Periodic	SI*	<b>Table 1705A.3 Item 10.</b> * May be performed by PI when specifically approved by DSA.	
<ul> <li>c. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category D, E or F, inspect such connections and reinforcement in the field for:</li> <li>1. Installation of the embedded parts</li> <li>2. Completion of the continuity of reinforcement across joints.</li> <li>3. Completion of connections in the field.</li> </ul>	Continuous	SI	Table 1705A.3; ACI 318-19 Section 26.13.1.3; ACI 550.5	
d. Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	Periodic	SI	Table 1705A.3; ACI 318-19 Section 26.13.1.3; ACI 550.5	

able 1705A.3; ACI 318-19 Sections 26.12 & 26.13			
Application Number:	School Name:	School District:	
01-121369	Los Medanos ES	Pittsburg	
DSA File Number:	Increment Number:	Date Created:	
7-36		2023-11-30 13:21:07	

C4. SHOTCRETE (IN ADDITION TO SECTION C1):				
Test or Special Inspection	Туре	Performed By	Code References and Notes	
a. Inspect shotcrete placement for proper application techniques.	Continuous	SI	<b>1705A.3.9, Table 1705A.3 Item 7, 1908A.1, 1908A.2, 1908A.3.</b> See ACI 506.2-13 Section 3.4, ACI 506R-16.	
<b>b.</b> Sample and test shotcrete (f'c).	Test	LOR	1908A.2, 1705A.3.9	

	C5. POST-INSTALLED ANCHORS:				
	Test or Special Inspection	Code References and Notes			
<b>V</b>	a. Inspect installation of post-installed anchors	See Notes	SI*	1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic), 1705A.3.8 (See Appendix (end of this form) for exemptions). ACI 318-14 Sections 17.8 & 26.13. * May be performed by the project inspector when specifically approved by DSA.	
<b>7</b>	<b>b.</b> Test post-installed anchors.	Test	LOR	1910A.5. (See Appendix (end of this form) for exemptions.)	

	C6. OTHER CONCRETE:			
	Test or Special Inspection	Туре	Performed By	Code References and Notes
	a.			

# Appendix: Work Exempt from DSA Requirements for Structural Tests / Special Inspections Application Number: School Name: School District: 01-121369 Los Medanos ES Pittsburg DSA File Number: Date Created: 7-36 2023-11-30 13:21:07

Exempt items given in DSA IR A-22 or the 2019 CBC (including DSA amendments) and those items identified below with a check mark by the design professional are NOT subject to DSA requirements for the structural tests / special inspections noted. <a href="Items marked as exempt shall-be-identified on the approved construction documents">Items marked as exempt shall-be-identified on the approved construction documents</a>. The project inspector shall verify all construction complies with the approved construction documents.

SOILS:
1. Deep foundations acting as a cantilever footing with a design based on minimum allowable pressures per CBC Table 1806A.2 and without a geotechnical report for the following cases: A) free standing sign or scoreboard, B) cell or antenna towers and poles less than 35'-0" tall (e.g., lighting poles, flag poles, poles supporting open mesh fences, etc.), C) single-story structure with dead load less than 5 psf (e.g., open fabric shade structure), or D) covered walkway structure with an apex height less than 10'-0" above adjacent grade.
2. Shallow foundations, etc. are exempt from special inspections and testing by a Geotechnical Engineer for the following cases: A) buildings without a geotechnical report and meeting the exception item #1 criteria in CBC Section 1803A.2 supported by native soil (any excavation depth) or fill soil (not exceeding 12" depth per CBC Section 1804A.6), B) soil scarification/recompaction not exceeding 12" depth, C) native or fill soil supporting exterior non-structural flatwork (e.g., sidewalks, site concrete ramps, site stairs, parking lots, driveways, etc.), D) unpaved landscaping and playground areas, or E) utility trench backfill.

	CONCRETE/MASONRY:
	1. Post-installed anchors for the following: A) exempt non-structural components (e.g., mechanical, electrical, plumbing equipment - see item 7 for "Welding" in the Appendix below) given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) or B) interior nonstructural wall partitions meeting criteria listed in exempt item 3 for "Welding" in the Appendix below
<b>\</b>	2. Concrete batch plant inspection is not required for items given in CBC Section 1705A.3.3.2 subject to the requirements and limitations in that section.
	3. Non-bearing non-shear masonry walls may be exempt from certain DSA masonry testing and special inspection items as allowed per DSA IR 21-1. Refer to construction documents for specific exemptions accordingly for each applicable wall condition.
	4. Epoxy shear dowels in site flatwork and/or other non-structural concrete.

Application Number: School Name: School District:
01-121369 Los Medanos ES Pittsburg

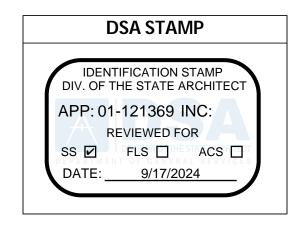
DSA File Number: Increment Number: Date Created:
7-36 2023-11-30 13:21:07

CONCRETE/MASONRY:
5. Testing of reinforcing bars is not required for items given in CBC Section 1910A.2 subject to the requirements and limitations in that section.

WELDING:
1. Solid-clad and open-mesh fences, gates with maximum leaf span of 10', and gates with a maximum rolling section of 10' all having an apex height less than 8'-0" above lowest adjacent grade. When located above circulation or occupied space below, these gates/fences are not located within 1.5x gate/fence height (max 8'-0") to the edge of floor or roof.
2. Handrails, guardrails, and modular or relocatable ramps associated with walking surfaces less than 30" above adjacent grade (excluding post base connections per the 'Exception' language in Section 1705A.2.1); fillet welds shall not be ground flush.
3. Non-structural interior cold-formed steel framing spanning less than 15'-0", such as in interior partitions, interior soffits, etc. supporting only self weight and light-weight finishes or adhered tile, masonry, stone, or terra cotta veneer no more than 5/8" thickness and apex less than 20'-0" in height and not over an exit way. Maximum tributary load to a member shall not exceed the equivalent of that occurring from a 10'x10' opening in a 15' tall wall for a header or king stud.
4. Manufactured support frames and curbs using hot rolled or cold-formed steel (i.e., light gauge) for mechanical, electrical, or plumbing equipment weighing less than 2000# (equipment only) (connections of such frames to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections S/A3, S/A4 and/or S/A5 of listing above).
5. Manufactured components (e.g., Tolco, B-Line, Afcon, etc.) for mechanical, electrical, or plumbing hanger support and bracing (connections of such components to superstructure elements using welding will require special inspection as noted in selected item(s) for Sections S/A3, S/A4 and/or S/A5 of listing above).
6. TV Brackets, projector mounts with a valid listing (see DSA IR A-5) and recreational equipment (e.g., playground structures, basketball backstops, etc.) (connections of such elements to superstructure elements using welding will require special inspection as noted in selected item(s) for sections S/A3, S/A4 and/or S/A5 located in the Steel/Aluminum category of listing above).
7. Any support for exempt non-structural components given in CBC Section 1617A.1.18 (which replaces ASCE 7-16, Section 13.1.4) meeting the following: A) when supported on a floor/roof, <400# and resulting composite center of mass (including component's center of mass) ≤4' above supporting floor/roof, B) when hung from a wall or roof/floor, <20# for discrete units or <5 plf for distributed systems.

Application Number:	School Name:	School District:	
01-121369	Los Medanos ES	Pittsburg	
<b>DSA File Number:</b> 7-36	Increment Number:	<b>Date Created:</b> 2023-11-30 13:21:07	
Name of Architect or Engineer in ge	eneral responsible charge:		
Name of Structural Engineer (When	structural design has been delegated):		
Neal Shah			
rical Grian			
Signature of Architect or Structural	Engineer: Date:		
Signature of Architect of Structural	Engineer. Date.		
Meal Sha	12-04-2023		

Note: To facilitate DSA electronic mark-ups and identification stamp application, DSA recommends against using secured electronic or digital signatures.



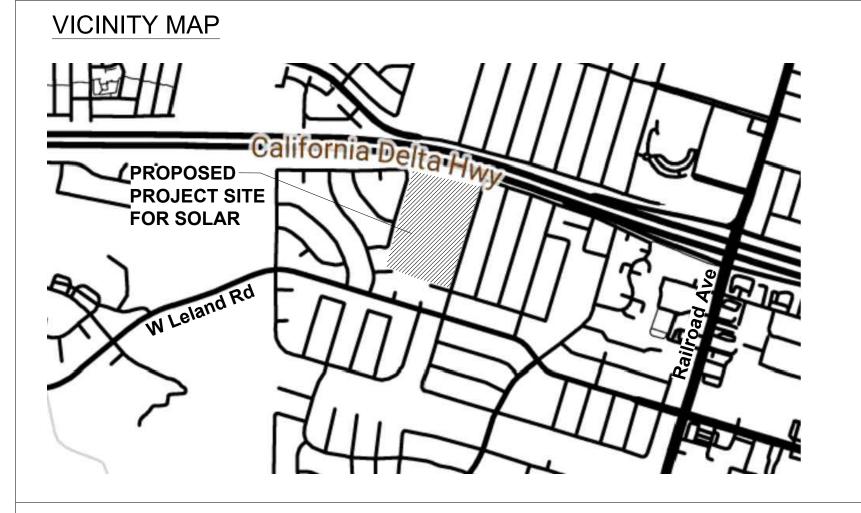
### DSA 103-22: LIST OF REQUIRED VERIFIED REPORTS, CBC 2022

Application Number:School Name:School District:01-121369Los Medanos ESPittsburgDSA File Number:Increment Number:Date Created:7-362023-11-30 13:21:07

- 1. Soils Testing and Inspection: Geotechnical Verified Report Form DSA 293
- 2. Structural Testing and Inspection: Laboratory Verified Report Form DSA 291
- 3. Post-installed Anchors: Laboratory Verified Report Form DSA 291, or, for independently contracting SI, Special Inspection Verified Report Form DSA 292

# PITTSBURG UNIFIED SCHOOL DISTRICT LOS MEDANOS ELEMENTARY SCHOOL

610 CROWLEY AVENUE PITTSBURG, CA 94565



## PROJECT DIRECTORY

SYSTEM HOST: **PITTSBURG USD** 2000 RAILROAD AVE PITTSBURG, CA 94565 925.473.2300

ARCHITECT & DESIGN

MMPV DESIGN, INC.

SAN DIEGO, CA 92103

**AOR: MARIANA MONCADA** 

718 WARBOR DR

619.632.2883

PROFESSIONAL IN CHARGE:

**DEVELOPER MBL ENERGY** 954 HAMPSWOOD WAY SAN JOSE, CA 95120 888.885.4401 PM: CHERYL CAPUTI

MBL ENERGY

888.885.4401

**ELECTRICAL ENGINEER PEARCE RENEWABLES 1222 VINE ST** SUITE 301 PASO ROBLES, CA 93446 805.467.2528 EEOR: JEFFREY ANSLEY

925.314.7100

STRUCTURAL ENGINEER: **GEOTECHNICAL ENGINEER:** ATLAS TECHNICAL 954 HAMPSWOOD WAY **CONSULTANTS LLC** 2001 CROW CANYON ROAD SAN JOSE, CA 95120 SUITE 210 SEOR: NEAL SHAH SAN RAMON, CA 94583

SCALE NTS

## **GOVERNING CODES:**

CALIFORNIA CODE OF REGULATIONS: 2022 CALIFORNIA ADMINISTRATIVE CODE (CAC) (PART 1, TITLE 24, CCR) 2022 CALIFORNIA BUILDING CODE (CBC), VOLUMES 1, AND 2 (PART 2, TITLE 24, CCR (2021 EDITION INTERNATIONAL BUILDING CODE WITH 2022 CALIFORNIA AMENDMENTS) 2022 CALIFORNIA ELECTRICAL CODE (PART 3, TITLE 24, CCR)

(2020 EDITION NATIONAL ELECTRICAL CODE WITH 2022 CALIFORNIA AMENDMENTS) 2022 CALIFORNIA MECHANICAL CODE (CMC) (PART 4, TITLE 24, CCR) (2021 EDITION IAPMO UNIFORM MECHANICAL CODE WITH 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA PLUMBING CODE (CPC) (PART 5, TITLE 24, CCR) (2021 EDITION IAPMO UNIFORM PLUMBING CODE WITH 2022 CALIFORNIA AMENDMENTS) 2022 CALIFORNIA ENERGY CODE

(2021 EDITION CALIFORNIA ENERGY COMMISSION BUILDING ENERGY EFFICIENCY STANDARDS) 2022 CALIFORNIA FIRE CODE (CFC). (PART 9, TITLE 24, CCR) (2021 EDITION OF INTERNATIONAL FIRE CODE WITH 2022 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA GREEN CODE. ..... (PART 11, TITLE 24, CCR) 2022 CALIFORNIA REFERENCED STANDARDS CODE ...... (PART 12, TITLE 24, CCR) NFPA 13 - 2022

NFPA 72 - 2022

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 CCRTITLE 19 CCR. PUBLIC SAFETY. STATE FIRE MARSHAL REGULATIONS

# REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS:

2022 CBC, CHAPTER 35 2022 CFC, CHAPTER 80

**INSPECTIONS:** 

SAFETY DURING CONSTRUCTION TO COMPLY WITH 2022 CFC CHAPTER 33

# **GENERAL NOTES:**

ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATION SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENTS APPROVED BY THE DIVISION OF THE STATE ARCHITECT. AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.

A DSA CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE DISTRICT AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR)

A DSA CERTIFIED INSPECTOR WITH CLASS 2 CERTIFICATION IS REQUIRED FOR THIS PROJECT.

A DSA CERTIFIED INSPECTOR WHO IS SPECIFICALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK WILL BE REQUIRED FOR THIS PROJECT.

A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THIS PROJECT. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(C), PART 1, TITLE 24, CCR).

## SCOPE OF WORK

WORK CONSISTS OF INSTALLING 1 BATTERY ENERGY STORAGE SYSTEM (LITHIUM ION, MG125 (125KW/220KWH, OUTDOOR, NEAR EXPOSURE INSTALLATION) ON CONCRETE PAD AT EXISTING SCHOOL LOCATION. BATTERY PROJECT CONSISTS OF AUX EQUIPMENT AND BATTERY COMPONENTS (SEL ENCLOSURE, XFMR BATTERY, ESS METER, BATTERY AC DISCONNECT, AND UTILITY LOCKABLE FUSE AC DISCONNECT). EXISTING SOLAR ARRAYS NOT IN SCOPE.

# GENERAL RESPONSIBILITY OF CHARGE STATEMENT OF GENERAL CONFORMANCE:

THE DRAWINGS OR SHEETS LISTED IN THE DRAWING INDEX (AS INDICATED BY AN ASTERISK) HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THE STATE OF CALIFORNIA. THE DRAWINGS HAVE BEEN **EXAMINED BY ME FOR:** 

- DESIGN, INTENT AND APPEARS TO MEET APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND
- 2. COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THE STATEMENT OF GENERAL CONFORMANCE "SHALL BE NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341" OF TITLE 24, PART I (TITLE 24, PART 1, SECTION 4-317 (b))

I CERTIFY THAT: ALL DRAWINGS OR SHEETS LISTED ON THE INDEX ARE IN GENERAL CONFORMANCE AND HAVE BEEN COORDINATED.

**SIGNATURE** 

ARCHITECT DESIGNATED TO BE GENERAL RESPONSIBLE CHARGE

# MARIANA MONCADA

C37182 9/30/2025 LICENSE NUMBER **EXPIRATION DATE** 

# DRAWING INDEX

SHEET # SHEET TITLE

## **ARCHITECTURAL DRAWINGS**

LM-A0.0 TITLE SHEET

SITE PLAN & FIRE ACCESS PLAN

2 SHEETS

## STRUCTURAL DRAWINGS\*

LM-GE2.0 SITE SPECIFIC BATTERY PAD LAYOUT 1 SHEETS

# STRUCTURAL DRAWINGS PC 04-122069\*

PRE-CHECK SPECIFICATIONS

STRUCTURAL NOTES

**EQUIPMENT PAD AND ANCHORAGE DETAILS** S5.1 BESS EQUIPMENT PAD AND ANCHORAGE DETAILS **EQUIPMENT PAD FENCE AND ANCHORAGE DETAILS** 

5 SHEETS

# **ELECTRICAL DRAWINGS\***

**ELECTRICAL NOTES** 

**GENERAL SITE PLAN** 

DETAILED ELECTRICAL SITE PLAN

SINGLE LINE DIAGRAM & WIRING SCHEDULE

BATTERY THREE LINE DIAGRAM

LM-E203 GROUND LINE DIAGRAM

LM-E501 **EQUIPMENT LAYOUT - 1** 

EQUIPMENT LAYOUT - 2 LM-E502

**EQUIPMENT LAYOUT - 3** 

LABELS & MARKINGS

**EQUIPMENT SPECIFICATIONS SHEET - 1** 

**ELECTRICAL DETAILS** 

**EQUIPMENT SPECIFICATIONS SHEET - 2** LM-E802

**EQUIPMENT SPECIFICATIONS SHEET - 3** LM-E803

**EQUIPMENT SPECIFICATIONS SHEET - 4** LM-E804

**EQUIPMENT SPECIFICATIONS SHEET - 5** LM-E805

**EQUIPMENT SPECIFICATIONS SHEET - 6** 

LM-E901 MG125 MECHANICAL DRAWING - 1

LM-E902 MG125 MECHANICAL DRAWING - 2

18 SHEETS

12/11/2023

DATE

LM-E600

TOTAL: 26 SHEETS



BATTERY HOST



Pittsburg, CA 94565

925.473.2300





1698 Rogers Ave, Suite 40 San Jose, CA 95112 888-885-4401

**ELECTRICAL ENGINEER** 



Pearce Renewables 1222 Vine Street, Suite 301 Paso Robles, CA 93446

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883



# LOS MEDANOS ES

610 CROWLEY AVE PITTSBURG CA 94565

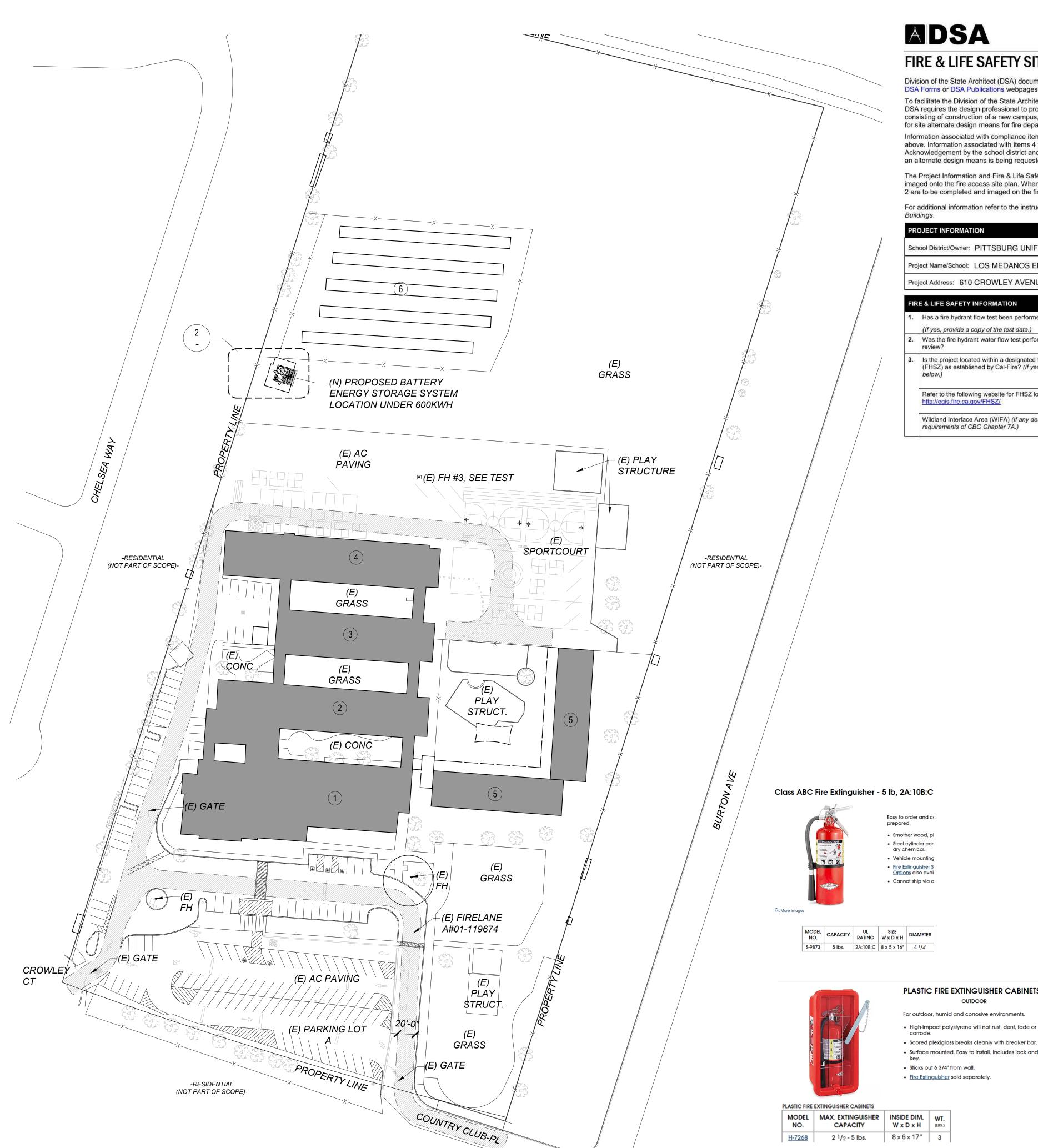
REVISION

12/11/2023

SHEET TITLE

TITLE SHEET

LM-A0.0



1 SITE PLAN

Scale: 1" = 60' (FOR 24X36 SHEETS)

# **MDSA**

810

# FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and

for site alternate design means for fire department emergency vehicle access, and fire suppression water supply. Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy PL 09-01: Fire Flow for

# ROJECT INFORMATION School District/Owner: PITTSBURG UNIFIED SCHOOL DISTRICT Project Name/School: LOS MEDANOS ELEMENTARY SCHOOL Project Address: 610 CROWLEY AVENUE, PITTSBURG, CA 94565

1.	Has a fire hydrant flow test been performed within the past 12 months?  (If yes, provide a copy of the test data.)	Yes 🛚		No □
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes 💢		No □
3.	Is the project located within a designated fire hazard severity zone (FHSZ) as established by Cal-Fire? (If yes, indicate FHSZ classification below.)	Yes □		No 🕱
	Refer to the following website for FHSZ locations:  http://eqis.fire.ca.gov/FHSZ/  Moderate  High  High		Very High □	
	Wildland Interface Area (WIFA) (If any designations are checked, project requirements of CBC Chapter 7A.)	design must m	eet the	WIFA 🗆

# FIRE FLOW ANALYSIS

AQUAMATICAL FIRE PROTECTION, INC. Engineering Installation Service Inspections **Gabriel Gonzalez** Inspections Project Manager Aquamatic Fire Protection (925) 753-0420 Ext. 225 gabrielg@aquamaticfire.com

Los Medanos Elementary 610 Crowley Ave. Pittsburg, CA 94565

### **HYDRANT #3** 2 1/2" HOSE OUTLET

Static Pressure (PSI):

40	
Residual Pre	ssure (PSI):
35	

970

# Testing was performed 5/13/24 at Approximately 6:45am

GPM at 20 psi: 2051 Class: AA

Marking color: Light Blue % Pressure Drop: 13%

### **BUILDING LEGEND-LOS MEDANOS** (E) CLASSROOM BLDG A - A#2275, A#01-101752

(E) CLASSROOM BLDG B - A#01-101752 (E) CLASSROOM BLDG B - A#2275,A#01-101752 (E) CLASSROOM BLDG C - A#25108, A#01-101752 (E) WING E1 AND E2 - A#01-119674

# **?** NOTES

1. FOR 10'-0" MINIMUM CLEAR DISTANCES PER IR-N-4, PLEASE REFER TO THE ELECTRICAL ENLARGED PLAN E-1.1

2. BATTERY SYSTEM IS OUTDOORS AND NOT REQUIRED TO BE SPRINKLERED PER CH 12 CFC

(E) SOLAR ARRAY STRUCTURE

BATTERY ENERGY STORAGE SYSTEM OCCUPANCY TYPE U

> AROUND BESS FOR **VEGETATION CONTROL**

CODE INFORMATION

# PLASTIC FIRE EXTINGUISHER CABINETS

- For outdoor, humid and corrosive environments.
- Scored plexiglass breaks cleanly with breaker bar.
- Surface mounted. Easy to install. Includes lock and
- Sticks out 6 3/4" from wall. • Fire Extinguisher sold separately

PLASTIC FIRE	EXTINGUISHER CABINETS		
MODEL NO.	MAX. EXTINGUISHER CAPACITY	INSIDE DIM. W x D x H	WT.
H-7268	2 1/2 - 5 lbs.	8 x 6 x 17"	3

Total weight of extinguisher and cabinet is 13lbs

FIRE EXINGUISHER AND CABINET SCALE: NTS

390 SF / 300 GROSS = 1.3 OCCUPANTS 24'-4 3/4" (N) PAD-(N) FENCE (E) FENCE (N) BESS, MAINTAIN 10' (E) ELEC. EQUIPMENT, ON SEPARATE STRUCTURAL CLEAR AROUND BESS SYSTEM, PAD FROM BESS, NOT PART OF SEE A/LM-E102 SCOPE FOR MORE ELECTRICAL **DETAILS** MAINTAIN 10' CLEAR -

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 01-121369 INC: REVIEWED FOR SS ☑ FLS ☑ ACS □

BATTERY HOST



STRUCTURAL ENGINEER



MBL-ENERGY 1698 Rogers Ave, Suite 40 San Jose, CA 95112 888-885-4401

ELECTRICAL ENGINEER

2051 GPM at 20 psi

2,000

1,500

Predicted Flow Rate (GPM)



**Pearce Renewables** 1222 Vine Street, Suite 301 Paso Robles, CA 93446 805.467.2528

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883



PROJECT

# LOS MEDANOS ES

610 CROWLEY AVE PITTSBURG CA 94565

REVISION

12/11/2023

SHEET TITLE

SITE PLAN & FIRE ACCESS PLAN

LM-A1.0

2 ENLARGED SITE PLAN Scale: 1/8" = 1'-0" (FOR 24X36 SHEETS)

### NOTES:

- 1. SEE PC-04-122069 SHEET S5.0 DETAIL 2, 3, 5, 6, AND S5.1 DETAIL 1 & 2 FOR PAD REQUIREMENTS.
- 2. SEE ELECTRICAL SHEETS FH-E502 & FH-E503 FOR WEIGHT, DIMENSIONS OF EQUIPMENT,
- ELEVATIONS, LAYOUT, AND REQUIRED EQUIPMENT CLEARANCE.
- 3. SITE PREPARATION, FILL, AND COMPACTION SHALL BE PER THE PROJECT GEOTECHNICAL REPORT (ATLAS PROJECT NO. 91-62540-PWE), ALSO REFERENCED BELOW.
- 4. 2 SACK SLURRY MIX WITH ROUGHENED SURFACE MAY BE USED ILO COMPACTED BACKFILL

## Site Grading

General Grading, Fill Material Requirements and Site Drainage

Site grading is generally anticipated to consist of minor cuts and fills required to establish new site grades as required for the concrete pad. On-site soils having organic content of less than 3 percent by weight and meeting the size requirements for import fill can be reused as general (i.e., non-select) backfill as approved by the Geotechnical Engineer. Imported soil should be relatively non-expansive, having a Plasticity Index of 15 or less, an R-Value greater than 40, and contain sufficient fines so the soil can bind together. Imported materials should be free of environmental contaminants, organic materials and debris, and should not contain rocks or lumps greater than 3 inches in maximum size. Import fill materials should be approved by the Geotechnical Engineer prior to use on site.

Fill materials should be properly moisture conditioned to the minimum moisture contents as indicated in *Project Compaction Recommendations* and placed in uniform loose lifts not to exceed 8 inches in loose thickness. Smaller lifts may be necessary to achieve the minimum required compaction using lighter weight compaction equipment. It should be noted that the use of on-site soils for fill will require moisture conditioning (drying or wetting). Moisture conditioning may be difficult to achieve during cold, wet periods of the year, or during extreme temperatures and after precipitation events.

## Site Preparation

Site grading should be performed in accordance with these recommendations. Prior to commencement of grading activities, areas to receive fill or concrete should be cleared of loose soils, debris and other deleterious materials. Debris resulting from site stripping operations should be removed from the site, unless otherwise permitted by the Geotechnical Engineer.

Excavations resulting from the removal of deleterious materials should be cleaned down to firm soil, excavation bottoms moisture conditioned and recompacted as necessary and backfilled with engineered fill in accordance with the grading sections of this report. The Geotechnical Engineer's representative should verify the adequacy of site clearing operations during construction, prior to placement of engineered fill.

The existing soil in the foundation pad area should be scarified to a depth of at least 8 inches; moisture conditioned to 3 to 5 percent above optimum moisture content and compacted in accordance with the recommendations presented in the *Project Compaction Recommendations* section of this report. Once the compacted subgrade has been reached, it is recommended that the non-expansive fill layer be placed as soon as practical after grading to protect the subgrade soil from drying. Alternatively, the subgrade should be kept moist by watering until the non-expansive fill is placed.

Unstable subgrades in smaller, isolated areas can be stabilized by over excavating to a minimum of 18 inches in depth below finished subgrade elevation where competent, stable soils are not encountered. The bottom of the excavation should then be completely covered with a ground stabilization geotextile fabric such as Mirafi 500X or equivalent, and typically backfilled with Class 2 aggregate base. Alternatively, with the approval of the Geotechnical Engineer, such areas can be stabilized by over-excavating at least 1 foot, placing Tensar TriAx TX-140 or equivalent geogrid on the soil, and then placing 12 inches of Class 2 baserock on the geogrid. The upper 6 inches of the baserock in either case should be compacted to at least 90 percent relative compaction.

# Project Compaction Recommendations

The following table provides recommended compaction requirements for this project. Specific moisture conditioning and relative compaction recommendations will be discussed individually within applicable sections of this report.

# Table 1: Project Compaction Recommendations

Description	Min. Percent Relative Compaction	Recommended Minimum Percent Above Optimum Moisture Content
Engineered Fill (where required)	90	2
Foundations, Class 2 Baserock and Non- Expansive Fill	90	2
Foundations, Subgrade Soil	87-92	3 - 5

# **Foundations**

# Structural Mat Foundations

The Proposed BESS pad can be supported on a structural mat foundation bearing on properly prepared subgrade extending a minimum of 2 feet laterally from the outer perimeter of the foundation. In addition, the mat foundation should be underlain by a minimum 12-inch-thick layer of select non-expansive fill, such as baserock. The non-expansive fill should extend to a minimum of 2 feet beyond the outer perimeter of the foundation.

An average allowable bearing pressure of 2,000 pounds per square foot for dead plus live loads and modulus of subgrade reaction, k of 130 pci as well as Poisson's ratio of 0.40 may be assumed for design of the mat foundation. An Effective Plasticity Index of 20 may also be used, if needed, assuming placement of the recommended non-expansive fill layer directly below the mat foundation. Post-construction static settlements of the structural slab under the anticipated loads and designed in accordance with the recommendations presented above are anticipated to be less than ½ inch.

Resistance to lateral loads can be provided by friction between the mat foundation bottom and the supporting subgrade. An allowable coefficient of friction of 0.40 between the base of the slab and the underlying material is recommended, assuming placement of the recommended non-expansive fill layer directly below the mat foundation.

# 14'-0"± 13'-0"± (N) FENCE POST -PER 6/S6.0 (N) 8" CONCRETE -PAD PER 2/S5.1 SYSTEM "ELM MG125", W=73.60", D=49.00", H=105.00" WEIGHT=5,545 LBS SEE 2/S5.1 FOR ANCHORAGE (N) EXPANSION (N) SEL ENCLOSURE, ⊢ W=2'-6", D=1'-1", H=2'-6" . ▼ SEE 3/S5.0 FOR EQUIPMENT RACK AND ANCHORAGE (N) FENCE GATE PER 1/S6.0 (N) RELAY DISCONNECT 🔫 🦸 ` W=7", D=5", H=11" WEIGHT=6 LBS .\* : SEE 3/S5.0 FOR EQUIPMENT RACK AND ANCHORAGE W=11", D=7", H=7" WEIGHT=3.55 LBS SEE 3/S5.0 FOR EQUIPMENT RACK AND ANCHORAGE (N) ACDS-ESS-1, W= 1'-10", D=7, H=3'-9" WEIGHT=100 LBS (N) LIGHT SWITCH W=4, D=3, H=5.5" ▼ SEE 3/S5.0 FOR EQUIPMENT WEIGHT=1 LBS RACK AND ANCHORAGE SEE 3/S5.0 FOR EQUIPMENT (N) VERIS ESS METER, (N) XFMR BATT RACK AND ANCHORAGE W=7", D=5", H=7" W=2'-8", D=2'-6", H=3'-9 (N) 6" CONCRETE WEIGHT=10 LBS WEIGHT=910 LBS PAD PER 5/S5.0 SEE 3/S5.0 FOR EQUIPMENT SEE 5/S5.0 FOR RACK AND ANCHORAGE ANCHORAGE -(N) 2A:10B:C EXTINGUISHER W=8", D=6", H=17" 2'-0" PER GEOTECH WEIGHT=13 LBS SEE N/E600 FOR ANCHORAGE NON EXPANSIVE (BASEROCK) FILL TO BE EXTENDED 2 FEET BEYOND THE OUTER PERIMETER OF THE 4'-0" TYP EQUIPMENT PAD FOUNDATION AND 24 INCHES THICK PER ATLAS GEOTECH REPORT No. 91-62540-PWI. SEE (N) BOLLARD -NOTE 3 & 4 FOR SITE PREPARATION PROCEDURE. 2 PER 5/S6.0 SACK SLURRY MIX WITH ROUGHENED SURFACE MAY BE USED IN LIEU OF COMPACTED BACKFILL. SITE SPECIFIC BATTERY PAD LAYOUT

# Mix # S18100EX

 Mix Description:
 SLURRY 188 LBS
 Slump: 6 ± 2
 2

 Usage:
 2 Sack Slurry
 W/CM Ratio:
 2.40

 Design Strength:
 100 PSI
 Plant:
 MARTINEZ PLANT (13)

Material Code	Description	Source Supp	Desig Quanti (lbs/c	Volume		
Cement	ASTM C150	Calportland-PORT OF ST	141	lb	0.72	
Fly Ash	ASTM C 618 Class F	SRMG-Gallup	47	lb	0.38	
Fine Aggregate	ASTM C 33 Fine Agg	Vulcan -Pleasanton	2727	lb	16.53	
Admixture	C260: Master Air AE 90	BASF -Cleveland		-	-	
Water	ASTM C1602	Central Concrete-Central	l Concrete	54.0	gal	7.22
			Air Target:	8.0	0 %	2.16
		[	Totals:	3365	ilh	27.00

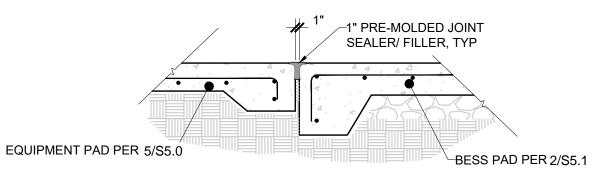
# Optional to be added upon request

Site Fresh	ASTM C 494 Type B & D	2 to 6
Site Set	ASTM C 494 Type C	10 to 45

SCALE: 3/4"=1'-0"

SCALE: 1/2" = 1'-0"





# EXPANSION JOINT DETAIL

<u> (</u> 1 )

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT

APP: 01-121369 INC:

REVIEWED FOR

SS FLS ACS

DATE: 9/17/2024

BATTERY HOST





925.473.2300

MBL-ENERGY

MBL-ENERGY

954 HAMPSWOOD WAY
San Jose, CA 95120

ELECTRICAL ENGINEER

888-885-4401



Pearce Renewables
1222 VINE ST. STE 301

PASO ROBLES, CA 93446

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883



PROJECT

# LOS MEDANOS ELEMENTARY SCHOOL

610 CROWLEY AVE, PITTSBURG, CA 94565

NO.	REVISION	DATE
0	ISSUED FOR PERMIT	11/30/2023
1	RESPONSE TO PLAN CHECK	03/07/2024

03/07/2024

QUEET TITLE

SITE SPECIFIC BATTERY
PAD LAYOUT

SHEET NO.

LM-GE2.0

# SUPPLEMENTARY CONDITIONS

DSA SHALL BE NOTIFIED AT THE START OF CONSTRUCTION AND PRIOR TO PLACEMENT OF CONCRETE

THE PROJECT INSPECTOR MUST BE EMPLOYED BY OWNER OR APPROVED BY ALL OF THE FOLLOWING

- STRUCTURAL ENGINEER(WHEN APPLICABLE)

INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 4-333(b), PART 1, TITLE 24. THE DUTY OF THE INSPECTOR SHALL BE

THE ARCHITECT AND STRUCTURAL ENGINEER SHALL PERFORM THEIR DUTIES IN ACCORDANCE WITH SECTION 4-222(a) AND 4-341, PART 1

ALL TEST TO CONFORM TO THE REQUIREMENTS OF SECTION 4-335, PART 1, TITLE 24, AND APPROVED T & 1 SHEETS

TEST OF MATERIALS AND TEST LABORATORY SHALL BE IN ACCORDANCE WITH SECTION 4-335, PART 1,TITLE 24. THE SCHOOL DISTRICT SHALL EMPLOY AND PAY THE LABORATORY. COSTS OF RE-TEST MAY BE BACK CHARGED TO THE CONTRACTOR

CONTRACTOR, INSPECTOR, ARCHITECT AND ENGINEERS SHALL SUBMIT VERIFIED REPORTS (FORM SSS-6) IN ACCORDANCE WITH SECTION 4-336 AND 4-343 PART 1, TITLE 24.

ALL ADDENDA AND CONSTRUCTION CHANGE DOCUMENTS (C.C.D.) PER IR A6 MUST BE SIGNED AND APPROVED BY ALL OF THE FOLLOWING (SECTION 4-338, PART 1, TITLE 24):

- A/E OF RECORD - OWNER (C.C.D. ONLY)

- STRUCTURAL ENGINEER (WHEN APPLICABLE)

- DELEGATED PROFESSIONAL ENGINEER (WHEN APPLICABLE)

CHANGES ARE NOT VALID UNTIL APPROVED BY DSA. ALL SUBSTITUTIONS SHALL BE CONSIDERED AS C.C.D. PER IR A6, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION.

WORK WILL NOT COMPLY WITH SAID TITLE 24. C.C.R., C.C.D. DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE

OVER THE COUNTER ALLOWED. IF THE PC IS MODIFIED, FULL SUBMITTAL WILL BE REQUIRED AND IT IS NOT ELGIBLE FOR OVER-THE COUNTER (OTC) APPROVAL

## DESIGN PARAMETER CHECKLIST

DESIGN PROFESSIONAL SHALL EVALUATE THE ITEMS BELOW. THEIR APPLICABILITY TO THE SITE SPECIFIC APPLICATION SHALL BE INDICATED BY A CHECK MARK:

LETTER PROVIDED FOR MODULE SPECIFIED ON SITE APPLICATION DRAWINGS MEETS CRITERIA OF PC

■ GEOHAZARD REPORT REQUIREMENTS HAVE BEEN CONSIDERED (SELECT ONE OPTION BELOW)

☐ GEOHAZARD REPORT REQUIRED (NOT ELIGIBLE FOR OTC SUBMITTAL) ■ GEOHAZARD REPORT NOT REQUIRED, STRUCTURES DO NOT EXCEED 4000 S.F. IN PLAN AREA AND ARE NOT LOCATED WITHIN STATE OR LOCAL GEOHAZARD ZONES

■ USE AND OCCUPANCY, INCLUDING OCUPANT LOAD FACTOR (OLF) SPECIFIED ON THE SITE APPLICATION DRAWINGS FOR RISK CATEGORY VERIFICATION

STRUCTURE DOES NOT PROVIDE SHELTER FOR EMERGENCY VEHICLES OR EQUIPMENT; OR PROVIDE REQUIRED ACCESS TO,

REQUIRED EGRESS FROM OR SHARES LIFE SAFETY COMPONENTS WITH A RC III OR IV BUILDING.

■ SITE SPECIFIC SOILS REPORT PROVIDED

MINIMUM 12" CLEARANCE REQUIRED WHEN PLACING MULTIPLE CANOPIES PER NOTE #3 OF 'PARTIAL LAYOUT' ON SHEETS S1.0 THROUGH S3.7. MINIMUM 12" CLEARANCE IS ALWAYS REQUIRED (EVEN IF PROJECT IS NOT EXEMPT FROM CGS REVIEW)

FIRE SEPARATION TO BE A MINIMUM 10'-0" CLEAR FROM BUILDINGS PER TABLE 602

SET BACK FROM PROPERTY LINE TO BE CONFIRMED BY ARCHITECT PER OCCUPANCY

SITE SLOPE REQUIREMENTS HAVE BEEN CONSIDERED (SELECT ONE OPTION BELOW) ■ SITE SLOPES HAVE STEEPNESS OF 1:3 (33%) OR LESS; FOUNDATION SETBACK REQUIREMENTS NOT APPLICABLE ☐ SITE SLOPES ARE STEEPER THAN 1:3 (33%); FOUNDATION SETBACKS COMPLY WITH THE REQUIREMENTS OF DETAILS 3/S4.0

☐ SITE SLOPES ARE STEEPER THAN 1:3 (33%); FOUNDATION SETBACKS COMPLY WITH GEOTECHNICAL REPORT RECOMMENDATIONS (SKETCH DEPICTING GEOTECHNICAL REPORT RECOMMENDATIONS PROVIDED IN THE PLAN SET FOR THE SITE-SPECIFIC APPLICATION, SEE DETAILS 3/S4.0 AND/OR 5/S4.0)

SPACING BETWEEN DRILLED PIERS SHALL BE 3 TIMES THE PIER DIAMETER OR A MINIMUM OF 7'-6"

■ SITE IS NOT IN SITE CLASS F

FLOOD ZONE REQUIREMENTS HAVE BEEN CONSIDERED (SELECT ONE OPTION BELOW)

SITE IS IN A FLOOD ZONE OTHER THAN ZONE X; LETTER FROM GEOTECHNICAL ENGINEER VALIDATING THE APPLICABILITY OF THE ALLOWABLE SOILS VALUES PROVIDED

■ ELECTRICAL SITE PLAN PROVIDED FOR SOLAR OVER THE COUNTER PROJECTS BY ELECTRICAL ENGINEER

GROUNDING DETAIL PROVIDED ALONG WITH MODULES, CONDUCTORS AND LINE DIAGRAMS

LOCAL FIRE AUTHORITY APPROVAL FOR OVER THE COUNTER USE FOR FIRE ACCESS, LOCATION OF ELECTRICAL DISCONNECTS, LOCATION OF WARNING SIGNS, ETC.

SNOW LOADING REQUIREMENTS HAVE BEEN CONSIDERED (SELECT ONE OPTION BELOW) ■ SITE IS NOT SUBJECT TO SNOW LOADING

☐ SITE IS SUBJECT TO SNOW LOADING, SOLAR PV STRUCTURE IS INSTALLED A MINIMUM OF 20 FEET AWAY FROM ANY ADJACENT

☐ SITE IS SUBJECT TO SNOW LOADING, SOLAR PV STRUCTURE IS INSTALLED LESS THAN 20 FEET AWAY FROM ADJACENT STRUCTURES; SNOW DRIFT ANALYSIS IS PROVIDED BY THE PC APPLICANT (NOT ELIGIBLE FOR OTC SUBMITTAL)

SITE SPECIFIC PIER DESIGN REQUIRED TO LIMIT DEFLECTION AND SETTLEMENT IN SITES WHERE LOOSE SAND, SOFT CLAY, SHALLOW GROUND WATER AND/OR LIQUIFIABLE SOILS ARE PRESENT. SEE S0.1 SOIL NOTES 2, 3 & 4. (NOT ELIGIBLE FOR OTC

☐ SEISMIC INDUCED DIFFERENTIAL SETTLEMENT LIMIT IS ¾" OVER 27 FEET

PRE-CHECK ASSUMES COLUMNS AND BOLLARDS ARE OF EQUAL HEIGHTS WITHIN AN ARRAY, SEOR TO BE CONSULTED FOR SITE SPECIFIC DESIGN IF HEIGHTS VARY

BESS REQUIREMENTS HAVE BEEN CONSIDERED (SELECT ONE OPTION BELOW) ☐ BESS NOT PROVIDED IN THIS PROJECT

■ INDIVIDUAL AND GROUPED BESS UNITS DO NOT EXCEED A TOTAL CAPACITY OF 600 KWH; PC SHEET S5.1 IS PROVIDED AS PART OF

☐ INDIVIDUAL AND GROUPED BESS UNITS EXCEED A TOTAL CAPACITY OF 600 KWH. STRUCTURL DESIGN CALCULATIONS FOR BESS IS PROVIDED BY THE PC APPLICANT AND STRUCTURAL CONSTRUCTION DETAILS FOR BESS UNIT(S) ARE INCLUDED IN THE SITE-SPECIFIC PLAN SET (NOT ELIGIBLE FOR OTC SUBMITTAL)

A#04-122069

MBL ENERGY LIC# 831026 1698 ROGERS AVE, SUITE 100 SAN JOSE, CA 95112

### NOTES TO OTC PLAN REVIEW AND DESIGN PROFESSIONAL

THIS PRE-CHECK DRAWING SET HAS MULTIPLE DESIGN CRITERIA AND THE CORRECT LOADING IS TO BE SELECTED ON THE DRAWINGS BY THE DESIGN PROFESSIONAL OF RESPONSIBLE CHARGE.

APPLICABILITY AS PROPOSED IN THE SPECIFIC SITE. A CHECK MARK SHALL BE PLACED IN THE CHECK BOX FOR EACH ITEM IF THE PROVISION'S DESCRIPTION IS VALID/APPLICABLE. THIS PC MAY ONLY BE USED IF ALL THE MAIN-ITEM PROVISION HAVE BEEN CHECKED; INDENTED SUB-ITEMS SHALL BE CHECK AS DIRECTED BY THE MAIN-ITEM DESCRIPTION

SITE SPECIFIC INFORMATION SHALL BE VERIFIED TO SELECT ALL OF THE FOLLOWING TYPE OF STRUCTURE

SDS VALUE

SNOW LOAD SOIL CASE

## SCOPE OF WORK

SCOPE INCLUDES INSTALLATION OF SOLAR SUPPORT STRUCTURE INCLUDING SOLAR MODULE INSTALLATION.

PERMIT SHALL INCLUDE LABOR OF CONSTRUCTING SOLAR SUPPORT STRUCTURE INCLUDING SOLAR MODULE INSTALLATION

THIS PROJECT SHALL COMPLY WITH TITLE 24 AND 2022 CALIFORNIA BUILDING CODE (CBC), CALIFORNIA MECHANICAL CODE (CMC), CALIFORNIA PLUMBING CODE (CPC), CALIFORNIA ELECTRICAL CODE (CEC), AND CALIFORNIA ENERGY CODE (CENC),

# **CONSTRUCTION TYPE**

TYPE OF CONSTRUCTION

DESCRIPTION OF USE SOLAR SUPPORT STRUCTURES **OCCUPANCY** GENERAL IN RESPONSIBLE CHARGE TO PROVIDE CODE ANALYSIS SHADE STRUCTURE STRUCTURES OVER LUNCH AREA WITHOUT FIXED SEATING OCCUPANCY: OCCUPANCY LOAD: 15 FT²/PERSON, MAX 300 FT² STRUCTURES LOCATED OVER AN AREA DESIGNATED FOR ASSEMBLY OCCUPANCY: OCCUPANCY LOAD: 7 FT2/PERSON, MAX 300 2100 FT<sup>2</sup> STRUCTURES LOCATED OVER A FIELD, BLACKTOP, PLAYGROUND OR OTHER NON DESIGNATED USE SPACES OCCUPANCY: 20 FT²/PERSON, MAX 250 OCCUPANCY LOAD:

BUCTURES LOCATED OVER PARKING

OCCUPANCY LOAD: 200 FT<sup>2</sup>/PERSON UNLIMITED PER CBC 406.5.4 AND 406.5.5

APPLICABLE CODES AS OF JANUARY 1, 2023

2022 CALIFORNIA CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR (2019 INTERNATIONAL BUILDING CODE, VOL. 1 & 2 AND 2016 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ELECTRICAL CODE, PART 3, TITLE 24 CCR (2020 NATIONAL ELECTRICAL CODE AND 2019 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR

(2021 IAPMO UNIFORM MECHANICAL CODE AND 2019 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24, CCR (2021 IAPMO UNIFORM PLUMBING CODE AND 2019 CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR

2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR (2018 INTERNATIONAL FIRE CODE AND 2019 CALIFORNIA AMENDMENTS)

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

REFERENCE CODE SECTIONS FOR APPLICABLE STANDARDS 2022 CBC, CHAPTER 35 2022 CFC, CHAPTER 47

DSA IR PC-7, ISSUED 01/17/23 UNDER 2022 CBC

DSA IR 16-8, ISSUED 03/30/21 UNDER 2019 CBC

DSA IR 13-1, ISSUED 01/11/23

NS STRUCTURAL ENGINEERING, INC 4642 ROCKLAND PLACE LA CANADA FLINTRIDGE, CA 91011

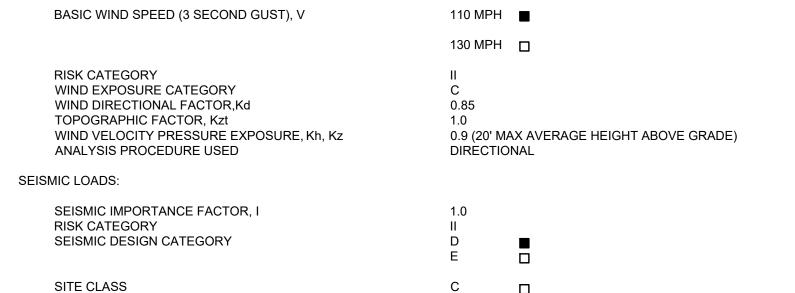
# STRUCTURAL DESIGN CRITERIA

SPRINKLERS

ALL WORK SHALL COMPLY WITH THE 2022 CALIFORNIA BUILDING CODE (CBC) GRAVITY LOADS: SOLAR MODULE 0.0 PSF (WITH SOLAR MODULES) LIVE LOAD\* 2.0 PSF (OPEN GRID WITHOUT SOLAR MODULES)

\*NO FUTURE ROOF DECKING OR SHEATHING MAY BE APPLIED ON THE OPEN GRID FRAMING

WIND LOADS: BASED ON WORST CASE OBSTRUCTED WIND LOADS



\* PC COMPLIES WITH THE INCREASED S<sub>M1</sub> REQUIREMENTS ASCE 7 SUPPLEMENT 3 AND A SITE SPECIFIC GROUND MOTION ANALYSIS IS NOT REQUIRED.

NOT ALLOWED

\*\* EQUIVALENT LATERAL FORCE PROCEDURE WAS USED IN THE DESIGN OF THIS PC, THE SEISMIC RESPONSE COEFFICIENT (Cs) USED IN DESIGN WAS BASED ON ASCE 7 EQUATION 12.8-2, AND A SITE SPECIFIC GROUND MOTION ANALYSIS IS NOT

< 1.77G (VERIFY WITH GEOTECH REPORT)

0 PSF (27'-0" MAX COLUMN SPACING)

20 PSF (20'-0" MAX COLUMN SPACING) □

AT GRADE FOR SOIL CASE 5

< 1.42 (STRENGTH LEVEL), PCS=1.85 (STRENGTH LEVEL

RESPONSE MODIFICATION FACTOR, R 1.25 (STEEL ORDINARY CANTILEVER COLUMN SYSTEM) OVER STRENGTH FACTOR.  $\Omega$ REDUNDANCY FACTOR, ρ DESIGN SPECTRAL ACCELERATION AT SHORT PERIOD, SDS < 1.50G (VERIFY WITH GEOTECH REPORT) ≤ 1.20 (STRENGTH LEVEL), PCs = 1.56 (STRENGTH LEVEL)

SEISMIC RESPONSE COEFFICIENT, Cs DESIGN SPECTRAL ACCELERATION AT SHORT PERIOD, S<sub>DS</sub>

SEISMIC RESPONSE COEFFICIENT, Cs

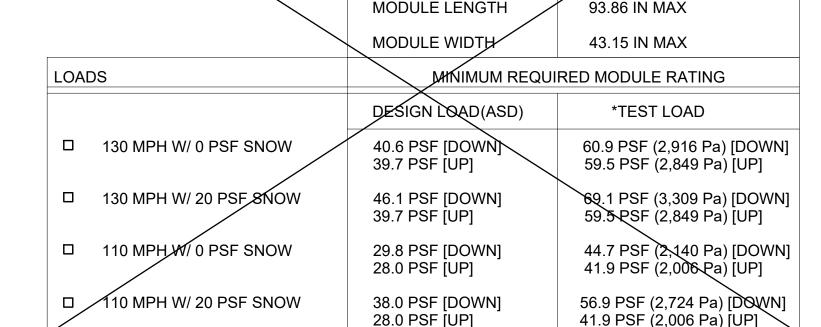
LOCATION OF BASE PER ASCE 7 SEC 11.2 (CBC SEC 1603A.1.5) 1 FOOT BELOW GRADE, TYP

# SOLAR MODULE SPECIFICATIONS

SOLAR MODULES LABELED IN ACCORDANCE WITH UL1703 OR WITH BOTH 61730-1 AND 61730-2 PER CBC SECTION 1511.9 FOR THE MODULE 2. THE OWNER'S SITE PROFESSIONAL SHALL PROVIDE PRODUCT DOCUMENTATION FROM THE SOLAR MODULE SUPPLIER, INCLUDING MODULE DIMENSIONS AND LOAD RATINGS, TO THE PC DESIGN PROFESSIONAL FOR REVIEW PRIOR TO SUBMITTAL TO DSA FOR PLAN REVIEW.

DESIGN OR TEST VALUES FROM THE UL1703 TESTS OR 61730-1 & 61730-2. 3. THE LOAD RATINGS FOR THE SOLAR MODULES SELECTED MUST MEET AND EXCEED THE WIND AND SNOW PRESSURES BELOW.

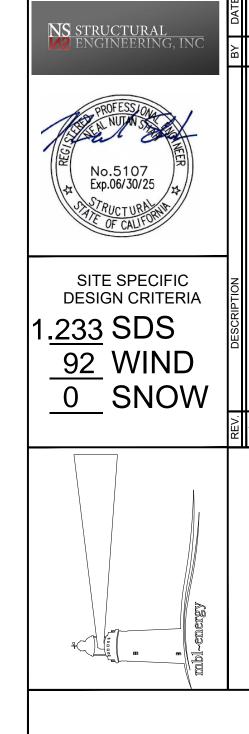
DOCUMENTATION SHALL IDENTIFY MODULE LOAD RATINGS AS ALLOWABLE OR STRENGTH LEVEL AND SPECIFY WHETHER THE LOADS LISTED ARE



\*TEST LOAD = Ym X DESIGN LOAD  $(Ym = SAFETY FACTOR \ge 1.5 PER UL 61730-2 SECTION 10.23)$ 

# APP: 01-121369 INC: REVIEWED FOR SS 🗹 FLS 🗹 ACS 🗌

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC



DIV: QF THE STATE ARCHJ

PPRO

CH

# LOS MEDANOS ELEMENTARY SCHOOL

PRE-CHECK SPECIFICATIONS SAMPLE DSA 103 FORM 5 HIGH FULL STRUCTURE DETAILS W/ BOLLARD 5 HIGH FULL TALL STRUCTURE DETAILS W/ BOLLARD 5 HIGH FULL TALL STRUCTURE DETAILS W/O BOLLARD 3 HIGH TILT UP TALL STRUCTURE DETAILS W/ BOLLARD 3 HIGH TILT UP TALL STRUCTURE DETAILS W/O BOLLARD 3 HIGH TILT DOWN STRUCTURE DETAILS W/ BOLLARD 3 HIGH TILT DOWN TALL STRUCTURE DETAILS W/ BOLLARD B HIGH TILT DOWN STRUCTURE DETAILS W/O BOLLARD 3 HIGH TILT DOWN TALL STRUCTURE DETAILS W/O BOLLARD \$3.3 ALTERNATE DETAILS EQUIPMENT PAD AND ANCHORAGE DETAILS BESS EQUIPMENT PAD AND ANCHORAGE DETAILS EQUIPMENT PAD FENCE AND ANCHORAGE DETAILS BEACON SOLUTION ELECTRICAL DETAILS

TOTAL NUMBER SHEETS = 5

ALTERNATE DETAILS OPTION CHECKLIST SPREAD FOOTING PER DETAIL 1/S4.0

OLD JOINT PER DETAIL 2/S4.0 STRUCTURE SETBACK TO SLOPES > 1:3 (33%), DETAIL 3/S4.0 OPTIONAL FASCIA PER DETAIL 4/S4.0 TAPPERED BEAM PER DETAIL 6/S4.0 END CAP FOR HDG BEAMS PER DETAIL 7/S4.0 HOLES IN PLATES PER DETAIL 8/S4.0

# ADDITIONAL NOTES

1. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A C.C.D. PER IR A6 ORDER APPROVED BY THE DIVISION OF THE STATE ARCHITECT AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, C.C.R.

2. NS STRUCTURAL ENGINEERING, INC IS ACTING AS A SITE SPECIFIC SEOR. ALL RIGHTS TO USE THIS PRE CHECK BELONG TO MBL ENERGY AND NS STRUCTURAL ENGINEERING, INC.

3. A 'DSA' CLASS 2 INSPECTOR WHO IS SPECIFICALLY QUALIFIED IN MECHANICAL AND ELECTRICAL WORK IS REQUIRED FOR THIS PROJECT. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALI CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.

CHECKED BY:

## GENERAL

1. THE JOB SITE SHALL BE MAINTAINED IN A CLEAN, ORDERLY CONDITION FREE OF DEBRIS AND LITTER, SHALL NOT BE UNREASONABLY ENCUMBERED WITH ANY MATERIALS OR EQUIPMENT AND SHALL BE CLEANED AT THE END OF EACH WORKING DAY.

2. CONSTRUCTION AND MATERIALS SHALL BE AS SPECIFIED AND AS REQUIRED BY THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE (CBC) AND LOCALLY ENFORCED CODES AND AUTHORITIES. ALL ARTICLES, MATERIALS AND EQUIPMENT SHALL BE INSTALLED, APPLIED AND CONNECTED AS DIRECTED BY THE MANUFACTURER'S LATEST WRITTEN SPECIFICATIONS EXCEPT WHERE OTHERWISE NOTED. MATERIAL NOTES ON THE DRAWINGS SHALL TAKE

3. IN THE EVENT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN, THEIR CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR FEATURES.
ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN ON THE PLANS.

4. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING AND FORMWORK AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION.

5. MATERIALS STORED ON THE SITE SHALL BE PROPERLY STACKED AND PROTECTED TO PREVENT DAMAGE AND DETERIORATION UNTIL USE. FAILURE TO PROTECT MATERIALS MAY BE CAUSE FOR REJECTION OF WORK.

6. CONTRACTOR TO REFERENCE SHEET S7.0 FOR BEACON SOLUTION OF UL CERTIFIED MODULE CONNECTION, PARTS AND INSTALLATION INSTRUCTIONS.

## EARTHWORK

1. CONTRACTOR SHALL CAREFULLY EXCAVATE ALL MATERIALS NECESSARY FOR CONSTRUCTION OF THE WORK. ANY MATERIAL OF AN UNSUITABLE OR DELETERIOUS NATURE DISCOVERED BELOW THE BOTTOMS OF THE FOUNDATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE GEOTECHNICAL

2. CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT, INCLUDING ALL ADDENDUM, IN ITS ENTIRETY PRIOR TO STARTING WORK.

### CAST-IN-PLACE CONCRETE PIERS

PRECEDENCE OVER THESE SPECIFICATIONS.

1. DRILLED HOLES FOR CAST-IN-PLACE CONCRETE PIERS SHALL BE DRILLED TO THE DIAMETERS AND DEPTHS SHOWN ON THE PLANS

2. DRILLED HOLES SHALL BE EXAMINED FOR STRAIGHTNESS AND ANY HOLE SHOWING AN OUT OF PLUMB TOLERANCE IN EXCESS OF 2% OF THE TOTAL HOLE DEPTH SHALL BE REJECTED. IF THE TOLERANCES NOTED HEREIN ARE EXCEEDED, THE CONTRACTOR SHALL PURNISH AND PAY FOR ANY CORRECTIVE DESIGN AND CONSTRUCTION THAT MAY BE REQUIRED. SUITABLE CASINGS SHALL BE FURNISHED AND PLACED WHEN NECESSARY TO CONTROL WATER OR TO PREVENT CAVING OF THE HOLE.

3. LOOSE MATERIAL EXISTING AT THE BOTTOM OF THE HOLE AFTER DRILLING OPERATIONS HAVE BEEN COMPLETED SHALL BE REMOVED BEFORE PLACING REINFORCING STEEL OR CONCRETE IN THE HOLE. SURFACE WATER SHALL NOT BE PERMITTED TO ENTER THE HOLE AND ALL WATER WHICH MAY HAVE INFILTRATED INTO THE HOLE SHALL BE REMOVED PRIOR TO PLACING CONCRETE JHEREIN.

4. CASING, IF USED IN DRILLING OPERATIONS, SHALL BE REMOVED FROM THE HOLE AS CONCRETE IS PLACED THEREIN. THE BOTTOM OF THE CASING SHALL BE MAINTAINED A MINIMUM OF FOUR FEET BELOW TOP OF THE CONCRETE DURING WITHDRAWAL AND PLACING OPERATIONS. SEPARATION OF THE CONCRETE BY HAMMERING OR OTHERWISE VIBRATING THE CASING DURING WITHDRAWAL OPERATIONS SHALL BE AVOIDED.

5. CARE SHOULD BE EXERCISED TO ENSURE THAT ANY CONCRETE SPILLS DURING THE CONCRETE PLACEMENT ARE REMOVED, AND NO "MUSHROOMING" EFFECTS ARE ALLOWED TO REMAIN AROUND THE TOP OF THE PIER.

6. REMOVAL OF SHORING SHALL COMPLY WITH ACI, ACI 301, AND RECOMMENDATIONS IN ACI 347R

7. FORMWORK, FOR SIDES OF COLUMNS/PIERS, THAT DOES NOT SUPPORT WEIGHT OF CONCRETE MAY BE REMOVED AFTER CUMULATIVELY CURING AT NOT LESS THAT 50 DEG F (10 DEG C) FOR 24 HOURS AFTER PLACING CONCRETE PROVIDED CONCRETE IS HARD ENOUGH TO NOT BE DAMAGED BY FORM-REMOVAL OPERATIONS AND PROVIDED CURING AND PROTECTION OPERATIONS ARE MAINTAINED.

8. SPEEL COLUMNS, BEAMS, AND PURLINS MAY BE ERECTED AFTER CONCRETE ACHIEVES 70% OF THE DESIGN CONCRETE COMPRESSIVE STRENGTH.

## REINFORCEMENT

1. USE GRADE 60 DEFORMED REINFORCING FOR #4 AND SMALLER BARS AND GRADE 60 FOR #5 AND LARGER BARS CONFORMING TO THE REQUIREMENTS OF ASTM A615. STAGGER ALL REINFORCING BAR CONTACT SPLICES 5'-0". SUPPORT HORIZONTAL STEEL AT BOTTOM ON MORTAR BLOCKS. MINIMUM 3-INCH CLEARANCE FOR SURFACES POURED AGAINST EARTH; MINIMUM 1-1/2 INCH ELSEWHERE UNLESS NOTED OTHERWISE.

2. ALL REINFORCING, AND OTHER EMBEDMENTS SHALL BE SECURED IN PLACE AND INSPECTED PRIOR TO PLACING ANY CONCRETE

3. WORK DONE UNDER THIS SECTION SHALL CONFORM WITH THE APPLICABLE PORTIONS IN CHAPTER 25 OF ACI 318, LATEST EDITION.

# CONCRETE

1. WORK DONE UNDER THIS SECTION SHALL CONFORM WITH THE APPLICABLE PORTIONS OF ACI 318-19.

2. POURED IN PLACE CONCRETE WORK SHALL BE CONSTRUCTED OF NORMAL WEIGHT, PORTLAND CEMENT CONCRETE, HAVING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI, TYPE II OR V, W/C 0.45 MAX (4500 PSI) OR 0.4 MAX (5000 PSI OR HIGHER) UNLESS GEOTECH REPORT INDICATES CORROSIVE INFORMATION. PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION. THE CONCRETE SHALL BE PLACED WITH A MAXIMUM OF 312 POUNDS OF WATER PER CUBIC YARD. MAXIMUM CONCRETE SLUMP SHALL BE 4 TO 6 INCHES. THE USE OF ANY ADMIXTURE IN THE CONCRETE MUST BE APPROVED BY THE ENGINEER.

3. THE PROJECT GEOTECHNICAL ENGINEER MUST COLLECT REPRESENTATIVE SOIL SAMPLES TO TEST FOR CORROSION POTENTIAL OF SOIL TOWARD STEEL REINFORCEMENT IN THE PIERS. AS A MINIMUM THE TESTS TO BE PERFORMED INCLUDE RESISTIVITY (100% SATURATION), PH, CHLORIDE AND SULFATE. IF THE SOIL IS DETERMINED TO BE POTENTIALLY CORROSIVE TO STEEL REINFORCEMENT, THEN THE GEOTECHNICAL ENGINEER OR A CORROSION ENGINEER MUST PROVIDE MEASURES TO PROTECT THE STEEL REINFORCEMENT FROM CORROSION. THE CORROSION PROTECTION MEASURES MUST CONFORM TO THE REQUIREMENTS OF CHAPTER 4, OF ACI 318 (LATEST EDITION).

4. AGGREGATES: COARSE AGGREGATES SHALL CONFORM TO ASTM C 33 SIZE 57 (1" MAX). 100% PEA GRAVEL AGGREGATE ADMIXTURE SHALL NOT BE USED.

5. NEWLY PLACED CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN ACI 308, "STANDARD PRACTICE FOR CURING CONCRETE," LATEST EDITION. METHOD OF CURING SHALL BE AT THE OPTION OF THE CONTRACTOR WITH APPROVAL OF THE OWNER AND ENGINEER.

6. METAL ANCHORAGE DEVICES, ANCHOR RODS, ETC. SHALL BE SECURED IN PLACE AND INSPECTED PRIOR TO PLACING CONCRETE. WET SETTING EMBEDDED DEVICES IS NOT ACCEPTABLE.

7. CONCRETE COVERAGE AROUND ALL APPURTENANCES (IE CONDUIT, REBAR, ANCHORS) SHALL HAVE A MINIMUM OF 3" CLEARANCE WHERE EXPOSED TO EARTH, AND 2" AT ALL OTHER AREAS UNLESS NOTED OTHERWISE.

8. REFER TO ACI 318-19 SECTION 19.3.1.1 AND 19.3.2.1 IN ACCORDANCE WITH TABLE 19.3.1.1 AND 19.3.2.1 FOR CONCRETE SPECIFICATIONS TO ADDRESS DIFFERENT EXPOSURE CLASSES INDICATED IN SITE SPECIFIC GEOTECHNICAL REPORT. USE TYPE V AND 4500 PSI CONCRETE UNLESS SULFATE CONTENT IS LESS THAN 150 PPM AND CHLORIDE CONTENT LESS THAN 0.3. CONCRETE MIX DESIGN TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.

# **EMBEDMENTS IN CONCRETE**

A BLEND OF AGGREGATES IS ACCEPTABLE.

1. CONDUITS AND PIPES, WITH THEIR FITTINGS, EMBEDDED WITHIN A COLUMN SHALL NOT DISPLACE MORE THAN 4 PERCENT OF THE AREA OF CROSS SECTION ON WHICH STRENGTH IS CALCULATED OR WHICH IS REQUIRED FOR FIRE PROTECTION.

2. CONDUITS AND PIPES SHALL HAVE AN OUTSIDE DIAMETER NO GREATER THAN 3" AND SPACED NO LESS THAN 1" CLEAR FROM EACH OTHER OR THE REINFORCEMENT

3. CONDUITS AND PIPES SHALL BE SPACED A MINIMUM OF 3 BAR DIAMETERS AND 2 1/8" ON CENTER FROM REBAR.

4. SPECIFIED CONCRETE COVER FOR PIPES, CONDUITS, AND FITTINGS SHALL NOT BE LESS THAN 1 ½" FOR CONCRETE EXPOSED TO EARTH OR WEATHER, NOR LESS THAN ¾ INCH FOR CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND.

5. PIPING AND CONDUIT SHALL BE FABRICATED AND INSTALLED THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED.

6. THE WORKABILITY AND METHODS OF CONSOLIDATION OF THE CONCRETE SHALL BE SUCH THAT THE CONCRETE CAN BE PLACED WITHOUT HONEYCOMBS

# NON-SHRINK/NON-METALLIC (NSNM) GROUT

CONTACT AGAINST UNDERSIDE OF BASE PLATE (NO AIR ENTRAPMENT SHALL BE VISIBLE).

1. NON-SHRINK GROUT SHALL BE COMPOSED OF PORTLAND CEMENT, SAND, AND WATER. USE SPECGROUT SC MULTI PURPOSE GROUT BY SPECHEM OR APPROVED EQUAL. THE NON-SHRINK GROUT SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS

2. CONCRETE AREAS TO BE IN CONTACT WITH THE NON-SHRINK GROUP SHALL BE CLEANED OF ALL LOOSE OR FOREIGN MATERIAL THAT WOULD IN ANY WAY PREVENT BOND BETWEEN THE NON-SHRINK GROUT AND THE CONCRETE AND STEEL SURFACES AND SHALL BE FLUSHED WITH WATER AND ALLOWED TO DRY TO A SURFACE DRY CONDITION IMMEDIATELY PRIOR TO PLACING THE NON-SHRINK GROUT.

3. FORMING FOR GROUT-INSTALLATION MAY BE PLACED VERTICAL TO FACE OF BASE PLATE REQUIRED THE GROUT MAINTAINS FULL BEARING AND

STRUCTURAL STEEL & MISCELLANEOUS IRON

1. WORK DONE UNDER THIS SECTION SHALL CONFORM TO THE REQUIREMENTS OF THE AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE. LATEST

A. BOLT HOLES SHALL BE STANDARD HOLE SIZE (I.E. BOLT DIA +  $N_6$ ") UNLESS NOTED OTHERWISE B. ALL SCREWS SHALL EXTEND THROUGH THE STEEL CONNECTION WITH A MINIMUM OF 3 EXPOSED THREADS, SEE AISI

2. ALL STEEL MATERIAL AND ASSEMBLIES EXPOSED TO EARTH IN THE COMPLETED STRUCTURE SHALL BE GALVANIZED OR SHOP PAINTED.

3. WELDING SHALL BE DONE BY WELDERS CERTIFIED FOR THE WELDS TO BE MADE USING E70XX ELECTRODES IN CONFORMANCE WITH THE REQUIREMENTS OF AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE OR AWS "STRUCTURAL WELDING CODE."

4. WHEN FABRICATING BEAMS, PLACE NATURAL CAMBER UP.

5. WELDING SHALL BE DONE BY WELDERS CERTIFIED FOR THE WELDS TO BE MADE USING E70XX ELECTRODES IN CONFORMANCE WITH THE REQUIREMENTS OF AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE OR AWS "STRUCTURAL WELDING CODE." FULL PENETRATION WELDS ARE TO BE INSPECTED DURING WELDING BY A SPECIAL INSPECTOR.

6. COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE FILLER METAL WITH A V-NOTCH TOUGHNESS OF 20-FT/LBS. AVERAGE AT 70 DEGREES FAHRENHEIT.

7. TO ASSURE THE PROPER AMPERAGE AND VOLTAGE OF THE WELDING PROCESS, THE USE OF A HAND HELD CALIBRATED AMP AND VOLTMETER SHALL BE USED. THE FABRICATOR, ERECTOR AND THE INSPECTORS SHALL USE THIS EQUIPMENT. AMPERAGE AND VOLTAGE SHALL BE MEASURED AT THE ARC WITH THIS EQUIPMENT. TRAVEL SPEED AND ELECTRODE STICK OUT SHALL BE VERIFIED TO BE IN COMPLIANCE WITH THE ELECTRODE MANUFACTURER'S RECOMMENDATIONS.

8. WHERE MINIMUM AISC FILLET WELD THICKNESS REQUIREMENT EXCEEDS WELDS SHOWN ON DETAILS, PROVIDE MINIMUM AISC WELD.

9. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED FREE OF RUST, LOOSE MILL, SCALE AND OIL

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES WITH RELATION TO TEMPERATURE DIFFERENTIALS AND WELD SHANKAGE.

11. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO SEOR FOR APPROVAL PRIOR TO THE FABRICATION OF ANY PARTS OR ASSEMBLIES

12. A STANDARD SCREW GUN WITH A DEPTH SENSITIVE NOSE PIECE SHALL BE USED TO INSTALL 'TEK' SCREWS FOR SOLAR MODULE INSTALLATION. THE SCREW GUN SHALL BE A MINIMUM OF 6 AMPS AND HAVE AN RPM RANGE OF 0-2500.

13. ALL HSS STEEL SHALL USE SAW WELDING PROCUEDURES

## **SOILS**

MEASURED AT GROUND LEVEL

1. A GEOTECHNICAL ENGINEER SHALL BE ENGAGED TO MAKE A SITE SPECIFIC GEOTECHNICAL REPORT AND CLASSIFY THE SOIL MATERIAL SHOWN IN TABLE LISTED BELOW WHICH DETERMINES THE PIER DEPTH.

2. IF THE STRUCTURE IS LOCATED IN AN AREA WITH LIQUEFIABLE SOILS OR OTHER GEOHAZARD ZONE, OTC SUBMITTAL IS NOT ALLOWED AND SITE-SPECIFIC PROJECT SUBMITTAL IS REQUIRED. IF THE SITE IS NOT IN A MAPPED LIQUEFACTION HAZARD ZONE, IT MAY BE PRESUMED THAT NO LIQUEFACTION HAZARD EXISTS ON THAT SITE UNLESS THE SITE-SPECIFIC GEOTEHCNICAL REPORT IDENTIFIES SUCH HAZARD.

3. GEOTECHNICAL REPORT SHALL PROVIDE GROUNDWATER DEPTH. IF GROUNDWATER EXISTS WITHIN THE LENGTH OF THE PIER, THE SOILS TABLE DOES NOT APPLY AND THE REPORT SHALL PROVIDE DESIGN CRITERIA FOR SITE SPECIFIC DESIGN THAT ACCOUNTS FOR SATURATED SOIL. OTC SUBMITTAL IS NOT ALLOWED

4. THE TABLE IS NOT APPLICABLE FOR SITES WHERE THE FOUNDATIONS WILL BE WITHIN LOOSE SANDS OR SOFT CLAY AND/OR LIQUIFIABLE SOIL. THE GEOTECHNICAL REPORT SHALL PROVIDE APPLICABLE CRITERIA, RECOMMEND ALTERNATE FOUNDATION TYPES, OR PROVIDE GROUND IMPROVEMENT RECOMMENDATIONS.

5. SETBACKS FROM A DESCENDING SLOPE SHALL BE ADDRESSED IN SOILS REPORT OR MEET THE REQUIREMENTS OF CBC SECTION 1808A.7 PER DETAIL 3/S4.0

6. THE GEOTECHNICAL REPORT SHALL INCLUDE LABORATORY TESTS
A. DIRECT SHEAR AND UNCONFINED COMPRESSIVE STRENGTH TO PROVIDE SHEAR STRENGTH CRITERIA (COHESION AND PHI ANGLE) TO ASSIST IN

CLASSIFYING THE SOIL PER THE TABLE.

B. CORROSIVE TESTING SHALL BE PROVIDED TO EVALUATE IF THE CONCRETE NEEDS SPECIAL TREATMENT PER CONCRETE NOTE 8.

7. PIER EMBEDMENT DEPTH IS CALCULATED IN THE FOLLOWING CONDITIONS. GEOTECHNICAL REPORT SHALL INDICATE SKIN FRICTION VALUE FOR USE. MINIMUM SOIL VALUES PROVIDED. PIER DEPTHS IN THE TABLE ARE BASED ON RIGID ANALYSIS AND A 1/2" MAXIMUM LATERAL DISPLACEMENT OF THE CONCRETE PIER

FINAL DESIGN VALUES SOILS TABLE

(NO FURTHER INCREASES ALLOWED)

20 PSF

110 & 130 MPH

0 PSF

245 73 15'-6" 15'-0" 14'-6" 14'-0" 14'-6" 14'-0" 14'-0" 13'-6"

			LC	OW END CLE	ARANCE	13'-	6"	10'	-0"	184-	-6"	10'	-0"
			DESIGN SPEC	TRAL RESPO	NSE (Sps)	<u>&lt;</u> 1.77	<u>&lt;</u> 1.5	<u>≤</u> 1.77	<u>≤</u> 1.5	<u>≤</u> 1.77	<u>&lt;</u> 1.5	<u>&lt;</u> 1.77	<u>&lt;</u> 1.5
ARRAY TYPE	SOIL CASE	CLASS OF MATERIALS	ALLOWABLE LATERAL PASSIVE PRESSURE	MINIMUM ALLOWABLE SKIN FRICTION (PSF)						BEDMENT			
			(PSF/FT)	DOWN	UPLIFT								
	1	CRYSTALLINE BEDROCK	2400	623	228	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
5 HIGH	2	SEDIMENTARY AND FOLIATED ROCK	800	456	160	11'-6"	10'-6"	10'-6"	10'-0"	11'-0"	10'-6"	10'-6"	9'-6"
	3	SANDY GRAVEL AND GRAVEL	400	369	123	14-6"	13'-6"	14'-0"	13'-0"	14'-0"	13'-0"	13'-6"	12'-6"
	4	SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL AND CLAYEY GRAVEL	300	340	110	16'-6"	16'-6"	15'-6"	14'-6"	16'-0"	14'-6"	15'-0"	14'-0"
	5	CLAY, SANDY CLAY, SILTY CLAY AND SANDY SILT	200	309	) 9z	19'-0"	17'-6"	18'-0"	16'-6"	18'-0"	17'-0"	17'-6"	16'-0"
	1	CRYSTALLINE BEDROCK	2400	434	170	6'-6"	6'-6"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"	6'-0"
	2	SEDIMENTARY AND FOLIATED ROCK	800	334	120	9'-6"	9'-0"	9'-0"	8'-6"	9'-0"	8'-6"	8'-6"	8'-6"
HIGH	3	SANDY GRAVEL AND GRAVEL	400	279	98	12'-0"	11-6"	11'-6"	11'-0"	11'-6"	11'-0"	11'-0"	10'-6"
	4	SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL AND CLAYEY GRAVEL	300	264	82	13'-6"	13'-0"	13'-0"	12'-6"	12'-6"	12'-6"	12'-6"	12'-0"

8. PIER DEPTH SHOWN IN TABLE ARE BASED ON 1'-0" NEGLECT, EXCEPT FOR CASE 5. ADDITIONAL NEGLECT PROVIDED BY GEOTECHNICAL REPORT WILL ADD TO PEDASTAL LENGTH (NEGLECT + ABOVE GRADE BOLLARD). SEE STRUCTURAL DETAIL SHEETS FOR ADDITIONAL INFORMATION.

9. 2022 CBC BASIC ASD LOAD COMBINATIONS WERE USED. THE ABOVE LOAD VALUES ARE FINAL WITHOUT ANY FURTHER INCREASES. 1/3 STRESS INCREASE ARE NOT ALLOWED.

10. DOUBLING THE PASSIVE PRESSURE DUE TO SOIL ARCHING EFFECTS IS NOT ALLOWED.

CLAY, SANDY CLAY, SILTY CLAY

AND SANDY SILT

11. END BEARING HAS BEEN IGNORED TO ACCOUNT FOR PILE MASS. THE DEPTH SHALL BE SIZED ON ONLY SKIN FRICTION UPWARD AND DOWNWARD EFFECTS.

12. BEACTIONS TO BE PROVIDED TO GEOTECH TO VERIFY PIER DEPTHS PRIOR TO DSA SUBMITTAL.

## MATERIAL SPECIFICATIONS

1. ALL MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

HOLLOW STRUCTURAL STEEL ASTM A500 CRADE C, MIN Fy = 50 KSI

	· · · · · · · · · · · · · · · · · · ·
STRUCTURAL PLATE	ASTM A572 GRADE 50
-END CAP AND WELD TAB	<del>- ASTM A36 -</del>
-COLD FORMED STEEL	— ASTM A653, MIN Fy = 55 KSI —
PROPRIETARY PARTS	SEE S0.2
-BOLTS	<del></del>
-ANCHOR RODS	ASTM F1554 GRADE 55/105
	-(MIN. 14% ELONGATION = 1'-2" STRETCH LENGTH) -
WELDING ELECTRODES	E70XX
-SELF DRILLING SELF TAPPING SCREWS	ITW BUILDEX, ESR 1976—
	ELCO DRIL-FLEX, ESR 3332
-KWIK COTE SCREWS	HILTI S-MD, ESR 2196
EXPANSION ANCHORS	HILTI KWIK BOLT TZ2, ESR 4266
CONCRETE	F'c=4,500 PSI MIN, 6,000 PSI MIN (SEE DETAILS 1/S1.1,1/S1.2 1/S1.3 AND 1/S2.7)
	TYPE II OR V (SEE CONCRETE NOTE 8)
NON-SHRINK GROUT	F'c=8,000 PSI, MIN AT 28 DAYS

ASTM A615 GRADE 60 (#4 AND LARGER)

ASTM A615 GRADE 60 (#5 AND LARGER)

2. STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED (MINIMUM ASTM A123 OR A153, CLASS D) OR PAINTED WITH ZINC-RICH PRIMER, UNDERCOAT, AND FINISH

3. ALL BOLTS USED FOR BEAM TO COLUMN CONNECTIONS AND PART OF THE SEISMIC LOAD RESISTING SYSTEM (SLRS) SHALL BE PRETENSION HIGH-STRENGTH BOLTS WITH CLASS A FAYING SURFACE. GALVANIZATION TO BE ROUGHENED VIA WIRE BRUSH ON STRUCTURES THAT ARE HOT-DIP GALVANIZED. CONNECTIONS PLATES TO BE KEPT RAW ON STRUCTURES THAT ARE PAINTED.

4. COLD-FORMED-STEEL MEMBERS SHALL BE 55% ALUMINUM-ZINC ALLOY COATED PER ASTM A792/A792M STANDARD IN ACCORDANCE TO AISI S200 TABLE A4-1, CP 90 COATING DESIGNATION.

5. ALL EXPOSED STEEL FASTENERS, INCLUDING CAST-IN-PLACE ANCHOR BOLTS/RODS, SHALL BE STAINLESS STEEL (TYPE 304 MINIMUM), HOT-DIP GALVANIZED (ASTM A153, CLASS D MINIMUM OR ASTM F2329), OR PROTECTED WITH CORROSION-PREVENTIVE COATING THAT DEMONSTRATED NO MORE THAN 2% OF RED RUST IN MINIMUM 1,000 HOURS OF EXPOSURE IN SALT SPRAY TEST PER ASTM B117. ZINC-PLATED FASTENERS DO NOT COMPLY WITH THIS REQUIREMENT.

6. ANCHOR RODS AND ASSEMBLY SHALL BE WEATHER PROTECTED USING SAP SEAL BOLT CAPS.

7. ALL MATERIALS SHALL CONFORM TO CBC CHAPTER	17A INSPECTION SECTION
STEEL CONSTRUCTION	TABLE 1705A.2.1
CONCRETE CONSTRUCTION	TABLE 1705A.3
SOILS	TABLE 1705A.6
— DRIVEN DEEP FOUNDATION ELEMENTS	TABLE 1705A.7
	TABLE 1705A.8

8. FOR COLUMN MOUNTED EQUIPMENT MATERIALS, SEE SHEET S8.0

## SPECIAL INSPECTION

1. SPECIAL INSPECTOR IN THE REQUIRED CATEGORY OF WORK MUST BE CERTIFIED BY DSA

2. A FINAL REPORT FOR WORK REQUIRED TO HAVE SPECIAL INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS MUST BE COMPLETED BY THE PROPERTY OWNER, CONTRACTOR SPECIAL INSPECTOR, PROPERTY OWNER'S AGENT OF RECORD, ARCHITECT OF RECORD OR ENGINEER OF RECORD AND SUBMITTED TO DSA DISTRICT STRUCTURAL ENGINEER

3. SPECIAL INSPECTION PER CHAPTER 17A OF THE CALIFORNIA BUILDING CODE SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY APPROVED BY DSA AND PAID BY THE OWNER FOR THE FOLLOWING AREAS OF WORK.

ORK:

A. CONTINUOUS FIELD AND SHOP WELDING INSPECTION OF THE STRUCTURAL CONNECTIONS AND ULTRASONIC TESTING OF SPECIFIED WELDS.

B. HIGH STRENGTH BOLTS

C. CONCRETE

D. SOILS

4. THE FOLLOWING ITEMS MAY ALLOW FOR EXEMPTION PER THE LATEST DSA 103 SUBMITTED WITH THE APPLICATION:

A. CONTINUOUS CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED FOR UNENCLOSED SOLAR STRUCTURES PER CBC SECTION 1705A.3.3.2 GIVEN THE DOCUMENTATION LISTED IN 1705A.3.3.1 BELOW IS PROVIDED.

WHEN CONTINOUS BATCH PLANT INSPECTIONS IS WAIVED, THE FOLLOWING REQUIREMENTS SHALL APPLY AND SHALL BE DESCRIBED IN THE CONSTRUCTION DOCUMENTS.

MATERIALS AND PROPORTIONS CONFORM TO THE APPROVED MIX DESIGN

2. A LICENSED WEIGHMASTER SHALL POSITIVELY IDENTIFY QUANTITY OF MATERIALS AND CERTIFY

1. AN APPROVED AGENCY SHALL CHECK THE FIRST BATCH AT THE START OF THE DAY TO VERIFY

3. BATCH TICKETS, INCLUDING QUANTITIES AND WEIGHTS SHALL ACCOMPANY THE LOAD, SHALL BE TRANSMITTED TO THE INSPECTOR OF RECORD BY THE TRUCK DRIVER WITH THE LOAD IDENTIFIED THEREON. THE LOAD SHALL NOT BE PLACED WITHOUT A BATCH TICKET IDENTIFYING THE MIX. THE INSPECTOR OF RECORD SHALL KEEP A DAILY RECORD OF PLACEMENTS, IDENTIFYING EACH TRUCK, ITS LOAD, AND TIME OF RECEIPT AT THE JOBSITE, AND APPROXIMATE LOCATION OF DEPOSIT IN THE STRUCTURE AND SHALL MAINTAIN A COPY OF THE DAILY RECOD AS REQUIRED BY THE ENFORCEMENT AGENCY.

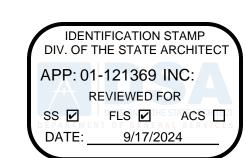
B. TESTING OF REINFORCING BARS IS NOT REQUIRED FOR ITEMS GIVEN IN CBC SECTION 1910A.2 CERTIFIED MILL CERTS TO BE PROVIDED TO THE INSPECTOR OF RECORD FOR EACH SHIPMENT OF SUCH REINFORCEMENT.

C. ANY SUPPORT FOR EXEMPT NON-STRUCTURAL COMPONENTS GIVEN IN CBC SECTION 1617A.1.18 (WHICH REPLACES ASCE 7-16, SECTION 13.1.4) MEETING THE FOLLOWING: A) WHEN SUPPORTED ON A FLOOR/ROOF, <400# AND RESULTING COMPOSITE CENTER OF MASS (INCLUDING COMPONENT'S CENTER OF MASS) <= 4' ABOVE SUPPORTING FLOOR/ROOF, B) WHEN HUNG FROM A WALL OR ROOF/FLOOR, <20# FOR DISCRETE UNITS OR <5 PLF FOR DISTRIBUTED SYSTEMS.

# TEST PROTOCOL (DSA APPROVAL DATED OCTOBER 20, 2022)

EACH LOAD BY A BATCH TICKET.

1. MBL ENERGY HAS AN APPROVED SOLAR MODULE CONNECTOR SYSTEM APPROVED BY DSA AND MEETS ALL DSA ACCEPTED PROTOCOL. ALL TESTS WERE PERFORMED AND WITNESSED BY CSA WHICH IS A NATIONALLY RECOGNIZED LABORATORY. BOTH IN-PLANE CYCLIC AND VERFICAL TESTING WAS PERFORMED TO DEMONSTRATE THE CONNECTOR AND MODULE DO NOT EXPERIENCE SLIPPAGE, SHIFTING OR DISTRESS THROUGH THE CALCULATED DIFFERENTIAL WIND OR SEISMIC IN-PLANE ROOF DRIFT BETWEEN ADJACENT PURLINS FOR THE PANEL ORIENTATION ON THE PC PLANS. MODULE SIZE TESTED WAS 93.86" AND 43.15".





SITE SPECIFIC DESIGN CRITERIA

1.233 SDS

92 WIND
0 SNOW



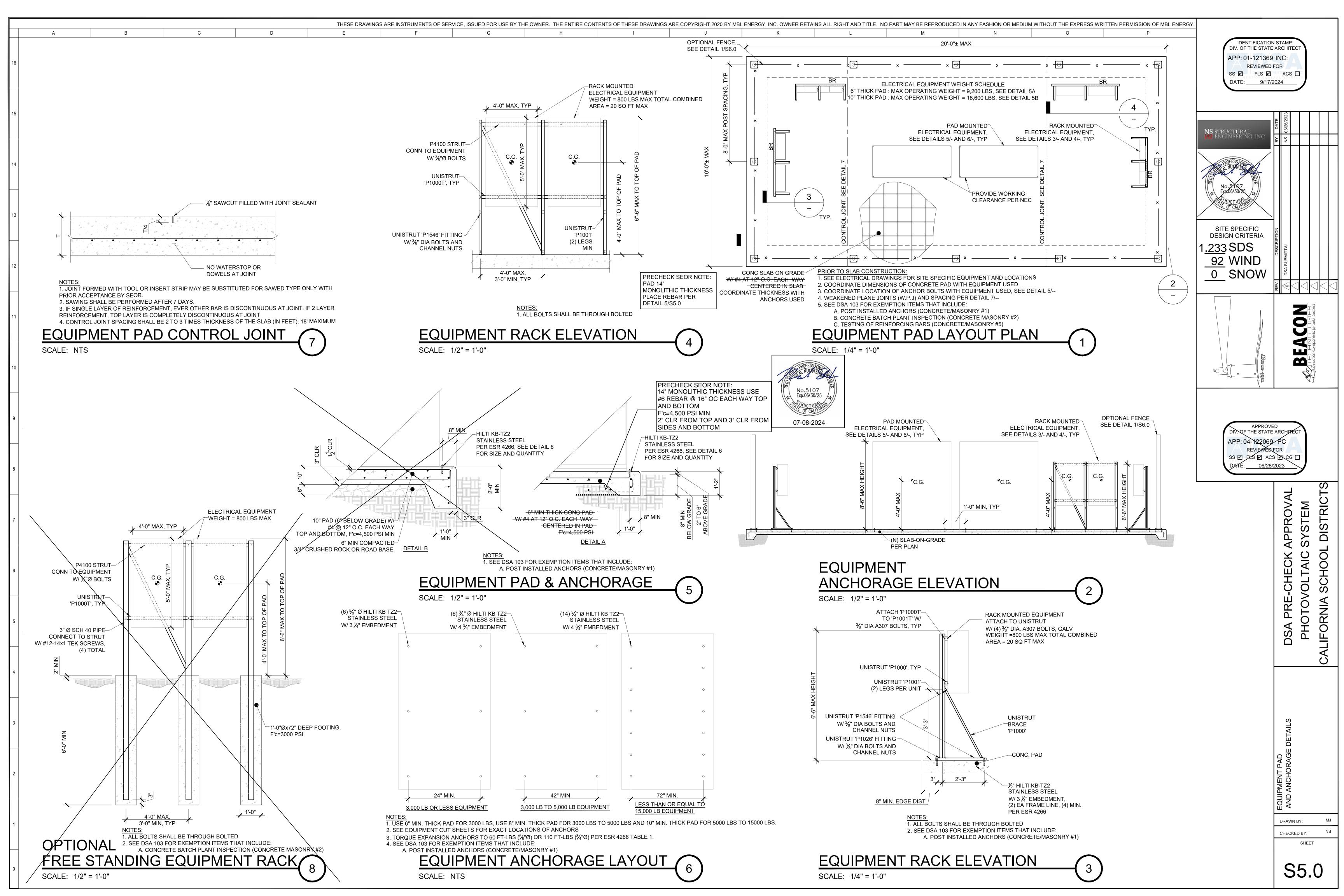


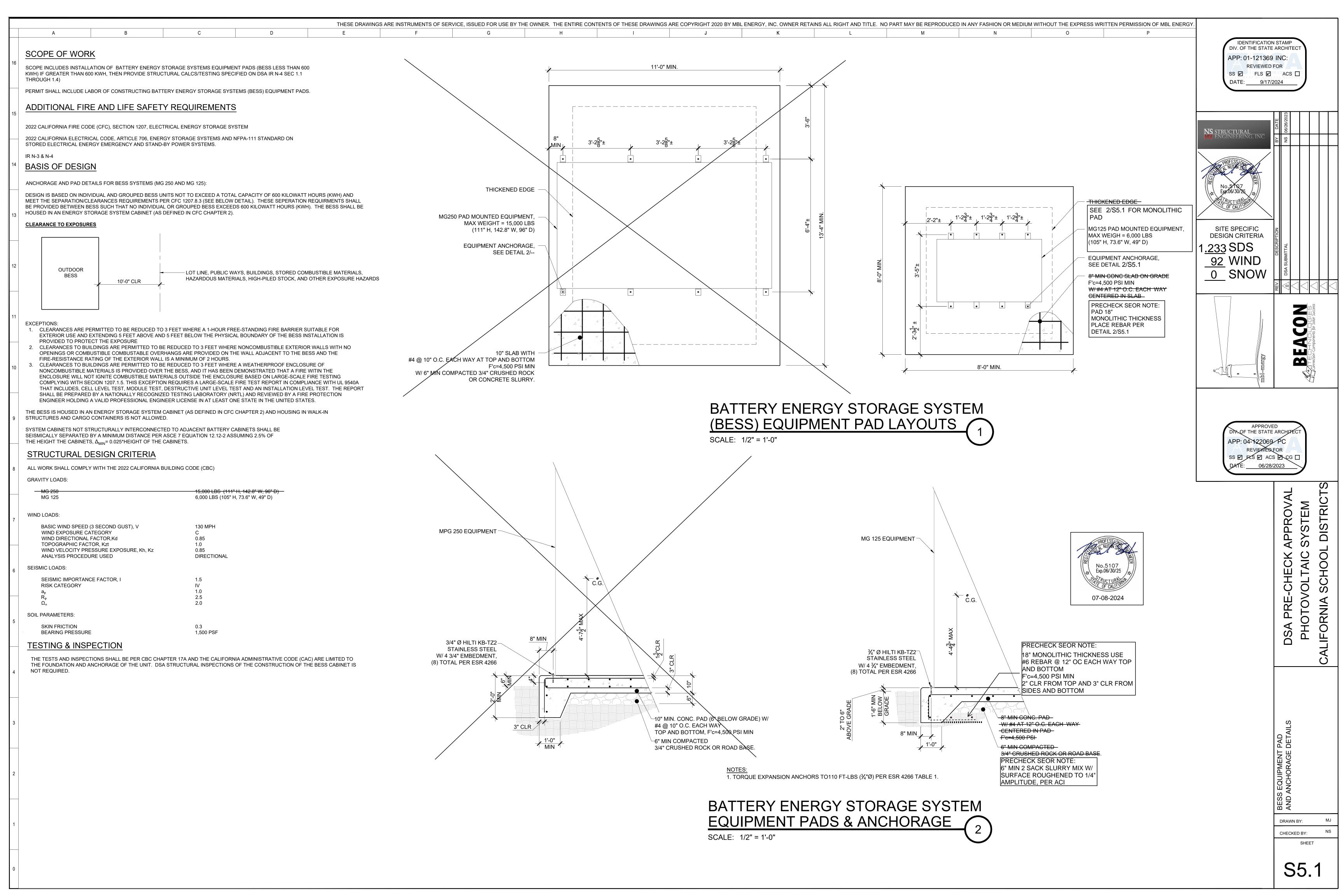
DSA PRE-CHECK APPROVAL
PHOTOVOLTAIC SYSTEM
LIFORNIA SCHOOL DISTRICT

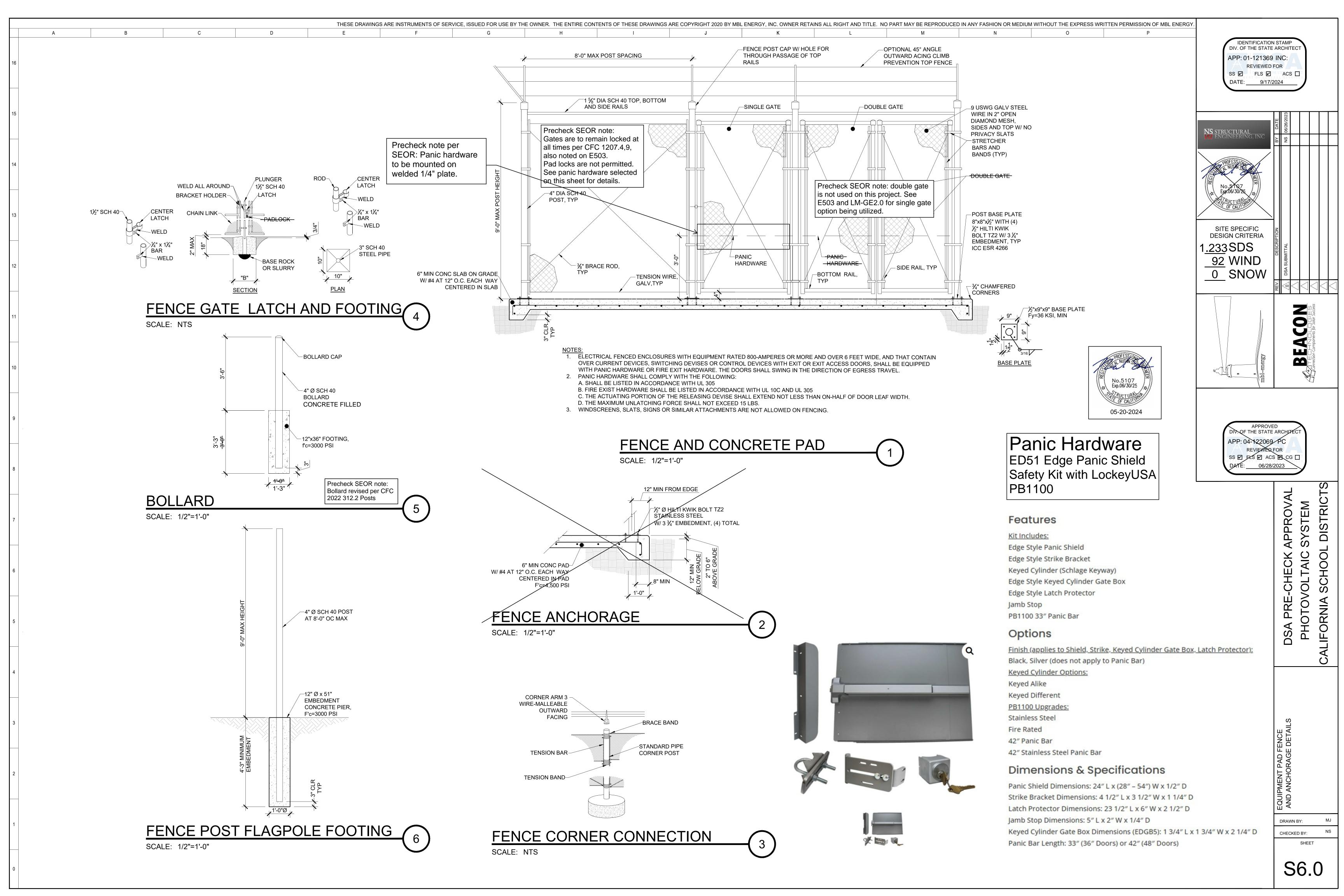
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### **GENERAL ELECTRICAL NOTES FOR ENERGY STORAGE SYSTEM**

THIS ENERGY STORAGE SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH THE 2022 EDITION OF THE CALIFORNIA ELECTRICAL CODE (CEC) AND LOCAL ELECTRICAL CODES CURRENTLY BEING ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AHJ), PARTICULARLY ARTICLE 706, ENERGY STORAGE SYSTEMS.

### CONTRACTOR

- 1.1. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY
- ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE.
- CONDUIT POINT OF PENETRATION FROM EXTERIOR TO INTERIOR TO BE INSTALLED AND SEALED WITH A SUITABLE SEALING COMPOUND.

- 2.1. CONDUCTORS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY CEC 310.15 (B)(2)(C).
- 2.2. ADDITIONAL AC DISCONNECTS SHALL BE PROVIDED WHERE THE INVERTER IS NOT ADJACENT TO THE UTILITY AC DISCONNECT, OR NOT WITHIN SIGHT OF THE UTILITY AC DISCONNECT.
- 2.3. ALL INSTALLED EQUIPMENT SHALL BE ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO CEC APPLICABLE CODES.

PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT SHALL BE PROVIDED AS PER SECTION CEC

2.5. ALL COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE AND SHALL BE RATED FOR OUTDOOR USAGE WHERE REQUIRED.

- 3.1. NONMETALLIC-SHEATHED CABLE SHALL BE SECURED BY STAPLES, CABLE TIES, STRAPS, HANGERS OR SIMILAR FITTINGS AT INTERVALS THAT DO NOT
- EXCEED 4.5 FEET. (CEC 334.30) 3.2. CABLES SHALL BE SECURED WITHIN 12 INCHES OF EVERY CABLE ENTRY INTO ENCLOSURES SUCH AS OUTLET BOXES, JUNCTION BOXES, CABINETS, OR
- 3.3. EXPOSED SINGLE CONDUCTORS, WHERE SUBJECT TO PHYSICAL DAMAGE, MUST BE PROTECTED. (CEC 300.4)
- 3.4. CONDUCTORS INSTALLED NEAR MODULES SHALL BE RATED FOR 90°C. (CEC 310.15(A)(3))
- WHERE RACEWAYS OR CABLES ARE EXPOSED TO DIRECT SUNLIGHT ON OR ABOVE ROOFTOPS, RACEWAYS OR CABLES SHALL BE AT MINIMUM HEIGHT OF 7/8 IN. (CEC 310.15(B)(3)(C).
- 3.6. ALL CONDUIT SIZES AND TYPES, SHALL BE LISTED FOR ITS PURPOSE AND APPROVED FOR THE SITE APPLICATIONS.
- 3.7. RIGID CONDUIT (AND/OR NIPPLES) MUST HAVE A PULL BUSHING TO PROTECT WIRES.
- 3.8. USE-2 IS NOT INDOOR RATED PER CEC 338.12(B)(1).
- 3.9. ALL CONDUCTORS ARE SIZED PER CEC 706.20 (B) & (C) AND OCPDs ARE SIZED PER 706.21. 3.10. FOR UNDERGROUND CONDUCTOR INSTALLATIONS, THE BURIAL DEPTH SHALL BE SELECTED PER CEC TABLE 300.5. WARNING TAPE SHALL BE PLACED
- ABOVE UNDERGROUND CONDUIT AND CONDUCTORS IN TRENCH.
- 3.11. ALUMINUM AND COPPER-CLAD ALUMINUM CONDUCTORS SHOULD NOT BE PLACED IN DIRECT CONTACT WITH CONCRETE OR EARTH. (CEC 250.120(B)) 3.12. TOP CONDUIT ENTRY FOR OUTDOOR ENCLOSURES MUST BE AVOIDED. IF NECESSARY, CONNECTION ABOVE LIVE PARTS MUST BE MADE WATERTIGHT
- AND BE LISTED FOR THE PURPOSE.

### 4. BONDING AND GROUNDING

- 4.1. EQUIPMENT GROUNDING CONDUCTORS FOR ESS SOURCE CIRCUITS SHALL BE SIZED ACCORDING TO TABLE 250.122 AND SHALL NOT BE SMALLER THAN #14 AWG WHEN NOT EXPOSED TO PHYSICAL DAMAGE. IF EXPOSED TO PHYSICAL DAMAGE THEN EGC SHALL NOT BE SMALLER THAN #6 AWG. (CEC
- 4.2. AC AND DC GROUNDING ELECTRODE CONDUCTORS SHALL BE PROPERLY CONNECTED AS REQUIRED BY CODE. SEPARATE ELECTRODES, IF USED, SHALL BE BONDED TOGETHER. (250.50 & 250.58)
- 4.3. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 250.52 AND CEC 250.166 SHALL BE PROVIDED.
- 4.4. PROPERLY SIZED EQUIPMENT GROUNDING CONDUCTOR SHALL BE ROUTED WITH THE CIRCUIT CONDUCTORS. (250.134(B) & 300.3(B))
- THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED FROM PHYSICAL DAMAGE BETWEEN THE GROUNDING ELECTRODE AND THE PANEL
- (OR INVERTER) IF SMALLER THAN #6 AWG COPPER WIRE PER CEC 250.64B.
- 4.6. THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS PER CEC 250.64C. 4.7. BONDING FITTINGS SHALL BE USED ON CONCENTRIC/ECCENTRIC KNOCKOUTS WITH METAL CONDUITS FOR CIRCUITS OVER 250 VOLTS. (CEC 250.97)
- (SEE ALSO EXCEPTIONS 1 THROUGH 4) 4.8. BONDING FITTINGS SHALL BE USED FOR FERROUS METAL CONDUITS ENCLOSING GROUNDING ELECTRODE CONDUCTORS. (CEC 250.64(E))
- 4.9. ENCLOSURES SHALL BE PROPERLY PREPARED WITH REMOVAL OF PAINT/FINISH AS APPROPRIATE WHEN GROUNDING EQUIPMENT WITH
- TERMINATION GROUNDING LUGS. 4.10. GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THE PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR
- 4.11. ALL CONDUIT BETWEEN THE UTILITY AC DISCONNECT AND THE POINT OF CONNECTION SHALL HAVE GROUNDED BUSHINGS AT BOTH ENDS.

# **CODE REFERENCES:**

- . 2022 CALIFORNIA ELECTRICAL CODE (CEC)
- 2. 2022 CALIFORNIA FIRE CODE (CFC)

STANDARDS CODE (CGBSC)

3. 2022 CALIFORNIA BUILDING CODE (CBC) 4. 2022 CALIFORNIA GREEN BUILDING

### 5. OVERCURRENT PROTECTION

5.1. OVERCURRENT PROTECTION DEVICES (OCPD) IN THE DC CIRCUITS SHALL BE LISTED FOR DC OPERATION. (CEC 110.3(A), (B))

### 6. ELECTRICAL CONNECTIONS

- 6.1. CRIMP TERMINALS SHALL BE LISTED AND INSTALLED USING A LISTED TOOL SPECIFIED FOR USE IN CRIMPING THOSE SPECIFIC CRIMPS. (CEC 110.3(B) &
- 6.2. PRESSURE TERMINALS SHALL BE LISTED FOR THE ENVIRONMENT AND TIGHTENED TO MANUFACTURER RECOMMENDED TORQUE SPECIFICATIONS.
- (CEC 110.11, 110.3(B) & 110.14) 6.3. CONNECTORS MUST BE LISTED FOR THE VOLTAGE OF THE SYSTEM AND HAVE APPROPRIATE TEMPERATURE AND AMPACITY. (CEC 110.3(B) & 110.14)
- 6.4. POWER DISTRIBUTION BLOCKS SHALL BE LISTED. (CEC 314.28(E))
- 6.5. TERMINALS CONTAINING MORE THAN ONE CONDUCTOR SHALL BE LISTED FOR MULTIPLE CONDUCTORS. (CEC 110.14(A) & 110.3(B))
- 6.6. CONNECTORS AND TERMINALS USED OTHER THAN CLASS B AND C STRANDED CONDUCTORS (FINE STRANDED CONDUCTORS) SHALL BE LISTED AND IDENTIFIED FOR USE WITH SPECIFIC CONDUCTOR CLASS OR CLASSES. (CEC 110.14(A) & 110.3(B))

7.1. GRID INTERACTIVE INVERTERS SHALL BE EQUIPPED WITH ANTI-ISLANDING CIRCUITRY.(CEC 705.40)

8.1. ALTERNATE POWER SOURCE PLACARD SHALL BE PLASTIC, ENGRAVED IN A CONTRASTING COLOR TO THE PLAQUE. THIS PLAQUE WILL BE ATTACHED USING AN APPROVED METHOD. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED

- 9.1. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.
- 9.2. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).
- 9.3. DISCONNECTS USED IN DC CIRCUITS SHALL BE LISTED FOR DC OPERATION AND LOCATED AS ALLOWED BY THE AHJ. (CEC 110.3)

### 10. TERMINAL NOTES

10.1. ALL TERMINALS SHALL BE RATED FOR ATLEAST 75C.

## 10.2. ALL TERMINALS SHALL BE DUAL RATED FOR USE WITH COPPER AND ALUMINUM.

- 11.1. GROUND FAULT PROTECTION IN ACCORDANCE WITH CEC 230.95 AND CEC 705.32
- 11.2. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING. CIRCUIT BREAKERS WHICH ARE CLEARLY MARKED "LINE" AND "LOAD" ARE NOT SUITABLE FOR
- 11.3. INSTALLER SHALL BE RESPONSIBLE FOR VERIFYING THAT ALL BREAKERS ARE SUITABLE FOR BACKFEED AND THAT IF GFP IS PRESENT ON MAIN SERVICE DISCONNECT THAN ALL SOLAR FEEDERS, CONNECTED TO MAIN BUS, SHALL HAVE GFP PER CEC 215.10 & CEC 705.32 EXCEPTION.

12.1. INVERTERS MAY HAVE DATA ACQUISITION SYSTEM BUILT INTO THEM OR IT CAN BE ADDED VIA OPTIONAL COMPONENTS. PLEASE CHECK WHILE ORDERING IF OPTIONAL DAS COMPONENTS NEEDS TO BE ORDERED SEPARATELY

### 705.12 POINT OF INTERCONNECTION (B) BUS OR CONDUTOR AMPERE RATING

THIS METHOD CAN ONLY BE USED WHERE A SERVICE MAIN BREAKER IS AT ONE END OF THE BUSBAR AND THE PV BREAKER IS AT THE OPPOSITE END. 125% OF THE INVERTER OUTPUT CIRCUIT CURRENT PLUS THE RATING OF THE OCPD PROTECTING THE BUSBAR CANNOT

BE GREATER THAN 120% OF THE AMPACITY OF THE BUSBAR. PV OCPD + MAIN BREAKER ≤ BUSBAR RATING X 1.2

A PERMANENT WARNING LABEL, COMPLYING WITH 110.21(B), MUST BE APPLIED TO THE DISTRIBUTION EQUIPMENT ADJACENT TO THE BACK-FED BREAKER.

## POWER SOURCE OUTPUT CONNECTION-DO NOT RELOCATE THIS OVERCURRENT DEVICE.

CONTRACTOR HAS THE FULL RESPONSIBILITY TO CHECK AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY WORK STARTED BEFORE CONSULTATION AND ACCEPTANCE BY THE ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBJECT TO CORRECTION BY THEM WITHOUT ADDITIONAL COMPENSATION.

### STANDARD SYMBOL LEGEND

**EXISTING** 

THIS PROJECT CONSISTS OF ONE ENERGY STORAGE SYSTEM WITH ONE POINT OF INTERCONNECTION. ESS IS ELM STORAGE MODEL (MG125/220). THIS IS A UL9540 LISTED PRODUCT WITH INTEGRATED DYNAPOWER INVERTER, KORE POWER MARK 1 BATTERY MODULES, AND 3M NOVEC 1230 FIRE SUPPRESSION SYSTEM. THIS SYSTEM IS CONTAINED IN AN OUTDOOR NEMA 3R CABINET.

	ESS Description
Model	SmartStorage ESS MG125/220
Manufacturer	ELM Fieldsight, LLC
System Capacity	125kW/220kWh
Battery Type	Li-ion: Nickel Manganese Cobalt
Inverter Max Output Current	150 Amps AC
Certifications	UL9540A, UL1973 (Batteries) UL1741 SA, CA Rule 21 (Inverter) UL9540, CA Rule 21, SGIP (System)
Enclosure	Outdoor Nema 3R Cabinet
Operation	<ul> <li>Demand Management (PG&amp;E-approved BESS operation for SGIP program peak shaving and demand response)</li> <li>Solar Time-Shifting (Time of use Operation)</li> <li>Resiliency (Back-up Power)</li> </ul>

EQUIPMENT SCHEDULE			
LABEL	MODEL	QUANTITY	
ESS ENCLOSURE	ELM MG125	1	
ACDS-ESS-1	SIEMENS HF326NRA	1	
XFMR BATT-1	HAMMOND SG3A0150KB	1	
SEL ENCLOSURE	ELM SEL ENCLOSURE	1	
NGOM METER	EATON/B-LINE 6067HEE	1	
RELAY DISCONNECT	EATON DG321NRB	1	
VERIS ESS METER	E5X SERIES	1	
VERIS ESS METER ENCLOSURE	AE010 ENCLOSURE	1	
PV RGM WATTNODE METER	WND-WR-MB	1	
PV RGM WATTNODE METER ENCLOSURE	ME1-C-1	1	
VERIS ESS METER CTs	MINIMUM CT OPENING: 1.25"	2	
VERIS ESS IVIETER CTS	MINIMUM CT CURRENT RATING: 600A	3	
DV DCNA MATTNODE NAETED CT	MINIMUM CT OPENING: 3.5"	2	
PV RGM WATTNODE METER CTs	MINIMUM CT CURRENT RATING: 800A	3	
CEL DELAY CTo	MINIMUM CT OPENING: 4"	C	
SEL RELAY CTs	MINIMUM CT CURRENT RATING: 2000A	6	
LIGHT FIXTURE	PLTS-12362	1	



BATTERY HOST



Pittsburg, CA 94565

925.473.2300



**MBL-ENERGY MBL-ENERGY** 954 Hampswood way, San Jose, CA 95120

ELECTRICAL ENGINEER

888-885-4401



Pearce Renewables 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883



PROJECT

# LOS MEDANOS **ELEMENTARY SCHOOL**

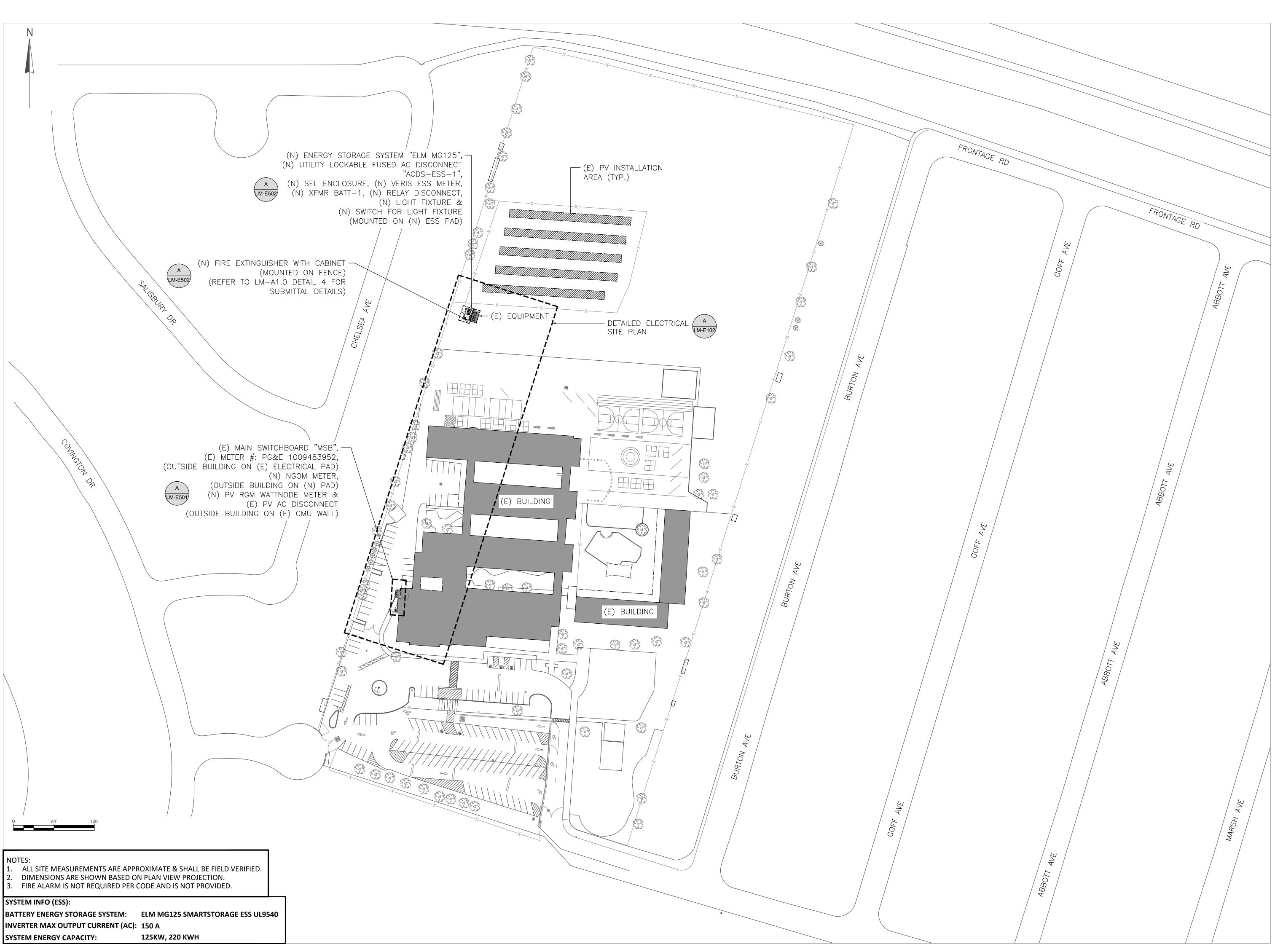
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В	UPDATED DRAWINGS AS PER DSA COMMENTS	06/06/2024
С	UPDATED DRAWINGS AS PER DSA COMMENTS	08/30/2024
ATE:		

08/30/2024

SHEET TITLE

**ELECTRICAL** NOTES







Pittsburg, CA 94565 925.473.2300



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ARCHITECT

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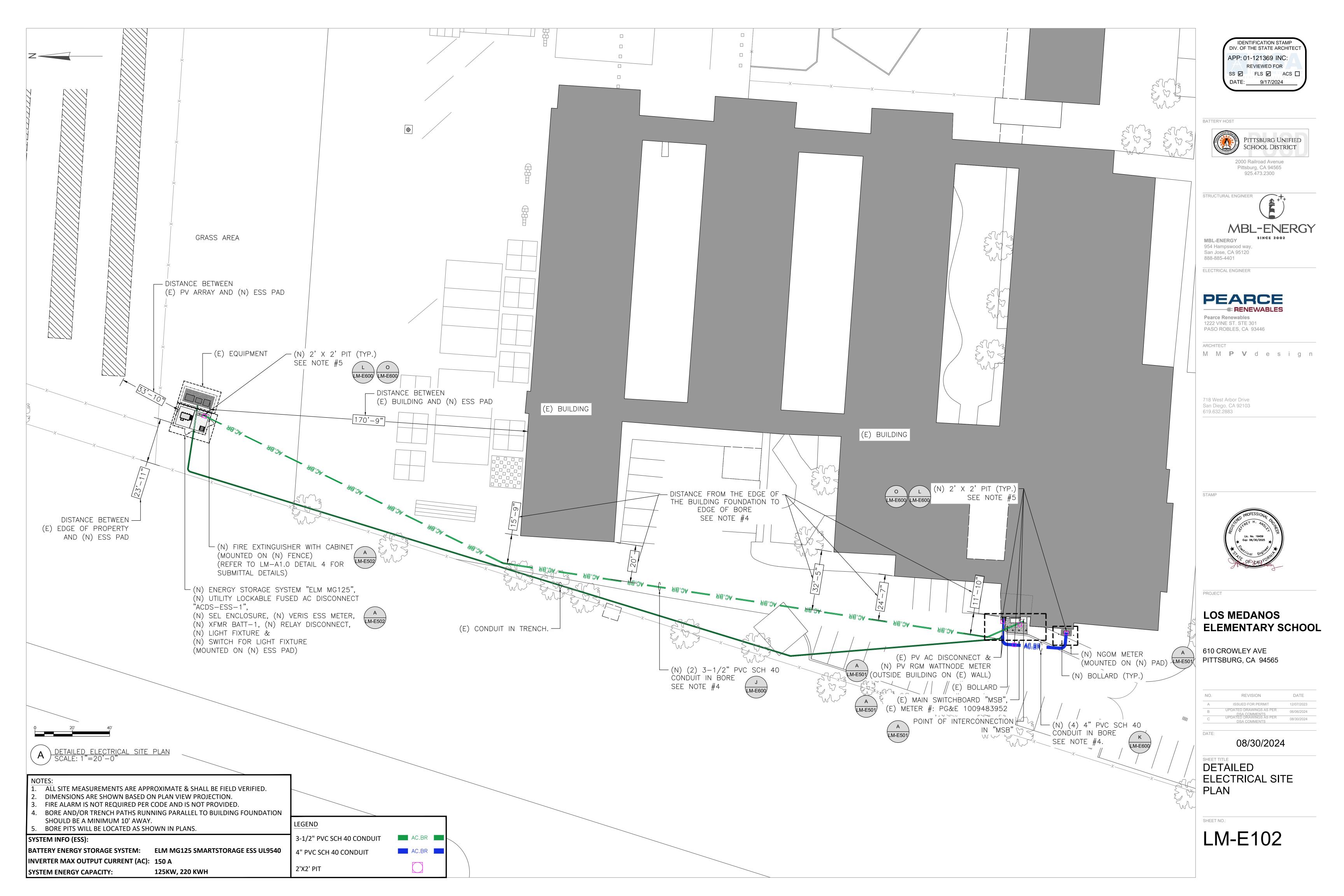
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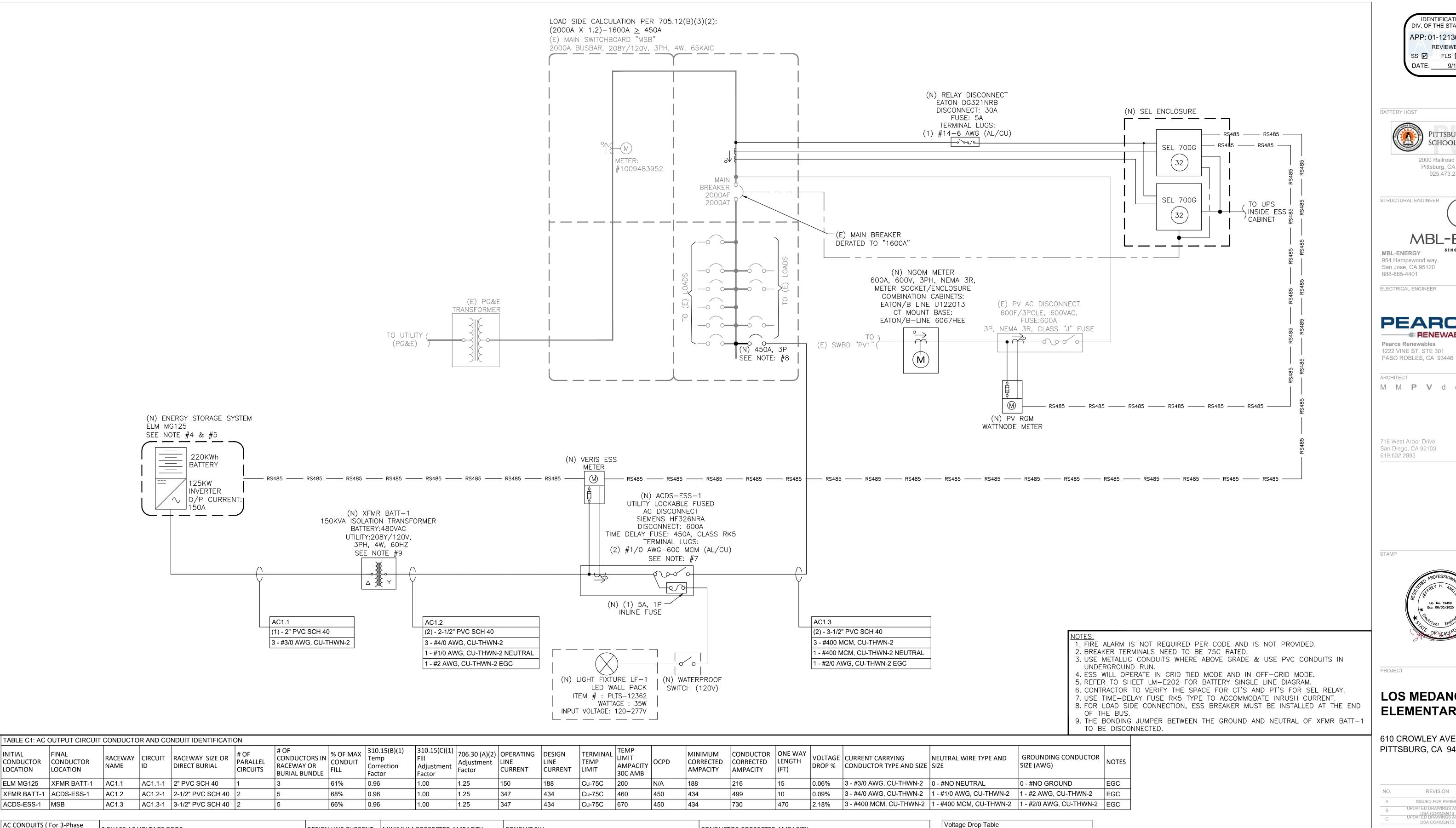
 C
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 08/30/2024

08/30/2024

GENERAL SITE PLAN

SHEET NO.:





CONDUCTOR LOCATION	CONDUCTOR LOCATION	RACEWAY NAME	CIRCUIT	RACEWAY SIZE OR DIRECT BURIAL	# OF PARALLEL CIRCUITS	CONDUCTORS IN RACEWAY OR BURIAL BUNDLE	% OF MAX CONDUIT FILL	Temp Correction Factor	Fill Adjustment Factor	Adjustment	OPERATING LINE CURRENT	LINE	TERMINAL TEMP LIMIT	LIMIT AMPACITY 30C AMB	OCPD		CONDUCTOR CORRECTED AMPACITY	LENGTH (FT)	VOLIAGE	CURRENT CARRYING CONDUCTOR TYPE AND SIZE	NEUTRAL WIRE TYPE AND SIZE	GROUNDING CONDU SIZE (AWG)
ELM MG125	XFMR BATT-1	AC1.1	AC1.1-1	2" PVC SCH 40	1	3	61%	0.96	1.00	1.25	150	188	Cu-75C	200	N/A	188	216	15	0.06%	3 - #3/0 AWG, CU-THWN-2	0 - #NO NEUTRAL	0 - #NO GROUND
XFMR BATT-1	ACDS-ESS-1	AC1.2	AC1.2-1	2-1/2" PVC SCH 40	2	5	68%	0.96	1.00	1.25	347	434	Cu-75C	460	450	434	499	10	0.09%	3 - #4/0 AWG, CU-THWN-2	1 - #1/0 AWG, CU-THWN-2	1 - #2 AWG, CU-THW
ACDS-ESS-1	MSB	AC1.3	AC1.3-1	3-1/2" PVC SCH 40	2	5	66%	0.96	1.00	1.25	347	434	Cu-75C	670	450	434	730	470	2.18%	3 - #400 MCM, CU-THWN-2	1 - #400 MCM, CU-THWN-2	1 - #2/0 AWG, CU-TH
	•		•	•		·			•		•	•	•	•		•	•					
AC CONDUITS	/ Fax 2 Dhasa																				Voltage Drep Table	

AC CONDUITS ( For 3-Phase system)	3 PHASE AC VOLTAGE DROP	DESIGN LINE CURRENT	MINIMUM CORRECTED AMPACITY	CONDUIT FILL	CONDUCTOR CORRECTED AMPACITY
CONDUIT NAME	1.732*ONE WAY LENGTH*RESISTANCE PER 1000FT*PHASE CURRENT/1000 FT/OPERATING VOLTAGE/# WIRES PER PHASE) = VOLTAGE DROP IN CONDUIT	OPERATING CURRENT*1.25	OPERATING CURRENT*1.25	100*(TOTAL CONDUCTOR AREA)/((CONDUIT AREA)*(PERCENT ALLOWED FILL)) = PERCENT MAXIMUM FILL	CONDUCTOR AMPACITY AT 30C * CONDUCTOR PER PHASE * TEMP. CORRECTION FACTOR * FILL ADJUSTMENT FACTOR = CONDUCTOR CORRECTED AMPACITY
AC1.1	(1.732*15 * 0.0766 * 150 / 1000FT / / 1)=0.06%	(150.36 * 1.25) = 187.95	(150.36 * 1.25) = 187.95	100 * 0.8 / (3.29 * 0.4) = 61%	(225*1*0.96*1) = 216

SYSTEM INFO (ESS):

SYSTEM ENERGY CAPACITY:

INVERTER MAX OUTPUT CURRENT (AC): 150 A

BATTERY ENERGY STORAGE SYSTEM: ELM MG125 SMARTSTORAGE ESS UL9540

125KW, 220 KWH

Voltage Drop Table	
WIRES / EQUIPMENT	VOLTAGE DROP
ELM MG125 to XFMR BATT-1	0.06%
XFMR BATT-1 to ACDS-ESS-1	0.09%
ACDS-ESS-1 to MSB	2.18%
TOTAL VOLTAGE DROP	2.33%

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 01-121369 INC: REVIEWED FOR SS 🗹 FLS 🗹 ACS 🗌 DATE: 9/17/2024

PITTSBURG UNIFIED SCHOOL DISTRICT 2000 Railroad Avenue

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ELECTRICAL ENGINEER

# PEARCE

- RENEWABLES Pearce Renewables 1222 VINE ST. STE 301

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718 West Arbor Drive San Diego, CA 92103



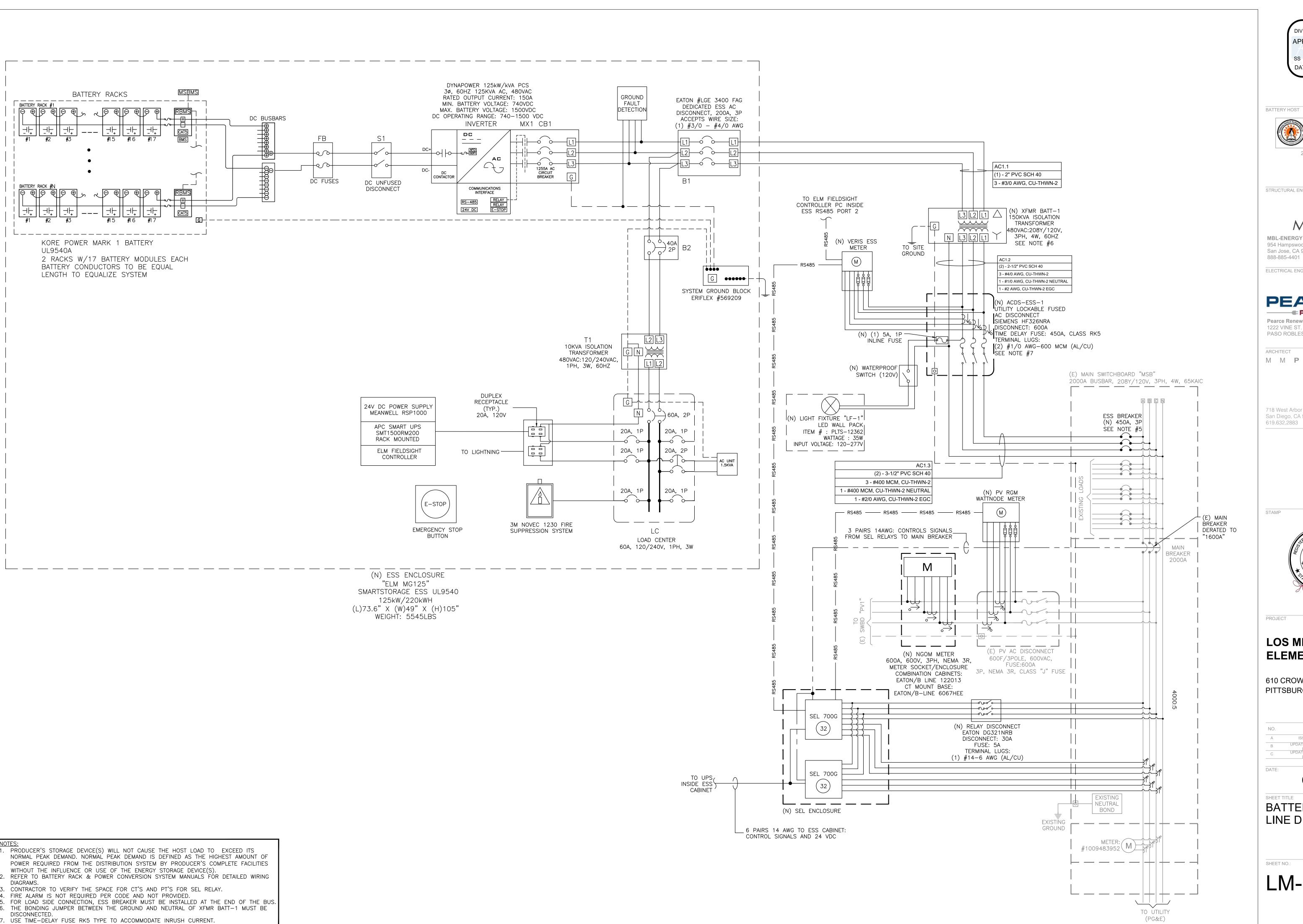
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SINGLE LINE DIAGRAM & WIRING SCHEDULE



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Pittsburg, CA 94565 925.473.2300

STRUCTURAL ENGINEER

**MBL-ENERGY** 

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M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103



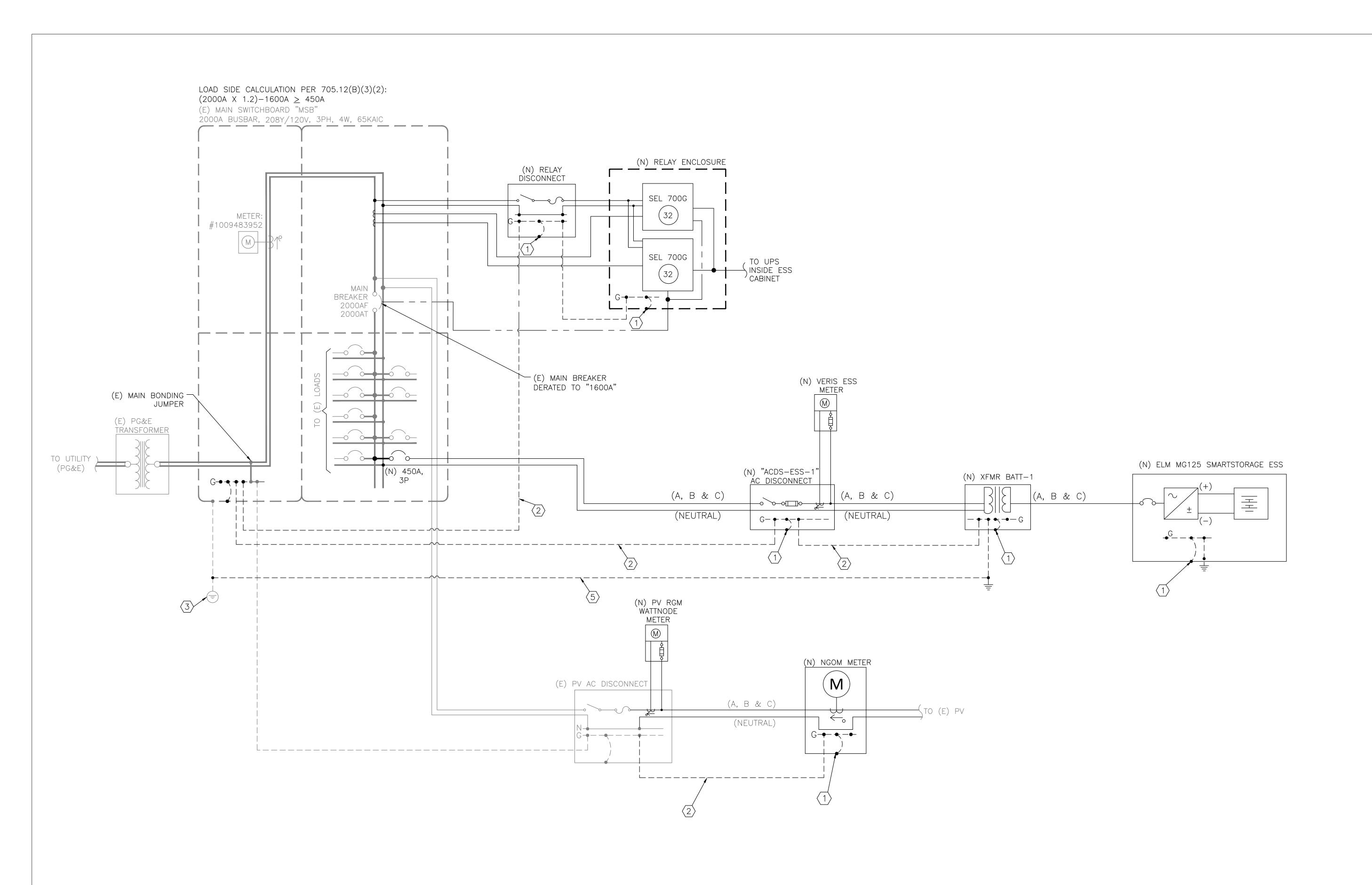
# LOS MEDANOS **ELEMENTARY SCHOOL**

610 CROWLEY AVE PITTSBURG, CA 94565

Ю.	REVISION	DATE
A	ISSUED FOR PERMIT	12/07/2023
В	UPDATED DRAWINGS AS PER DSA COMMENTS	06/06/2024
	UPDATED DRAWINGS AS PER DSA COMMENTS	08/30/2024

08/30/2024

BATTERY THREE LINE DIAGRAM



KEYED NOTES	CONNECTION	COMPONENT
		CONNECTION MADE BY MANUFACTURER.
2	EGC RUNNING WITH CURRENT CARRYING CONDUCTOR	EGC IN SAME CONDUIT/RACEWAY AS THE CURRENT CARRYING CONDUCTORS, TERMINATING AT GROUND BUS AT EACH END. FOR SIZE SEE E201 SHEET.
3	EXISTING GROUNDING SYSTEM	
4	NEW GROUND ROD	5/8" X 8' LONG COPPER CLAD GROUND ROD
5	GROUND TO GROUND CONDUCTOR	#1/0 AWG CU CONDUCTOR TO BE PASSED THROUGH EACH ENCLOSURE IN ITS PATH USING A LAY-IN-LUG

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT

APP: 01-121369 INC:

REVIEWED FOR

SS FLS ACS DATE: 9/17/2024

BATTERY HOST



925.473.2300



MBL-ENERGY

MBL-ENERGY

954 Hampswood way,

ELECTRICAL ENGINEER

San Jose, CA 95120 888-885-4401

# PEARCE

Pearce Renewables 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

ARCHITECT

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883

S



PROJI

# LOS MEDANOS ELEMENTARY SCHOOL

610 CROWLEY AVE PITTSBURG, CA 94565

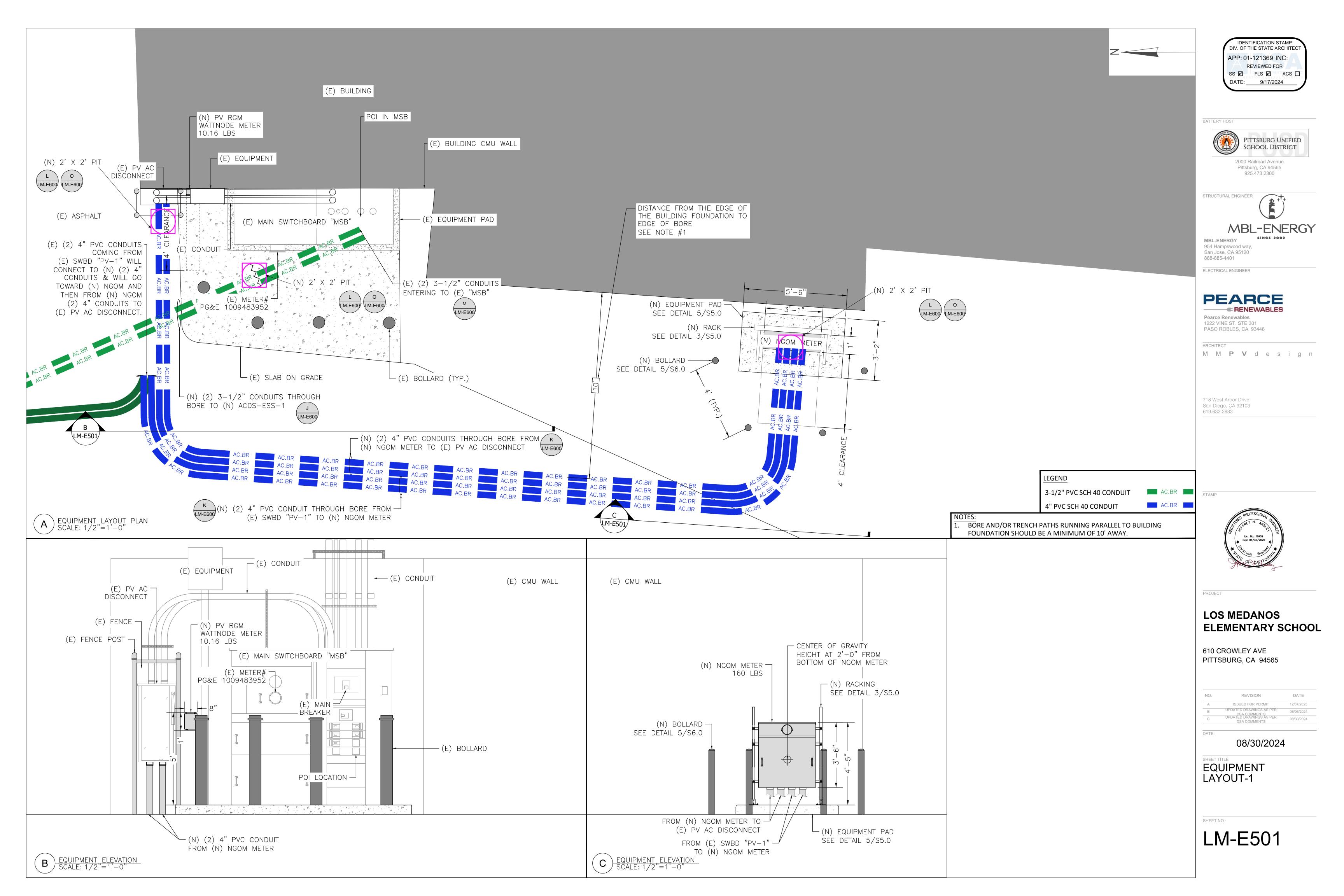
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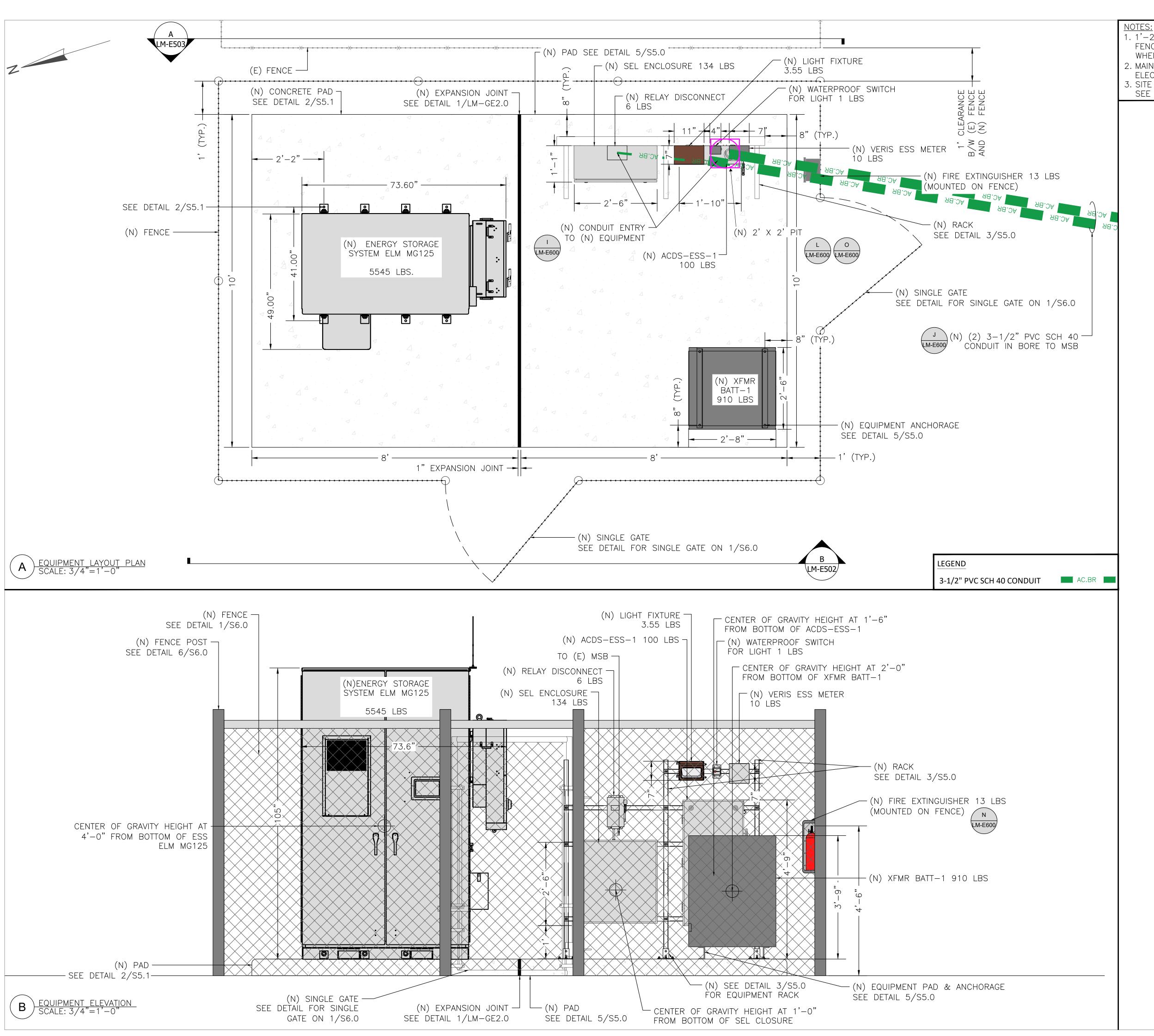
08/30/2024

SHEET TITLE

GROUNDING LINE DIAGRAM

NIFET NO :





- 1. 1'-2" MINIMUM CLEARANCE FROM ESS CABINET WALL TO FENCE TO ALLOW ROOM FOR DOOR MOUNTED AC UNIT WHEN ESS CABINET DOOR IS OPEN.
- 2. MAINTAIN 4' WORKING CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT.
- 3. SITE PREPARATION SHALL BE PER GEOTECHNICAL REPORT, SEE SHEET LM-GE2.0

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT

APP: 01-121369 INC:

REVIEWED FOR

SS FLS ACS DATE: 9/17/2024



2000 Railroad Avenue Pittsburg, CA 94565 925.473.2300

STRUCTURAL ENGINEER

MBL-ENERGY
954 Hampswood way,
San Jose, CA 95120

ELECTRICAL ENGINEER

888-885-4401

# PEARCE

Pearce Renewables 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

ARCHITECT

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883

STAMP



PROJECT

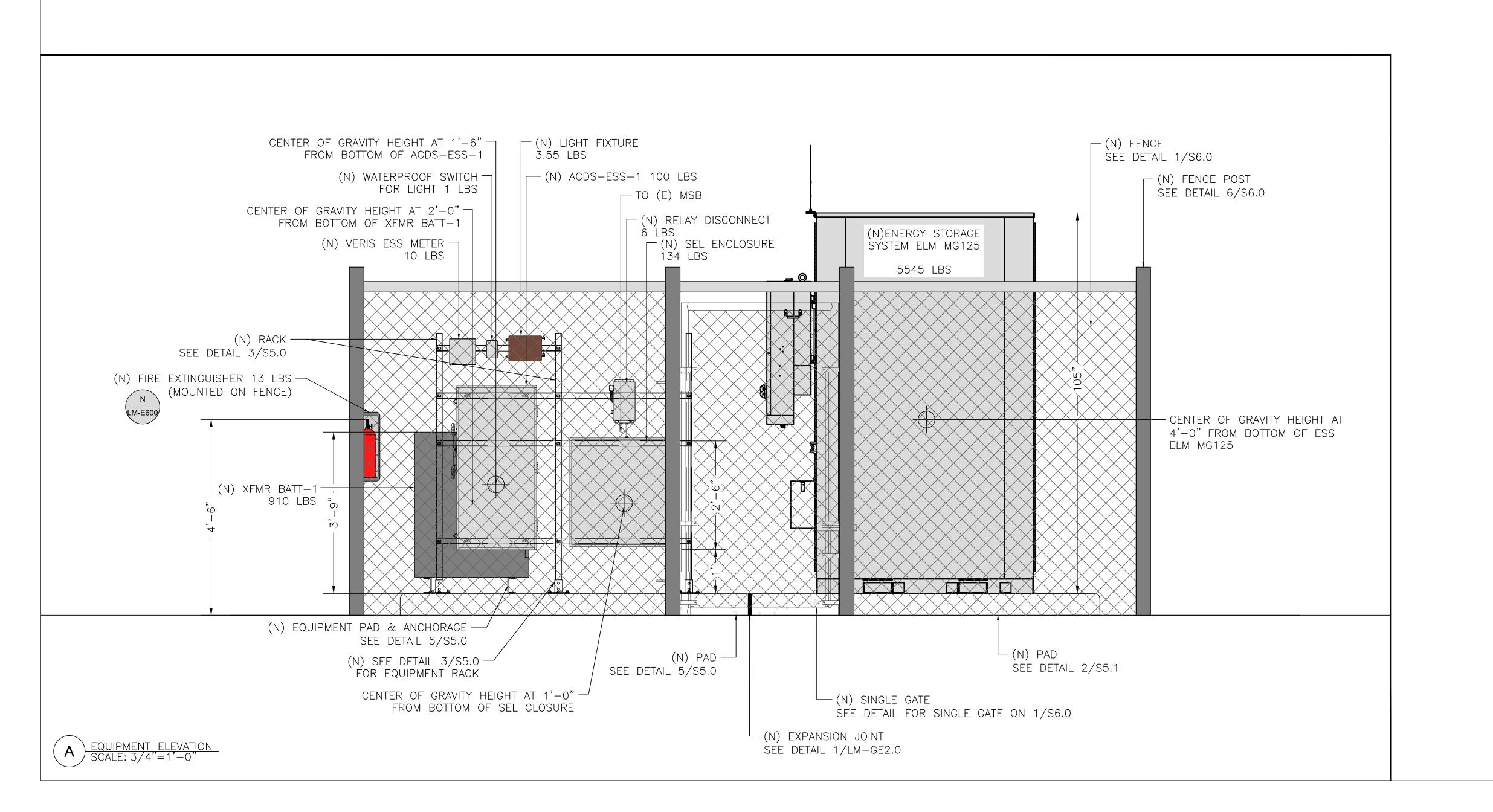
# LOS MEDANOS ELEMENTARY SCHOOL

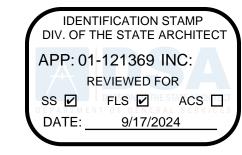
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EQUIPMENT LAYOUT-2





BATTERY HOST



Pittsburg, CA 94565 925.473.2300



MBL-ENERGY 954 Hampswood way, San Jose, CA 95120 888-885-4401

ELECTRICAL ENGINEER



Pearce Renewables 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

PASO ROBLES, CA 93446

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883

STAMP



PROJEC

# LOS MEDANOS ELEMENTARY SCHOOL

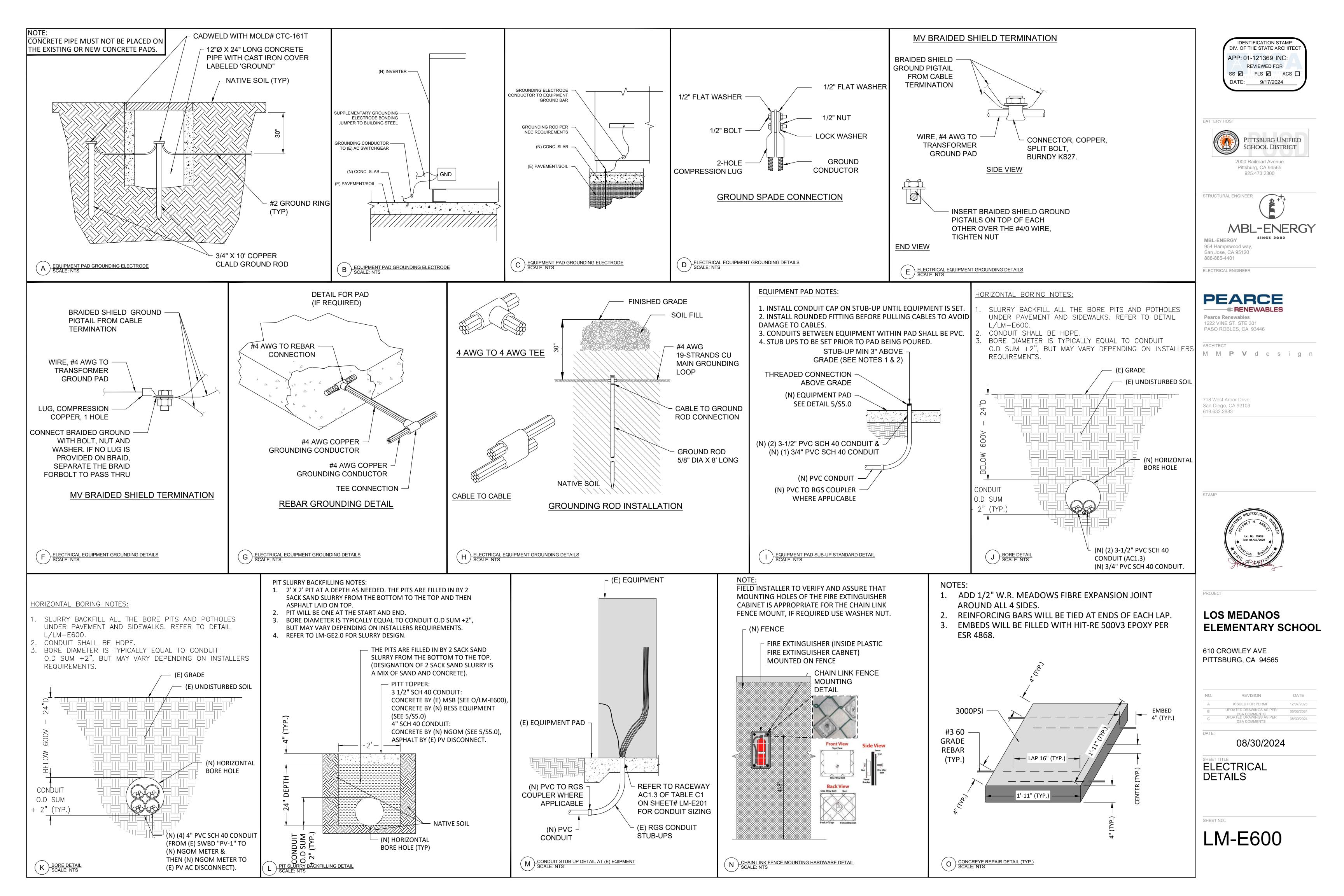
610 CROWLEY AVE PITTSBURG, CA 94565

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08/30/2024

EQUIPMENT LAYOUT-3

SHEET NO.:



PER CEC 690.56(B) & 705.10

(2) ENERGY STORAGE SYSTEM

MOUNTING LOCATION: SWBD

# **AWARNING**

ALL ELECTRIC POWER SOURCES ON OR IN THE PREMISES SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL **ELECTRIC POWER PRODUCTION SOURCES** CAPABLE OF BEING INTERCONCECTED.

PER CEC 706.21

MOUNTING LOCATION: SWBD/ POINT OF INTERCONNECTION

# **AWARNING**

TRIPLE POWER SOURCE

SECOND SOURCE IS PHOTOVOLTAIC SYSTEM AND THIRD SOURCE IS

**ENERGY STORAGE SYSTEM** 

PER CEC 705.12(B)(3)

MOUNTING LOCATION: ESS FENCE

ENERGIZED

**ELECTRICAL CIRCUITS** 

**GATES & ESS CABINET** 

MOUNTING LOCATION: ESS FENCE **GATES & ESS CABINET** 

**ENERGY STORAGE** SYSYTEM

PER CFC 1207.4.8

MOUNTING LOCATION: ESS FENCE **GATES & ESS CABINET** MOUNTING LOCATION: ESS FENCE GATES & **ESS CABINET** 

**ELECTROCHEMICAL ESS TECHNOLOGY** RECHARGEABLE BATTERIS (LI-iON)

PER CFC 1207.4.8

MOUNTING LOCATION: ESS FENCE **GATES & ESS CABINET** APPLY NO WATER PER CFC 1207.4.8

PER CFC 1207.4.8

PER CFC 5003.5 & NFPA 704

MOUNTING LOCATION: ESS FENCE GATES & ESS CABINET

CONTACT INFORMATION FOR PERSONAL **AUTHORIZED TO SERVICE:** MATTHEW BELASCO :(925) 698-8197 MIKE BARROS :(925) 963-4884

PER CFC 1207.4.8

MOUNTING LOCATION: ESS FENCE GATES & ESS CABINET

CONTACT INFORMATION FOR FIRE MITIGATION PERSONNEL REQUIRED BY CFC 1207.1.6.1.: MATTHEW BELASCO:(925) 698-8197 MIKE BARROS :(925) 963-4884

PER CFC 1207.4.8

BREAKER PANEL / PULL BOXES

# **AWARNING**

**ELECTRICAL SHOCK HAZARD** 

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

PER NEC 706.15(C)(4) & NEC 690.13(B)

MAIN SERVICE DISCONNECT

# **AWARNING**

**ELECTRICAL SHOCK HAZARD** 

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

PER NEC 706.15(C)(4) & NEC 690.13(B)

**ENERGY STORAGE SYSTEM** DISCONNECT

MOUNTING LOCATION: INBUILT ACDS

NOMINAL ESS AC VOLTAGE: 208V MAXIMUM ESS DC VOLTAGE AVAILABLE FAULT CURRENT 1.42kA DERIVED FROM THE ESS ARC DURATION DATE CALCULATION PERFORMED:

PER NEC 706.15(C)

1500V

0.4ms

**MOUNTING LOCATION: ACDS-ESS-1 ENERGY STORAGE** SYSTEM DISCONNECT

MOUNTING LOCATION: ACDS-ESS-1

PER NEC 706.15(C)

**ENERGY STORAGE SYSTEM AC DISCONNECT** RATED AC OUTPUT CURRENT: NOMINAL OPERATING AC VOLTAGE: 480V

PER NEC 706.15(C)

PROJECT TEAM

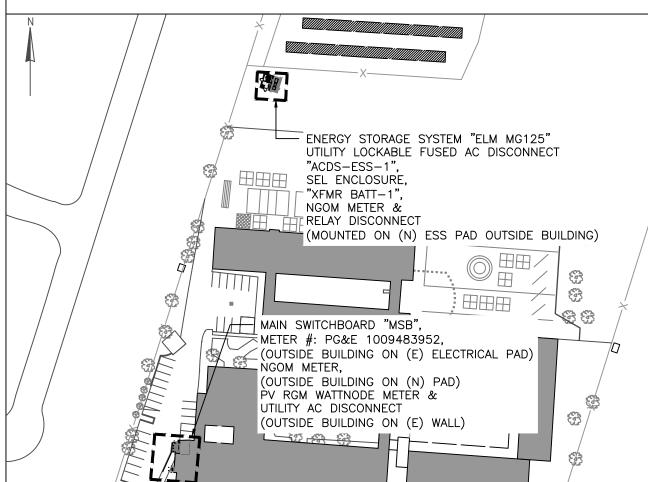
**SERVICE PERSONAL: MBL-ENERGY** (408) 467-0150

PUSD FIRE MITIGATION PERSONNEL: MATTHEW BELASCO: (925) 698-8197 MIKE BARROS :(925) 963-4884

**ESS TRANSFORMER** 

# CAUTION

POWER TO THIS SERVICE IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN 610 CROWLEY AVE PITTSBURG, CA 94565



### **ADHESIVE FASTENED SIGNS**

### NEC 110.21(B)(1)

INFORMATIONAL NOTE: ANSI Z535.4 - 2011 Product safety signs and labels, provides guidelines for suitable font sizes, words, colors, symbols, and location requirements for labels.

### NEC 110.21(B)(3)

The label shall be suitable for the environment where it is installed

### IFC 605.11.1.3

Adhesive fastened signs may be acceptable if properly adhered. Vinyl signs shall be weather resistant.

**GENERAL NOTES FOR LABELS AND MARKINGS:** 1. Labels and markings shall be applied to the appropriate components in accordance with the NEC.

- 2. Solar modules are supplied from the manufacturer with markings pre-applied to meet the requirements of the
- 3. The inverter is supplied from the manufacturer with the appropriate labels and markings to meet the requirements
- 4. All other warning and caution labels, unless otherwise specified, must meet the requirements of ANSI Z535.4 2011 per Article 110.21(B) in the NEC 2020. The ANSI standard requires that Danger, Warning, and Caution signs used the standard header colors, header text, and safety alert symbol on each label. The ANSI standard requires a heading that is at least 50% taller than the body While not required in the NEC 2020, the message text should be at least .12" tall. If we compare this to Occupational Safety and Health Administration (OHSA)1910.145 and the American National Standard Institute (ANSI) Z535, it is specified that signs must be visible at a safe viewing distance from the hazard. They also recommend the use of safety alert symbols, where applicable.

### LABELING REQUIREMENTS FOR ARTICLE 690

Each PV system disconnecting means shall plainly indicate whether in the open (off) or closed (on) position and be permanently marked "PV SYSTEM DISCONNECT" or equivalent. Additional markings shall be permitted based upon the specific system configuration.

For PV system disconnecting means where the line and load terminals may be energized in the open position, the device shall be marked with the following words or equivalent: "Terminals on the line and load sides may be energized in the open position."

### NEC 690.15(B)

An isolating device shall be rated to open the maximum circuit current under load or be marked "Do Not Disconnect Under Load" or "Not for Current Interrupting."

### NEC 690.31(B)(1)

PV system circuit conductors shall be identified at all termination, connection, and splice points by color coding, marking tape, tagging, or other approved means. Conductors relying on other than color coding for polarity identification shall be identified by an approved permanent marking means such as labeling, sleeving or shrink-tubing that is suitable for the conductor size.

## NEC 690.31(D)(2)

Unless located and arranged so the purpose is evident, the following wiring methods and enclosures that contain PV system dc circuit conductors shall be marked with the wording PHOTOVOLTAIC POWER SOURCE OR SOLAR PV DC CIRCUIT by means of permanently affixed labels or other approved permanent marking: (1) Exposed raceways, cable trays, and other wiring methods (2) Covers or enclosures of pull boxes and junction boxes (3) Conduit bodies in which any of the available conduit openings are unused.

The labels or markings shall be visible after installation. All letters shall be capitalized and shall be a minimum height of 9.5 mm (3/8in.) in white on a red background. labels shall appear on every section of the wiring system that is separated by enclosures, walls, partitions, ceilings, or floors. spacing between labels or markings, or between a label and a marking, shall not be more than 3 m (10ft). Labels required by this section shall be suitable for the environment where they are installed.

## NEC 690.31(E)

Solidly grounded bipolar PV systems shall be clearly marked with a permanent, legible warning notice indicating that the disconnection of the grounded conductor(s) may result in overvoltage on the equipment

# Interruption of Circuit. Connectors shall be a type that requires the use of a tool to open and marked "Do Not

Disconnect Under Load" or "Not for Current Interrupting."

# **NEC 690.52**

Alternating-current modules shall be marked with identification of terminals or leads and with identification of the

# **NEC 690.53**

A permanent readily visible label indicating the highest maximum dc voltage in a PV system, calculated in accordance with 690.7, shall be provided by the installer at one of the following locations: (1) DC PV system disconnecting means (2) PV system electronic power conversion equipment (3) Distribution equipment associated with the PV system.

**NEC 690.54** 

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

# **NEC 690.55**

The PV system output circuit conductors shall be marked to indicate polarity where connected to energy storage

# **NEC 690.56**

A fuel cell system that stores electrical energy shall require the following warning sign, or equivalent, at the location of the service disconnecting means of the premises: WARNING FUEL CELL POWER SYSTEM CONTAINS ELECTRICAL ENERGY STORAGE DEVICES.

Plaques or directories shall be installed in accordance with 705.10 AND 712.10.

**NEC 690.56(B)** 

The type of PV system is shown in figure 690.56(C).

# NEC 690.56(C)(2)

A rapid shutdown initiation device shall have a label located on or no more than 1 m (3 ft) from the initiation device that includes the following wording: RAPID SHUTDOWN FOR SOLAR PV SYSTEM. The label shall be reflective, with all letters capitalized and having a minimum height of 9.5 mm (3/8 in.), in white on red background.

# **NEC 690.59**

PV systems connected to other sources shall be installed in accordance with parts I and II of Article 705.

The sum of the ampere ratings of all overcurrent devices on panelboards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment displaying the following or equivalent wording: WARNING: THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING

MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR.

# **NEC 705.12(D)**

Suitable for backfeed. Fused disconnects, unless otherwise marked, shall be considered suitable for backfeed.

Data calculation was performed.

Each ESS disconnecting means shall plainly indicate whether it is in the open (on) or closed (off) position and be permanently marked "ENERGY STORAGE SYSTEM DISCONNECT". The disconnecting means shall be legibly marked in the field to indicate the following:

Nominal ESS ac voltage and maximum ESS dc voltage Available fault current derived from the ESS An arc-flash label applied in accordance with acceptable industry practice

### REQUIREMENTS FOR ELECTRICAL INSTALLATIONS (FIELD MARKING)

### NEC 110.16(A) Arc Flash:

Electrical equipment, such as switchboards, switchgear, panelboards, industrial control panels, meter socket enclosures, and motor control centers, that is in other than dwelling units, and is likely to require examination, adjustment, servicing, or maintenance while energized, shall be field or factory marked to warn qualified persons of potential electric arc flash hazards. The marking shall meet the requirements in 110.21(B) and shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.

### **NEC 110.16(B)**

In other than dwelling units, in addition to the requirements in (A), a permanent label shall be field or factory applied to service equipment rated 1200 amps or more. The label shall meet the requirements of 110.21(B) and contain the following information:

- 1. Nominal system voltage 2. Available fault current at the service overcurrent protective devices.
- 3. The clearing time of service overcurrent protective devices based on the available
- fault current at the service equipment. 4. The date the label was applied.

Exception: Service equipment labeling shall not be required if an arc flash label is applied in accordance with acceptable industry practice.

### NEC 110.21(B)(1) Field Applied Hazard Markings:

The marking shall warn of the hazards using effective words, colors, symbols, or any combination thereof.

### NEC 110.21(B)(3)

The label shall be of sufficient durability to withstand the environment involved.

### NEC 110.22(B) Engineered Series Combination Systems:

Equipment enclosures for circuit breakers or fuses applied in compliance with series combination ratings selected under engineering supervision in accordance with 250.86(A) shall be legibly marked in the field as directed by the engineer to indicate the equipment has been applied with a series combination rating. The marking shall meet the requirements in 110.21(B).

### NEC 110.24(A) Field Marking:

Service equipment at other than dwelling units shall be legibly marked in the field with the maximum available fault current. The field marking(s) shall include the date the fault-current calculation was performed and be of sufficient durability to withstand the environment involved. The calculation shall be documented and made available to those authorized to design, install, inspect, maintain, or operate the system.

### NEC 110.27(C)

Entrances to rooms or other guarded locations that contain exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.

### NEC 210.5(C)(1)(b) Posting of Identification Means: The method utilized for conductors originating within each branch-circuit panelboard or

similar branch circuit distribution equipment shall be documented in a manner that is readily available and shall be permanently posted at each branch-circuit panelboard or similar branch-circuit distribution equipment. The label shall be of sufficient durability to withstand the environment involved and shall not be handwritten.

## NEC 230.2(E) Identification:

Where a building or structure is supplied by more than one service, or any combination of branch circuits, feeders, and services, a permanent plaque or directory shall be installed at each service disconnect location denoting all other services, feeders, and branch circuits supplying that building or structure and the area served by each.

# NEC 408.4(B) Source of supply:

All switchboards, switchgear, and panelboards supplied by feeder(s) in other than one-or two-family dwellings shall be permanently marked to indicate each device or equipment where the power originates. The label shall be permanently affixed, of sufficient durability to withstand the environment involved and not be handwritten.

# **NEC 705.10**

A permanent plaque or directory shall be installed at a building supplied by a stand-alone system at each service equipment location, or at an approved readily visible location. the plaque or directory shall denote the location of each power source disconnecting means for the premises or be grouped with other plaques or directories for other on-site sources. The marking shall comply with 110.21(B).

# **NEC 705.12(C)**

Equipment containing overcurrent devices in circuits supplying power to a busbar or conductor supplied from multiple sources shall be marked to indicate the presence of all

# NEC 705.12(B)(3)(3)

Permanent warning label shall be applied to the distribution equipment displaying the following or equivalent wording: THIS EQUIPMENT FED BY MULTIPLE SOURCES: TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN POWER SUPPLY SHALL NOT EXCEED AMPACITY OF BUSBAR.

# NEC 705.12(B)(3)(2)

A permanent warning label shall be applied to the distribution equipment adjacent to the back-fed breaker from the inverter power source that displays the following or equivalent

WARNING: "Power output connection. Do not relocate this overcurrent drive".

# NEC 710.15(C)

Stand-alone systems shall be permitted to supply 120 volts to single-phase, 3-wire, 120/240-volt service equipment or distribution panels where there are no 240-volt outlets and where there are no multiwire branch circuits. In all installations, the sum of the ratings of the power sources shall be less than the rating of the neutral bus in the service equipment. This equipment shall be marked with the following words or equivalent: "WARNING: Single 120-volt supply - do not connect multiwire branch circuits."

# OSHA 1910.145(F)(7)

Warning tags are used to represent a hazard level between "Caution" and "Danger".

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 01-121369 INC: **REVIEWED FOR** SS ✓ FLS ✓ ACS □ DATE: 9/17/2024

BATTERY HOST PITTSBURG UNIFIED SCHOOL DISTRICT

> 2000 Railroad Avenue Pittsburg, CA 94565 925.473.2300

MBL-ENERGY

954 Hampswood way, San Jose, CA 95120 888-885-4401

ELECTRICAL ENGINEER

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STRUCTURAL ENGINEER

PEARCE

Pearce Renewables 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883

ARCHITECT



PROJECT

# LOS MEDANOS **ELEMENTARY SCHOOL**

610 CROWLEY AVE PITTSBURG, CA 94565

REVISION DATE ISSUED FOR PERMIT 12/07/2023 06/06/2024 UPDATED DRAWINGS AS PER DSA COMMENTS DATE:

08/30/2024

LABELS & **MARKINGS** 

SIGNAGE SHALL BE WEATHER RESISTANT. UL 969 SHALL BE USED AS A STANDARD FOR WEATHER RATING. 2. ALL SIGNAGE SHALL HAVE ALL CAPITAL LETTERS WITH MINIMUM

3/8" LETTER HEIGHT FOR HEADERS & 1/4" FOR REST OF THE TEXT. TEXT WITH RED BACKGROUND TO BE OF 3/8" HEIGHT DO NOT USE SCREWS FOR SIGNAGE ATTACHMENT, USE ONLY PERMANENT ADHESIVE.

smartstorage.

by MBL-ENERGY

Islanded Mode Off Grid Applications

Distributed Generation Time of Use Operation

Peak Shaving

Demand Response

UL 1973, UL 9540A

UL 1741 SA, SB

UL 9540

Backup Power

**ALL MG SERIES PRODUCTS** 

ELM Autonomous MicroGrid Site Control System

Access & Alerts on Desktop & Mobile 24/7

Individual Microgrid Component Pages

Communications: Wifi, Ethernet, Cellular

Local HMI IP 65 Touchscreen

**Grid Tied Mode** 

NEMA 3R Enclosure

**PV Disconnect** 

**Utility Disconnect** 

Climate Controls

System

DC Disconnect (Battery)

AC Disconnect (Inverter)

Bi Directional Storage Inverter

AC Disconnect (Utility Interconnect)

AC Circuit Breaker (Load Panel)

Asset Monitoring System Level & Individual

MG1000

480 VAC

1255A

1000kW

1000kW

2,640kWh

50/60 Hz

1600A

97%

3 Phase, 3 Wire

(2) 170" x 75" x 111" +

59,000 lbs.

3M Novec 1230

Reversible/Lockable

-20°C to 50°C

1,320kWh

170" x 75" x 111"

28,450 lbs.

3M Novec 1230

Reversible/Lockable

ntrol Software

ey System Components

ertifications



GROUP™ **Certificate of Compliance** 

**Certificate:** 80062265 Master Contract: 300628 2020-12-11 KORE Power, Inc.

1875 N Lakewood Drive, Suite 200, Coeur d'Alene, Idaho 83814, United States **Attention:** Mr. Nan Wu

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only

Issued by: Peng (Cheney) Chen Peng (Cheney) Chen

**PRODUCTS** 

CLASS - C3701-12 - Battery System for use in Stationary Applications. CLASS - C3701-82 - Battery System for use in Stationary Applications - Certified to US standard.

Rechargeable Lithium ion Battery System for use in stationary application, Model KORE-M1-ESR1500N.

**Electrical Ratings:** 

			tem Ratings			D1400	
Battery System Model	Normal Voltage, Vdc	Normal Capacity, Ah/kWh	Battery System Configuration	Enclosure IP Rating	Battery Module	RMSC (BMS control box)	
KORE-M1-	50 (0*NI	110Ah/	1pNs Module+	ID20	KORE-M1-	KORE-M1-	
ESR1500N**	59.68*N	6.51*N kWh	1RMSC	IP20	M2P16S	RMSC150	

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Note 2: Battery system has two configurations corresponding to two kinds of fuse installed in the RMSC.

# ESS ENCLOSURE-PCS SPECS

125kW/kVA PCS Module Specifications:

AC Output, DC Input Parameters	Rating @ 740 VDC Min
Rated Output Real Power	125kW
Rated Output Reactive Power	125kVAR
Rated Output Apparent Power	125kVA
Rated Output Voltage, Nominal	480VAC
VF Mode AC Voltage Variability	+/-24V
Grid Frequency, Nominal	60Hz
VF Mode Frequency, Variability	+/- 5Hz
Rated Output Current to Grid	150A
Total Demand Distortion	<5 %
Grid Forming Mode Voltage Distortion	<2.5 % (linear load)
Minimum Battery Voltage	740VDC
Maximum Battery Voltage	1500VDC
Battery Maximum Continuous Discharge Current	171 A
Full Load Efficiency	98.50%
Peak Efficiency	98.70%
CEC Efficiency	97% (Estimated)
Power Factor Range	-1.0 to +1.0
Standby Losses	200W

<b>Environme</b>	n

Operating Ambient Temperature	-25C to +50C		
Storage Temperature -30C to +60			
Maximum Altitude for Electrical Safety	3,000 meters		
Relative Humidity	Up to 95%		
Condensation	Non-Condensing		
Enclosure Rating	NEMA3R/IP54		
Audible Noise	<65dB @1m		

Ingress Protection Rating	NEMA3R/IP54
Dimensions (L x W x H)	15.25" x 27.75" x 36"
Weight	230 lbs.
Cooling	Forced Air (Fan)
Grounding Provisions	Grounding terminals available
Humidity	Up to 95%
Operational Temp Range	-35°C to +50°C
Storage Temp Range	-40°C to +70°C
Max Altitude	3,000 meters
Sound Pressure	<65dB @1m
Seismic Rating	TBD
Wind Loading	IBC 2018 V = 180mph, Risk Category II by FEA
Design Life	20 Years with PM and Scheduled Service
Lifting Provisions	Lifting eyes included
Mounting Provisions	Wall mount bracket included
Cable Entry	Bottom entry for AC and DC
Paint System	Powder Coat - Outdoor rated/salt laden environments
Color	White; RAL 120-1

**ESS ENCLOSURE** 

SP CSA GROUP

Certificate: 80062265 Master Contract: 300628 80062265 **Date Issued:** 2020-12-11 Project:

Manufacturer's Specified Charging Parameters for Battery Pack

Battery System Model	Temperature Range, °C	Normal Charging Voltage, Vdc	Normal Charging Current, A	Maximum Charging Voltage, Vdc	Maximum Charging Current, A
KORE-M1-	0~12	63.92*N	20	63.92*N	30
ESR1500N	12~40	69.52*N	50	69.52*N	100

Manufacturer's Specified Discharging Parameters for Battery Pack:

Battery Pack Model	Temperature Range, °C	Normal Discharging Current, A	End-of- discharge voltage, Vdc	Maximum Discharging Power, W	Maximum Discharging Current, A
KORE-M1-	0~40	50	44.88*N		150 (0~35 °C )
ESR1500N	0 40	50	77.00 1		100 (35~40 °C)

### **Conditions of Acceptability:**

- The battery system including its battery management system has been tested according to the functionalsafety requirements of ANSI/CAN/UL-1973:2018, Second Edition. Solid state circuits and software controls relied upon as the primary safety protection, have been evaluated to the Standard for Safety: Automatic Electrical Controls – Part 1, CSA/UL 60730-1. Any change to the software and electronic
- controls of the BMS may require additional testing. The battery system was evaluated only to establish an IP rating of IP20 with the Standard for Degrees of Protection Provided by Enclosure (IP Code) IEC 60529.
- Product is evaluated for indoor use and shall avoid being used in moisture environment, and not being used near marine environments. Further evaluation for Resistance of Moisture and/or Salt Fog shall be required for the battery system intended to be used in the end product where moisture and/or salt fog condition were applied.
- Manual disconnect device shall be required during the installation of the end products.
- Corrosion due to electrochemical action is to be determined for conductive parts in contact with terminals
- when subjecting to the installation of the end products.
- Equipment Application Location: Stationary Access Location: Operator Accessible.
- The installation was not evaluated. The battery system shall be installed in accordance with NFPA 70 or other applicable installation code.
- Dielectric Voltage Withstand Test was performed with the test potential of 3000Vac/4242 Vdc, a higher test potential shall be considered in the end product if higher overvoltage category specified.

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- Overvoltage Category(OVC): 2
- Pollution Degree(PD): 2
- Altitude for Operation: Up to 2000 m.

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 01-121369 INC: **REVIEWED FOR** SS ✓ FLS ✓ ACS □ DATE: 9/17/2024



PITTSBURG UNIFIED SCHOOL DISTRICT 2000 Railroad Avenue

Pittsburg, CA 94565 925.473.2300

**MBL-ENERGY MBL-ENERGY** 954 Hampswood way, San Jose, CA 95120

ELECTRICAL ENGINEER

888-885-4401

STRUCTURAL ENGINEER

PEARCE ■ RENEWABLES

**Pearce Renewables** 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883

STAMP



PROJECT

LOS MEDANOS **ELEMENTARY SCHOOL** 

610 CROWLEY AVE PITTSBURG, CA 94565

REVISION DATE ISSUED FOR PERMIT 06/06/2024 DSA COMMENTS
UPDATED DRAWINGS AS PER

08/30/2024

**EQUIPMENT SPECIFICATIONS** SHEET-1

LM-E801

# **ESS ENCLOSURE-BATTERY SPECS**

KOREPOWER

**ELM** FieldSight, LLC

MG Series Technical

Specifications

AC Input/Output Current

AC Input Power (Charge)

**Battery Capacity** 

**Peak Efficiency** 

Temperature Range

External Dimensions(L x W x H)

Max kWh

AC Connection

AC Output Power (Discharge)

AC Frequency (Field Settable)

**MAX AC Overcurrent Protection** 

uipment Specifications

External Dimensions(L x W x H)

AC Voltage

hree Phase Operation

MG125

480 VAC

150A

125kW

125kW

220kWh

60 Hz

250A

97%

3 Phase, 3 Wire

73.6" x 49" x 105"

5,545 lbs.

Fork Lift Slots

-20°C to 50°C

220kWh

60" x 36" x 104"

5,300 lbs.

Fork Lift Slots

Handles Stainless Steel Lockable Reversible/Lockable

MG250

480 VAC

300A

250kW

250kW

660kWh, 550kWh

50/60 Hz

97%

3 Phase, 3 Wire

142.8" x 96" x 111"

16,500 lbs., 14,520 lbs

Fork Lift Slots

880kWh

124" x 75" x 111"

20,000 lbs.

Fork Lift Slots

MG500

480 VAC

600A

500kW

500kW

1,100kWh

50/60 Hz

800A

97%

3 Phase, 3 Wire

170" x 75" x 111"

25,950 lbs.

Reversible/Lockable

-20°C to 50°C

1,320kWh

170" x 75" x 111"

28,450 lbs.

3M Novec 1230

Reversible/Lockable

-20°C to 50°C

Fork Truck or Lift Strap Fork Truck or Lift Strap

Fork Truck or Lift Strap Fork Truck or Lift Strap

KORE-M1-DAS-0002 Rev. F

2 CELL

KORE Power cell specifically designed for energy storage.



Figure 1. Battery Cell

Table 2. Battery Cell Specifications

Item	Specification			
Chemistry	NMC/G			
Dimensions (W x D x H)	313 mm x 11.6 mm x 102 mm			
Weight	0.80 ± 0.015 kg			
Capacity <sup>1</sup>	55 Ah @ 25°C, 1/3C			
Nominal Voltage	3.73 V @ 25°C, 1/3C			
Voltage Range	2.8 ~ 4.35 V			
Energy Density	255 Wh/kg @ 25°C, 1/3C			
Cycle Life	80% SOH @ 4000 Cycles est.			
Housing	Aluminum-Plastic Film / Opposing tabs			
Certification/Compliance	UL 1973, IEC 62619, UN 38.3, UL 9540A			

<sup>1</sup>Capacity varies with C rates

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# **ESS ENCLOSURE-BATTERY SPECS**

■ KOREPOWER KORE-M1-DAS-0002 Rev. F Charge & Discharge Capacity @ 25°C 4.2 ----Charge 4.0 — Discharge > 3.8 3.2 0 5 10 15 20 25 30 35 40 45 50 55 60 Capacity/Ah Figure 2. Charge: 1C, CC&CV Mode; Discharge: 1C, CC Mode

# 3 BATTERY MODULE

The battery module consists of 32 battery cells (2P16S) and a MBMS that:

- Communicates with the Rack BMS (RBMS)
- Provides operating information to the RBMS
- Maintains cell voltage through passive cell balancing
- Monitors the module temperature and controls the cooling fan using PWM.

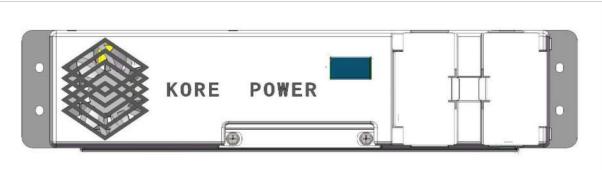


Figure 3. Battery Module

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v.MBL-020524

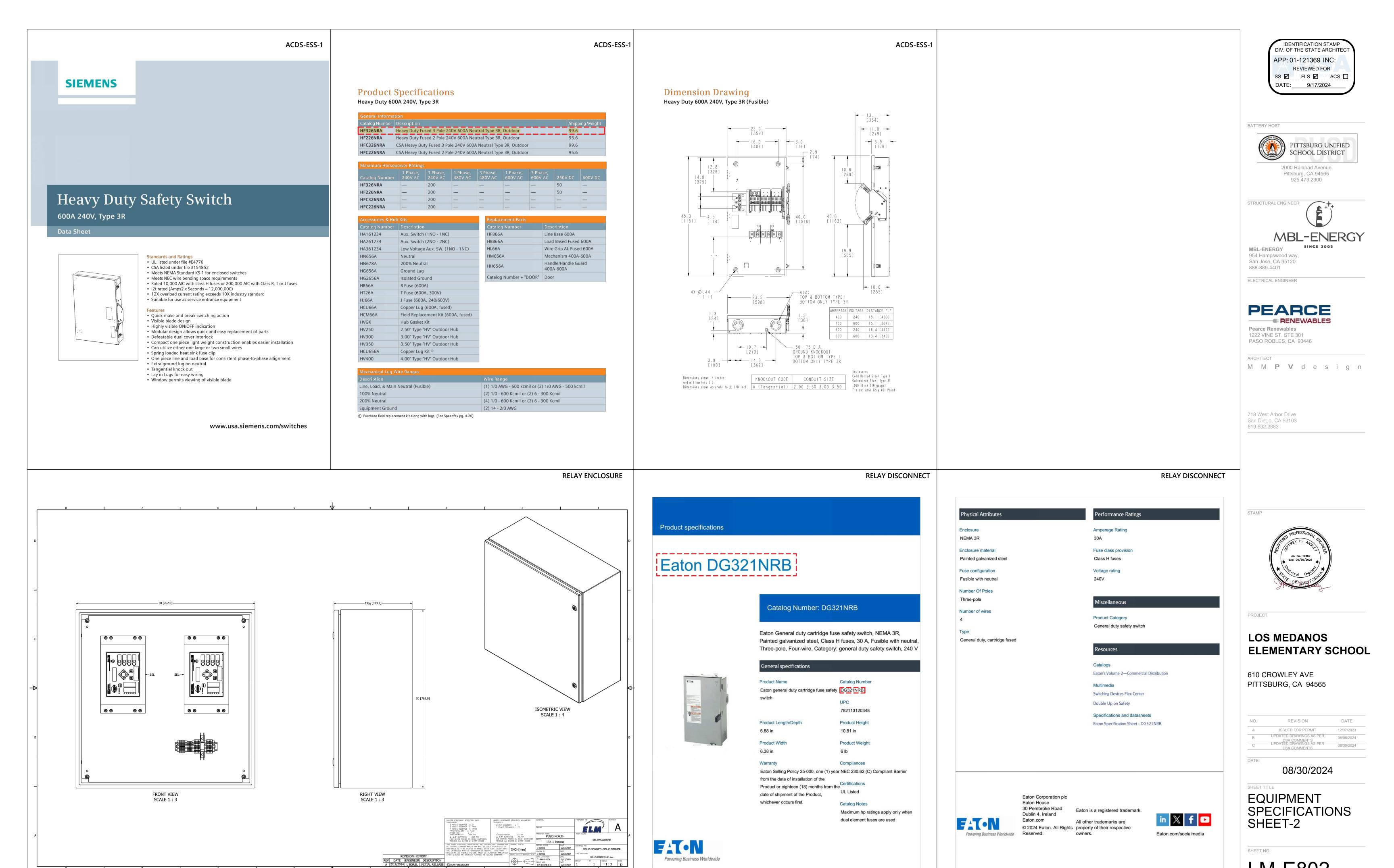
AC Output/DC Input Parameters

AC Output, DC Input Parameters	Rating @ 740 VDC Min
Rated Output Real Power	125kW
Rated Output Reactive Power	125kVAR
Rated Output Apparent Power	125kVA
Rated Output Voltage, Nominal	480VAC
VF Mode AC Voltage Variability	+/-24V
Grid Frequency, Nominal	60Hz
VF Mode Frequency, Variability	+/- 5Hz
Rated Output Current to Grid	150A
Total Demand Distortion	<5 %
Grid Forming Mode Voltage Distortion	<2.5 % (linear load)
Minimum Battery Voltage	740VDC
Maximum Battery Voltage	1500VDC
Battery Maximum Continuous Discharge Current	171 A
Full Load Efficiency	98.50%
Peak Efficiency	98.70%
CEC Efficiency	97% (Estimated)
Power Factor Range	-1.0 to +1.0
Standby Losses	200W

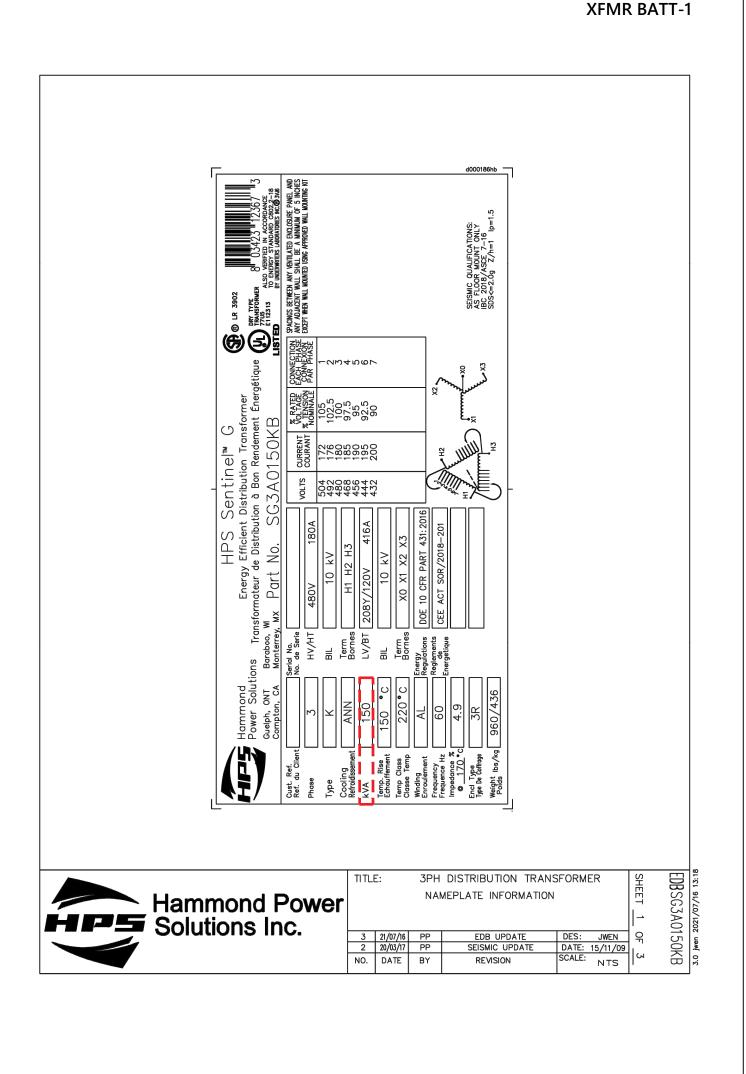
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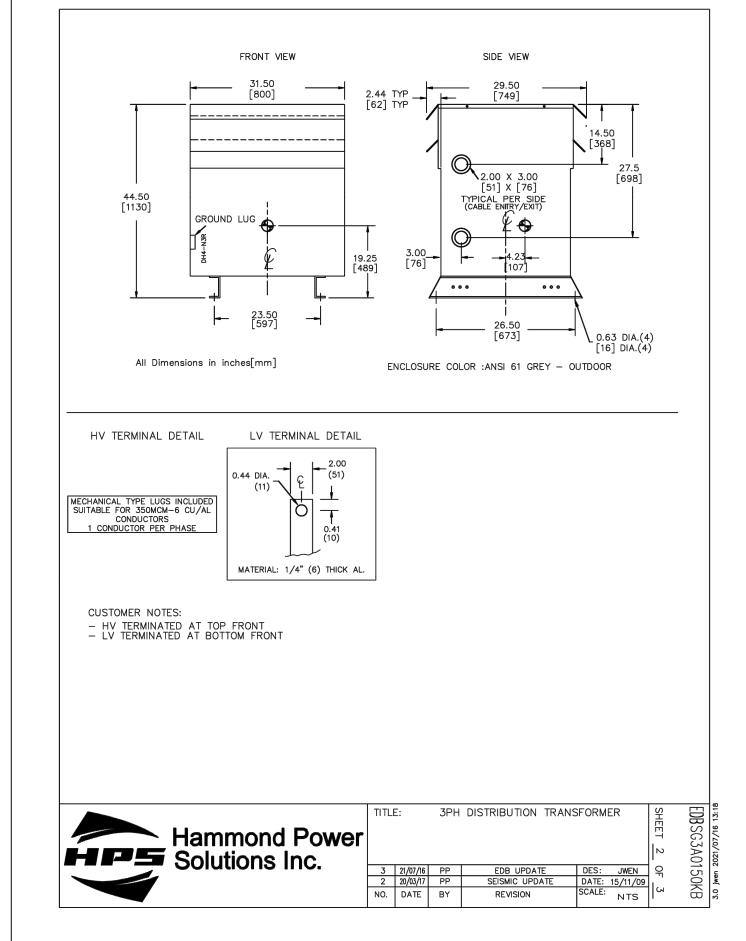
Operating Ambient Temperature	-25C to +50C
Storage Temperature	-30C to +60C
Maximum Altitude for Electrical Safety	3,000 meters
Relative Humidity	Up to 95%
Condensation	Non-Condensing
Enclosure Rating	NEMA3R/IP54
Audible Noise	<65dB @1m

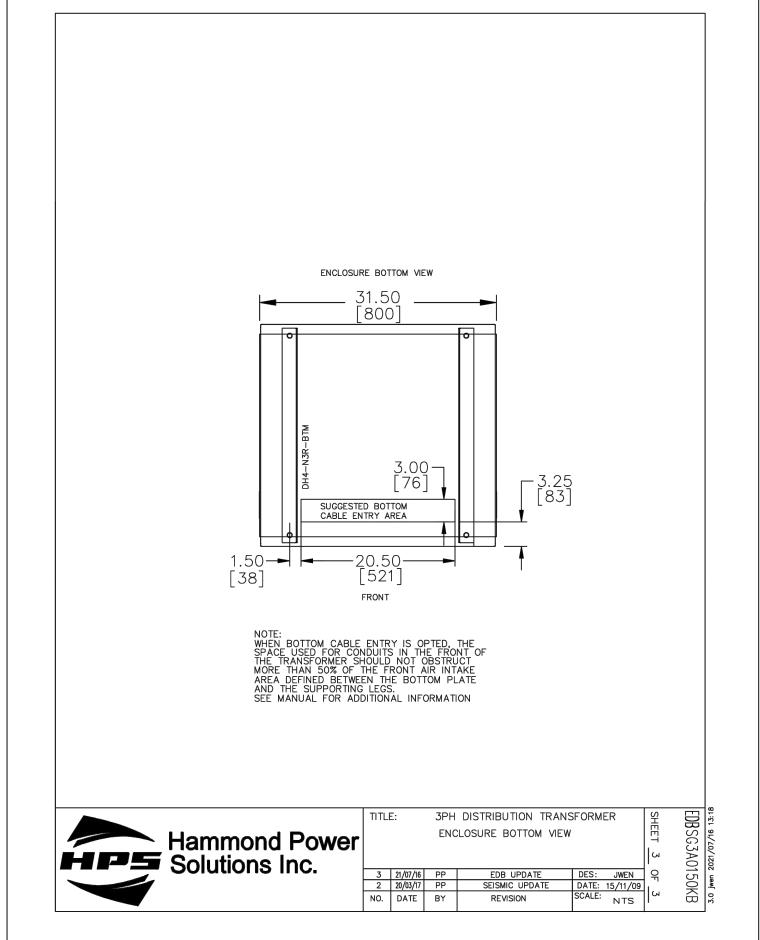
Ingress Protection Rating	NEMA3R/IP54
Dimensions (L x W x H)	15.25" x 27.75" x 36"
Weight	230 lbs.
Cooling	Forced Air (Fan)
Grounding Provisions	Grounding terminals available
Humidity	Up to 95%
Operational Temp Range	-35°C to +50°C
Storage Temp Range	-40°C to +70°C
Max Altitude	3,000 meters
Sound Pressure	<65dB @1m
Seismic Rating	TBD
Wind Loading	IBC 2018 V = 180mph, Risk Category II by FEA
Design Life	20 Years with PM and Scheduled Service
Lifting Provisions	Lifting eyes included
Mounting Provisions	Wall mount bracket included
Cable Entry	Bottom entry for AC and DC
Paint System	Powder Coat - Outdoor rated/salt laden environments
Color	White; RAL 120-1



Powering Business Worldwide









# LED WALL PACK

## DESCRIPTION

Improve security lighting around building perimeters by replacing existing metal halide fixtures with these more efficient LED wall packs.

# project name catalog number approved by

- FEATURES Delivers up to 135 LPW
- Replaces 150W and 175W metal halide fixtures 0-10V dimming

## LISTINGS

- IP65 Rated
- UL Listed DesignLights Consortium® 5.1 Premium - meets the requirements for the highest DLC qualification for efficacy and lumen maintenance

# PERFORMANCE

- CRI: 70 • CCT: 5000K
- LED L70 Life Hours: ≥100,000 hours

# ELECTRICAL

- THD: <20%
- Power Factor: >0.9
- Input Voltage: 120-277V Surge protection: 4kV

### THERMAL

• -40°F to 113°F (-40°C to 45°C) operating temperature

### CONSTRUCTION

- Heavy duty die-cast aluminum housing with bronze finish and anti-corrosion spray
- Durable borosilicate glass lens doesn't fade and allows high light transmittance

**NGOM METER** 

• 5 year limited warranty; see pltsolutions.com for warranty details





BATTERY HOST

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC

REVIEWED FOR

SS ☑ FLS ☑ ACS □

PITTSBURG UNIFIED

SCHOOL DISTRICT

Pittsburg, CA 94565

925.473.2300

APP: 01-121369 INC:

DATE: 9/17/2024

San Jose, CA 95120 888-885-4401

ELECTRICAL ENGINEER



1222 VINE ST. STE 301 PASO ROBLES, CA 93446

ARCHITECT M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883

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LIGHT FIXTURE

**APPLICATIONS** 

Pathways

 Loading Docks Building Perimeters

General Security Lighting

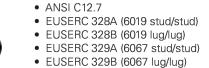
# NGOM METER

# **CT Mounting Bases**



### • For use with CT rated enclosures • For use with ANSI C12.11 bar type current transformers

 Bar mounts are <sup>1</sup>/<sub>2</sub>" studs on 1<sup>3</sup>/<sub>4</sub>" centers (line & load)



Part/UPC Number	Catalog Number	Amp Rating	# of C.T. Provisions	Service Type	Access	AIC	Phase / Neutr Line	al Conductors —— Load
78205137750	6019 A	400	2	1Ø or 3Ø/3W	OH/UG	10K	Studs	Studs
78205137755	6019 E	800	2	1Ø or 3Ø/3W	OH/UG	10K	Studs	Studs
78205140822	6019 HA	400	2	1Ø or 3Ø/3W	OH/UG	50K	Studs	Studs
78205108761	6019 HAL	400	2	1Ø or 3Ø/3W	OH/UG	50K	(3) #4 - 600 MCM*	(3) #4 - 600 MCM*
78205111459	6019 HALS	400	2	1Ø or 3Ø/3W	OH/UG	50K	Studs	(3) #4 - 600 MCM*
78205140826	6019 HE	800	2	1Ø or 3Ø/3W	OH/UG	50K	Studs	Studs
78205108608	6019 HEL	800	2	1Ø or 3Ø/3W	OH/UG	50K	(3) #4 - 600 MCM	(3) #4 - 600 MCM
78205111461	6019 HELS	800	2	1Ø or 3Ø/3W	OH/UG	50K	Studs	(3) #4 - 600 MCM
78205137760	6067 A	400	3	3Ø/4W	OH/UG	10K	Studs	Studs
78205137765	6067 EE	800	3	3Ø/4W	OH/UG	10K	Studs	Studs
78205140776	6067 HA	400	3	3Ø/4W	OH/UG	50K	Studs	Studs
78205108698	6067 HAL	400	3	3Ø/4W	OH/UG	50K	(3) #4 - 600 MCM*	(3) #4 - 600 MCM*
78205111452	6067 HALS	400	3	3Ø/4W	OH/UG	50K	Studs	(3) #4 - 600 MCM*
78205140780	6067 HEE	800	3	3Ø/4W	OH/UG	50K	Studs	Studs
78205107177	6067 HEEL	800	3	3Ø/4W	OH/UG	50K	(3) #4 - 600 MCM	(3) #4 - 600 MCM
78205111464	6067 HEELS	800	3	3Ø/4W	OH/UG	50K	Studs	(3) #4 - 600 MCM

Note: \* Neutral Lug is one barrel only Note: Every 600 MCM lug barrel will accept (2) 1/0-250 MCM cables



# **NGOM METER**

XFMR BATT-1

# **Meter Socket / Enclosure Combination Cabinets**



U122013 (closed)





**Application** 

•	Ring type
•	NEMA Type 3R
•	ANSI 61 gray E-coat finish
•	Aluminum snap ring included
:	Standards
	UL 414 Listed
•	
•	UL 414 Listed
•	UL 414 Listed ANSI C12.7

Removable test switch perch included

Receive ANSI C12.10 watthour meters

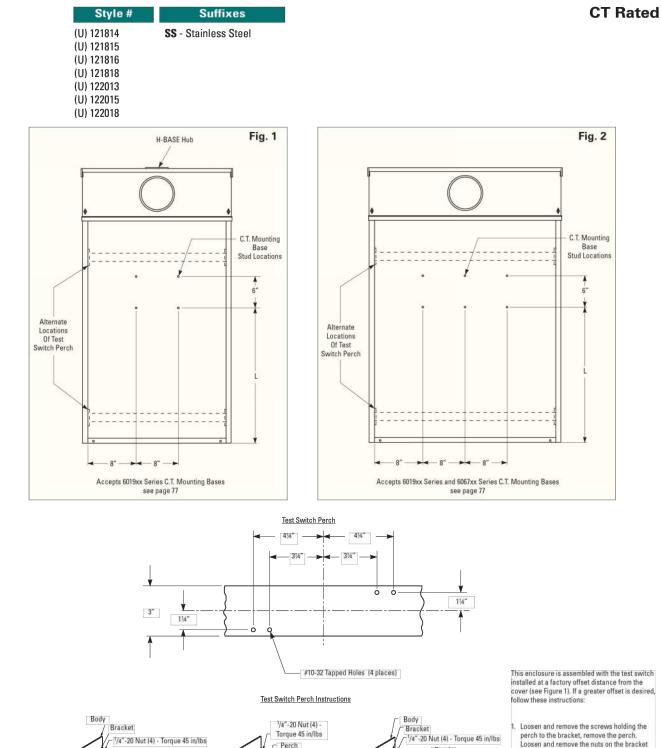
• Includes provisions to install model 6019/6067 CT mounts

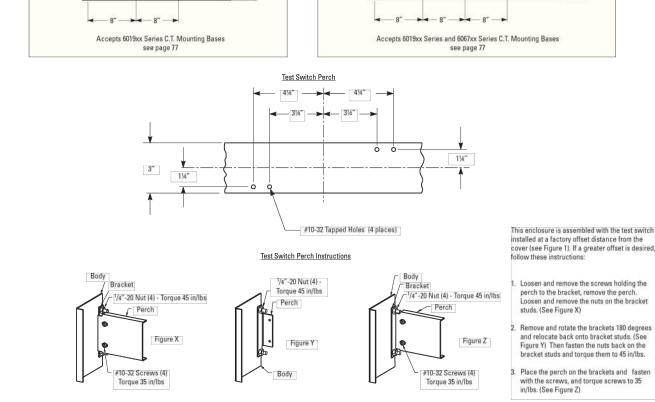
Part/UPC	Catalog	Amp		Service			– Connections –	
Number	Number	Rating	Jaws	Туре	Access	Line	Load	Neutral
78205150030	121814	20	4	10	OH/UG	#14 - #10	#14 - #10	#14 - #10
78205150040	121815	20	5	1Ø	OH/UG	#14 - #10	#14 - #10	#14 - #10
78205150020	121816	20	6	1Ø	OH/UG	#14 - #10	#14 - #10	#14 - #10
78205150050	121818	20	8	1Ø	OH/UG	#14 - #10	#14 - #10	#14 - #10
78205150080	122013	20	13	3Ø	OH/UG	#14 - #10	#14 - #10	#14 - #10
78205122735	122015	20	15	3Ø	OH/UG	#14 - #10	#14 - #10	#14 - #10
78205150090	122018	20	8	1Ø or 3Ø	OH/UG	#14 - #10	#14 - #10	#14 - #10
78205149000	U121814 *	20	4	1Ø	UG	#14 - #10	#14 - #10	#14 - #10
78205149010	U121815 *	20	5	10	UG	#14 - #10	#14 - #10	#14 - #10
78205149020	U121816 *	20	6	1Ø	UG	#14 - #10	#14 - #10	#14 - #10
78205149030	U121818 *	20	8	1Ø or 3Ø	UG	#14 - #10	#14 - #10	#14 - #10
78205149040	U122013 *	20	13	3Ø	UG	#14 - #10	#14 - #10	#14 - #10
78205149045	U122015 *	20	15	3Ø	UG	#14 - #10	#14 - #10	#14 - #10
78205149050	U122018 *	20	8	1Ø or 3Ø	UG	#14 - #10	#14 - #10	#14 - #10

Part/UPC Number	Catalog Number	——— Ove Height	erall Dimensi Width	ons ——— Depth	L Dimension	Top Provision	Knockout Layout
78205150030	121814	42"	24"	11"	15 <sup>11</sup> /16"	H Hub	Fig. 1
78205150040	121815	42"	24"	11"	15 <sup>11</sup> /16"	H Hub	Fig. 1
78205150020	121816	42"	24"	11"	15 <sup>11</sup> /16"	H Hub	Fig. 1
78205150050	121818	42"	24"	11"	15 <sup>11</sup> /16"	H Hub	Fig. 1
78205150080	122013	42"	36"	11"	15 <sup>11</sup> /16"	H Hub	Fig. 2
78205122735	122015	42"	36"	11"	15 <sup>11</sup> /16"	H Hub	Fig. 2
78205150090	122018	42"	36"	11"	15 <sup>11</sup> /16"	H Hub	Fig. 2
78205149000	U121814 *	52"	24"	11"	25 <sup>11</sup> /16"	None	Fig. 1
78205149010	U121815 *	52"	24"	11"	25 <sup>11</sup> /16"	None	Fig. 1
78205149020	U121816 *	52"	24"	11"	25 <sup>11</sup> /16"	None	Fig. 1
78205149030	U121818 *	52"	24"	11"	25 <sup>11</sup> /16"	None	Fig. 1
78205149040	U122013 *	52"	36"	11"	25 <sup>11</sup> /16"	None	Fig. 2
78205149045	U122015 *	52"	36"	11"	25 <sup>11</sup> /16"	None	Fig. 2
78205149050	U122018 *	52"	36"	11"	25 <sup>11</sup> /16"	None	Fig. 2



# **Meter Socket / Enclosure Combination Cabinets**





Data subject to change without notice. Consult local utility for area acceptance. All dimensions are in inches.

Meter Mounting Equipment

# PERFORMANCE SUMMARY

ltem# Watts Lumens LPW CRI CCT Lens Dimming Voltage Replaces DLC# PLTS-12362 35W 4725 135 70 5000K Glass 0-10V 120-277V MH150 PLTBN1311 5.1 Premium PLTS-12363 50W 6750 135 70 5000K Glass 0-10V 120-277V MH175 PLTBN2311 5.1 Premium

# INSTALLATION HEIGHT REFERENCE



# DIMENSIONS

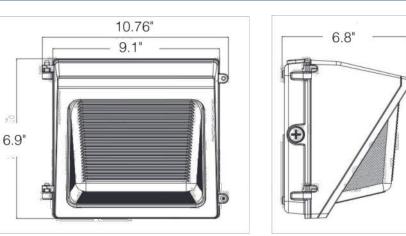
PHOTOMETRICS

AVERAGE BEAM ANGLE (50%):102.6 DEG

<u>35W</u>

- B-Line

by FIT-N



<u>50W</u>

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

# **DIMENSIONS**

Height: 6.9" Width: 9.1" Width w/ hinges: 10.76" Depth: 6.8" Weight: 3.55 lbs

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### ISSUED FOR PERMIT UPDATED DRAWINGS AS PER DSA COMMENTS UPDATED DRAWINGS AS PER DSA COMMENTS

08/30/2024

# **EQUIPMENT** SPECIFICATIONS SHEET-3



PROJECT

LOS MEDANOS **ELEMENTARY SCHOOL** 

REVISION

DATE

12/07/2023

06/06/2024

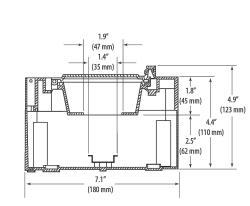
610 CROWLEY AVE PITTSBURG, CA 94565 DESCRIPTION **FEATURES** AEO10 enclosure offers a mounting option for E5x Series energy meters with NEMA 4 Sturdy, attractive housing

level protection from the elements. The enclosure is equipped with DIN rail mounting

NEMA 4 level protection...weather-proofing and durability (AE010) hardware for convenient installation. Key lock...discourages unwanted tampering (AE011)

AE011 locking mechanism and keys provides additional security from tampering. The lock is easily installed in the AE010 housing cover.

DIMENSIONAL DRAWINGS



ORDERING INFORMATION ( C c u) us Rolls Complicate

NEMA 4 Enclosure for E5x Series Meters

Locking Mechanism for AEO10 Enclosure with two keys

800.354.8556

+1 503.598.4564

www.veris.com HQ0001907.A 01121





The E5x Series DIN Rail Meter combines exceptional performance and easy installation to deliver a cost-effective solution for power monitoring applications. The E5x can be installed on standard DIN rail or surface mounted as needed. The Modbus, LON, and BACnet output models offer added flexibility for system integration. The data logging capability (E5xC3 and E5xx5) protects data in the event of a communications or power failure elsewhere in the system. Combinations of serial communication, pulse output, and phase alarms are provided to suit a wide variety of applications. Additional pulse inputs on E5xHx and E50Fx provide an easy way to incorporate simple flow sensors to track gas, water, steam, or other energy forms using a BACnet or LON system.

The E51 models add a bi-directional monitoring feature designed expressly for renewable energy applications, allowing measurement of power imported from the utility grid as well as power exported from the renewable energy source (e.g. solar panels). In this way, a facility administrator can track all energy data, ensuring accuracy in billing and crediting. They are also useful for monitoring loads that use regenerative braking.

SPECIFICATION	

OUTPUTS

INPUTS	
Control Power, AC	50/60 Hz; 5 VA max.; 90 V min.; UL Maximums: 600 V <sub>L-L</sub> (347 V <sub>L-N</sub> ); CE Maximum: 300 V <sub>L-N</sub>
Control Power, DC	3W max.; UL and CE: 125 to 300 Vdc (external DC current limiting required)
Voltage Input	UL: 90 $V_{LN}$ to 600 $V_{LL}$ ; CE: 90 $V_{LN}$ to 300 $V_{LN}$
CURRENT INPUT	
Scaling	5 A to 32,000 A
Input Range	0 to 0.333 V or 0 to 1 V (selectable) CTs must be rate for use with Class 1 voltage inputs
Pulse Inputs E5xHx & E50Fx only	Contact inputs to pulse accumulators (one set with E5xH2 and E50F2; two sets with E5xH5 and E51F5)*
ACCURACY	
Real Power & Energy	0.2% (ANSI C12.20, IEC 62053-22 Class 0.2S)

Real Energy Pulse: N.O. static\*\*;

800.354.8556 | +1 503.598.4564 | sales@veris.com | intl@veris.com | www.veris.com

Alarm contacts: N.C. static\*\*

serves multiple applications

### Data logging High reliability ANSI C12.20 0.2% accuracy, IEC

Ensures long term data retrieval 62053-22 Class 0.2S on E5xxx and safeguards during power

# failures (E5xC3 and E5xx5) Easy installation Wide CT

DIN rail or screw mounting options compatibility Compatible with CTs from 5 A to

Cost allocation

### **APPLICATIONS**

- Energy monitoring in building
   Commercial sub-metering automation systems Industrial monitoring

\*10 kΩ Vac/dc to 4 to 10 Vdc.

\*\*30 Vac/dc, 100 mA max. (AC: 50/60Hz)

Modbus Network

**Accu-CT® Split-Core CTs** 

600 Vac, 50 or 60 Hz

0.75" and 1.25" opening

Safe, low voltage output, 0.333 Vac

• Primary Ratings: 5 to 600 amps,

• UL and cUL, CE, RoHS compliant

High accuracy options C0.6, C0.2

**WattNode Meter Enclosures** 

Fully assembled, UL certified

Quick delivery, easy install

Low cost, customs available

Polycarbonate or metal options

· Options include circuit breaker,

fuse block or standard wire

harness without circuit protection

UL 508A, NEMA 4 Meter Enclosures

T2 Pc12

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CE FC CCS CONTENTS

EIA-485 Common -

Renewable energy

E50Bx	Reactive energy pulse 30 Vac**
E5xCx	RS-485 2-wire Modbus RTU (1200 baud to 38.4 kbau
E5xHx	RS-485 2-wire BACnet MS/TP (9600 baud to 115.2 kbaud)
E50Fx	2-wire LON FT
MECHANICAL	
Mounting	DIN Rail or 3-point screw mount
ENVIRONMENTAL	
Altitude of Operation	3000 m
Operating Temp Range	-30 to 70 °C (-22 to 158 °F)
Storage Temp Range	-40 to 85 °C (-40 to 185 °F)
Humidity Range	<95% RH non-condensing
Mounting Location	Not suitable for wet locations. For indoor use only.
WARRANTY	
Limited Warranty	5 years
AGENCY APPROVALS	
Agency Approvals	UL 508 (Open Type Device), IEC/EN 61010-1, Californ CSI Solar, ANSI C12.20, Cat III, Pollution Degree 2

# Voltage: Line-Line and Line-Neutral 3-phase average and per phase) . . . . . . . . . . ANSI C12.20 0.2% accuracy, IEC 62053-22

rresent Power Demand: Real (kW),
Reactive (kVAR), and Apparent (kVA)

Peak Power Demand: Real (kW),
Reactive (kVAR), and Apparent (kVA)

Current (3-phase average and per phase) • • • • • • • • • •

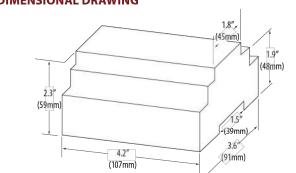
Accumulated Net Energy: Real (kWh),
Reactive (kVARh), and Apparent (kVAh) Accumulated Real Energy by phase . . . . . . . . (3-phase total & per phase) 

	DA	TA L	ogg	ING			
ogging: 10 16-Bit Configurable clude Date/Time) Data Buffers							
ogging: 3 Timestamped 32-Bit urable Data Buffers					•	•	
p to 60 days of readings ninute intervals			•		•	•	
		оит	PUT	s			
Output (N.C.)							

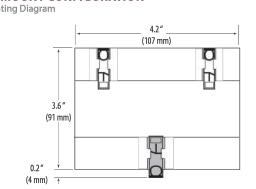
1 Pulse Output (N.O.) RS-485 Serial (BACnet MS/TP Protocol)

1 Pulse Contact Accumulator Input.

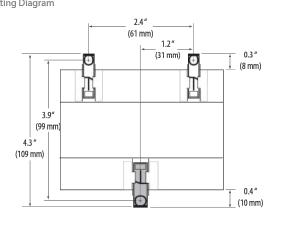
800.354.8556 | +1 503.598.4564 | sales@veris.com | intl@veris.com | www.veris.com

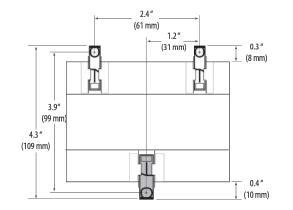


### DIN MOUNT CONFIGURATION



### SCREW MOUNT CONFIGURATION





# PV RGM WATTNODE METER

# WATTNODE® Wide-Range Modbus Meter

One Model for All Utility Services 100 - 600 Vac

# WattNode® Wide-Range Meter for Modbus

The new WND-WR-MB provides over fifty electrical measurements over a Modbus RTU RS-485 network. Designed as a universal line-powered meter, it works on any utility service from 100 to 600 Vac, single or three-phase, wye, or delta. The WND-WR-MB has the same dimensions as its WattNode Modbus predecessor but its expanded register map provides many unique features not previously offered in the submetering market. New registers include fast power for export limiting, registers to correct wiring errors remotely, potential transformer ratio for 4160 Vac and higher utility services, and SunSpec compliance.

# **Standard Features**

- Measures 100 to 600 Vac single-phase or three-phase,
- Line powered from 100 to 600 Vac, line-neutral or line-line • Correct wiring errors remotely
- Change a CT's polarity - Change a CT to a different line voltage
- PT ratio register for use with potential transformers
- Current transformer disconnect detection Modbus RTU, RS-485
- For use with safe low voltage (0.333 Vac) CTs to 6000 amps Fast power feature for export limiting applications (100 ms)
- . Nine baud rates from 1.2K up to 115K SunSpec compliant register list

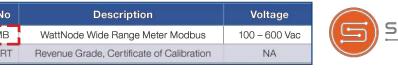
# **Revenue Grade Accuracy**

## Meets ANSI C12.1-2014 & ANSI C12.20-2015

Class 0.5 when used with Class 0.2 CTs

# **Ordering Information**





WattNode is a registrered trademark of Continental Control Systems, LLC.



2150 Miller Drive, Suite A • Longmont CO 80501 • USA sales@ctlsys.com • www.ctlsys.com (888) 928-8663 • Fax (303) 444-2903 WND-WR-MB-SB-5.17.22: Specifications are subject to change

**Dimensions** 

-6.1 in.-

(155 mm)

# WATTNODE® WIDE-RANGE MODBUS METER

# **Electrical Measurements**

- True RMS Energy: kWh per phase and sum • True RMS Power: watts, per phase and sum
- Power Factor: per phase and average RMS voltage per phase and average
- RMS current per phase and average
- Reactive Energy: VAR hours per phase and sum Reactive Power: VARs, per phase and sum
- Demand and peak demand Frequency

# **Electrical**

- Line-Powered: 100 to 600 Vac • Line Frequency: 45 to 65 Hz
- Nominal Line-to-Neutral: 100 to 347 Vac Nominal Line-to-Line: 120 to 600 Vac

# **Environmental**

# • Operating Temperature: -40°F to 176°F (-40°C to +80°C)

 Suitable for indoor use • Suitable for outdoor use when installed in a NEMA 3R or NEMA 4 rated enclosure (available from CCS)

# Mechanical

Hole Ø

0.200 in. (5.1 mm)

(38.1 mm)

 Case Material: PC-ABS • Size: 6.0 x 3.4 x 1.5 in. (153 x 85 x 38 mm) Weight: 10.8 oz (307 gm)

- **Modbus Communication** • Protocol: Modbus RTU (binary) • Baud Rates: selectable over Rs-485 from 1.2K to 115K
- See manual for other communication options
- Regulatory / Safety • U, cUL, file number E359088
- UL / IEC 61010-1, 3rd Edition • CAN/CSA-C22.2 No 61010-1-12, 3rd Edition
- FCC: Class B, FCC Part 15 • Meets European Parliament Directive 2014/35/EU:
- Low Voltage Directive • Meets European Parliament Directive 2011/65/EU: Hazardous Substances
- Meets European Parliament Directive 2014/30/EU: Electromagnetic Compatibility • CE, RoHS compliant

# / WARNING

This product can expose you to chemicals including Antimony Trioxide, which is known to the State of California to cause cancer. For more information go to: www.P65Warnings.ca.gov



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HQ0001710.0 0119

# WATTNODE® WattNode® Wiring Diagram, Three Phase Example

Metal or Polycarbonate

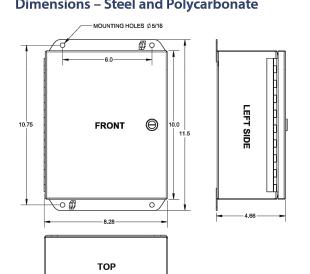
# **UL 508A NEMA 4 Enclosures**

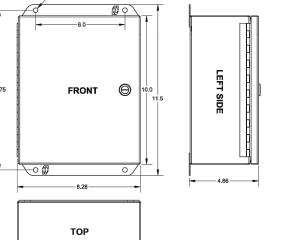
WattNode meter. They are available with a three-phase circuit breaker, a fuse block, or no circuit protection in both 16 gauge steel or polycarbonate construction. The WattNode Meter comes preinstalled when

# **Features**

# • UL 508A Listed Assembly

- NEMA 3R, 4, 12, and 13 rated enclosure
- Waterproof when used with NEMA 4 conduit hubs
- Available with circuit breaker, fuses, or no overcurrent





PV RGM WATTNODE

**METER ENCLOSURE** 

- Circuit Breaker Padlock Bracket: GE 283-190, a padlock bracket is provided for lockout use
- Fuses: Bussmann FNQ-R-1/2, Class CC, UL 248-4, 600 Vac, 0.5 A, 200 kA interrupting rating
- Screw Terminals: Allen-Bradley 1492-J6, UL 486A-486B, 600 Vac, 30 A
- General Wiring: 12 AWG, stranded, 600 V, 90°C, UL style 1015

# Back Plate: Galzanized steel

# **Metal Enclosure**

- **NEMA Rating:** 3R, 4, 12, and 13
- Line Voltage (L1, L2, and L3): 12 AWG wire

Steel enclosure with circuit breaker option

- recommended, copper only, 75°C rated • Circuit breaker (ME1-C-1), (PE1-C-1): 14 to 10 AWG, 30 lbs-in (4 N·m)
- Fuse holder (ME1-F-1), (PE1-F-1):
- 14 to 10 AWG, 17.7 lbs-in (2 N·m) • Screw terminals (ME1-N-1), (PE1-N-1): 14 to 10 AWG, 14.2 lbs-in (1.6 N·m)

# **Electrical**

**Specifications** 

Field Wiring Connections

- Neutral: Gray screw terminal, 14 to 10 AWG,
- Ground: Green/yellow screw terminal, 14 to 10 AWG, • A datasheet is available on the WattNode

• UL 508A Listed industrial control panel (U.S. and Canada), file number E495898

Meter Enclosure page on www.ctlsys.com

- **Environmental**
- Indoor Use: Suitable for indoor use.
- Outdoor Use: Suitable for outdoor use. WARNING: Direct sunlight exposure may cause overheating

# sales@ctlsys.com • www.ctlsys.com

# WATTNODE® METER ENCLOSURES

- Components Note: the specific components are subject to change without notice.
- Circuit Breaker: GE EP103ULH4C0.5 ElfaPlus, UL 489, 480 Vac, 0.5 A, 10 kA interrupting rating
- Fuse Holder: Littelfuse LPSC0003Z, UL 4248-1 Class CC, 3 poles, 600 Vac, 30 A, 200 kA interrupting rating

- Type: Hammond Eclipse Junior, EJ 1084, UL508A
- Complies: with IP66 • CSA Types: 3R, 4, 12, and 13 • Quarter-turn screwdriver latch. Optional key lock adapter

# EJWKL is available from Hammon Manufacturing Ltd.

### **Polycarbonate Enclosure** • Type: Allied Moulded Products Polyline®

- **NEMA Rating:** 1, 2, 3, 3R, 4, 4x, 12, and 13 • Complies: with IP66
- Snap Latch which accepts a customer supplied padlock. • Country of Origin: USA

• CSA Types: 1, 2, 3, 3R, 4, 4x, 12, and 13

Model	Overcurrent Protection	Disconnect	Service Voltages
*PE1-C-1	Three-phase circuit breaker	Yes	120/480 Va
*PE1-F-1	Three-phase fuses	No	347/600 Va
PE1-N-1	None	No	120/600 Va

\*The (M/P)E1-F-1 and (M/P)E1-N-1 models do not contain an internal disconnect switch so some external disconnect switch or circuit breaker is required to

# disconnect power.

The following are approximate weights of the completed enclosure with the meter installed. • ME1-C-1: 9.4 pounds (4.3 kg) • **PE1-C-1:** 6.0 pounds (2.7 kg)

### ME1-F-1: 8.9 pounds (4.0 kg) ME1-N-1: 8.6 pounds (3.9 kg)

Ordering Normally the WattNode Meter Enclosure is ordered with a WattNode meter and the meter will be installed at the factory. If you need to purchase an enclosure without the meter and install the meter later, contact CCS to specify the meter model so that CCS can build the

• **PE1-F-1:** 5.8 pounds (2.6 kg)

• **PE1-N-1:** 5.4 pounds (2.4 kg)

enclosure with the correct UL labeling and wiring diagram. Conduit Openings: There are no conduit openings in the meter enclosure as shipped, but instructions and templates for adding openings are provided.

WattNode is a registered trademark of Continental Control Systems, LLC.



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BATTERY HOST PITTSBURG UNIFIED

> 2000 Railroad Avenue Pittsburg, CA 94565 925.473.2300

SCHOOL DISTRICT

STRUCTURAL ENGINEER



ELECTRICAL ENGINEER

**Pearce Renewables** 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

954 Hampswood way,

San Jose, CA 95120

888-885-4401

PEARCE

ARCHITECT M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103 619.632.2883

**PV RGM WATTNODE** 

METER ENCLOSURE

Specifications Continued



PROJECT

DATE:

# LOS MEDANOS **ELEMENTARY SCHOOL**

610 CROWLEY AVE PITTSBURG, CA 94565

REVISION DATE ISSUED FOR PERMIT 12/07/2023 06/06/2024 DSA COMMENTS
UPDATED DRAWINGS AS PER DSA COMMENTS

08/30/2024

**EQUIPMENT SPECIFICATIONS** 

LM-E804

SHEET-4

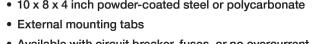


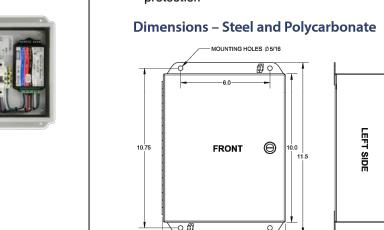
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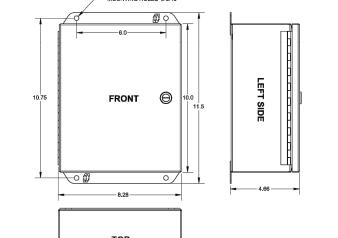
METER ENCLOSURES

# WattNode® Meter Enclosures are a NEMA 4 enclosure for the

# • 10 x 8 x 4 inch powder-coated steel or polycarbonate









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Wide Range, Unprecedented Linearity

ACCU-CT

SPLIT-CORE CTS



The Accu-CT family of standard and revenue-grade, split-core current transformers offers outstanding linearity, very low phase angle error, easy one-handed opening and closing, with a safe 0.333 Vac low voltage output.

The standard Accu-CT meets IEEE C57.13 class 1.2 and when ordered with the Option C0.6, both models of the Accu-CT meet IEEE C57.13 class 0.6 accuracy standards. Both models are available in standard and revenue-grade accuracies with exceptionally low-end accuracy from 1 to 120% of primary rated current - 10x better than traditional CTs. The ACTL-1250 can also be ordered with Option C0.2 for 0.2% accuracy readings. This is especially important when SREC requirements dictate system metering accuracies meeting or exceeding

Designed specifically for the WattNode® energy and power meters, the Accu-CT is available in two window opening sizes. The ACTL-0750 has a window opening of 0.75" x 0.75" for current measurements up to 250 amps while the ACTL-1250, with its unique oval shaped window opening of 1.83" x 1.25" is designed for loads up to 600 amps. Each option C0.6 or C0.2 CT ships with a certificate of calibration.

The ACT series of high-accuracy split-core current transformers are UL Listed, certified by Underwriters Laboratory (UL) to meet the new 2017 NEC code requirement that CTs installed in the field must be UL 2808 Listed under category code XOBA.

### **Specifications**

	ACTL-0750	ACTL-0750 Opt C0.6	ACTL-1250	ACTL-1250 Opt C0.6	ACTL-1250 Opt C0.2
Accuracy	0.75%	0.50%	0.75%	0.50%	0.20%
Rated Amps	5, 20, 50, 150, 100, 200, 250	20, 50, 100, 150, 200, 250	250, 400, <mark>600</mark>	250, 400, 600	250, 400, 600
Optional Rated Amps	15, 30, 70	15, 30, 70	NA	NA	150 Opt C0.3 300 Opt C0.3 600 Opt C0.3
Accuracy Class	IEEE/ANSI C57.13, Class 1.2	IEEE/ANSI C57.13, Class 0.6	IEEE/ANSI C57.13, Class 1.2	IEEE/ANSI C57,13, Class 0,6	IEEE/ANSI C57.13, Class 0.3
CE Accuracy	IEC 60044-1 Class 1.0	IEC 60044-1 Class 0.5 S	IEC 60044-1 Class 1.0	IEC 60044-1 Class 0.5 S	IEC 60044-1 Class 0.5 and Class 0.5 S
CE Safety	CE	CE	CE	CE	CE
RoHS Compliance	√	√	<b>√</b>	√	√
UL USA	UL Listed, XOBA, UL 2808	UL Listed, XOBA, UL 2808	UL Listed, XOBA, UL 2808	UL Listed, XOBA, UL 2808	UL Listed, XOBA, UL 2808
UL Canada	UL Listed - XOBA7	UL Listed - XOBA7	UL Listed - XOBA7	UL Listed - XOBA7	UL Listed - XOBA7
Standard Lead Length	8 ft (2.4m) 20 AWG	8 ft (2.4m) 20 AWG	8 ft (2.4m) 20 AWG	8 ft (2.4m) 20 AWG	8 ft (2.4m) 20 AWG
Phase-Angle	±0.50 degrees	±0.25 degrees, ±0.50 degrees below 0°C	±0.50 degrees	±0.25 degrees	±0.125 degrees 10-120% of rated current. ±0.25 from 1%-120% of rated current.
Output Options	0.333 Vac, 1 V	0.333 Vac, 1 V	0.333 Vac, 1 V	0.333 Vac, 1 V	0.333 Vac, 1 V
Operating Temperature	-40°C to 80°C	–40°C to 80°C	–30°C to 75°C	–30°C to 75°C	–30°C to 75°C
Line Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz, 60 Hz is recommended and is the default
Option 50 Hz Available	√	√	Not required	Not required	√
	10				

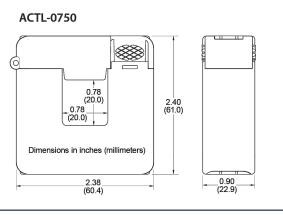
Continental CCS Control Systems, LLC

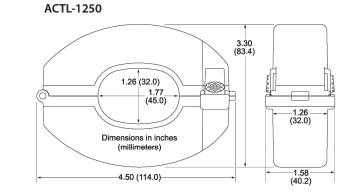
Continental

CCS Control Systems, LLC

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# **Dimensions**





**VERIS ESS METER CTs** 

ACTL-1250-250 Opt C0.6

**MARNING** 

This product can expose you to

State of California to cause cancer.

chemicals including Antimony Trioxide, which is known to the

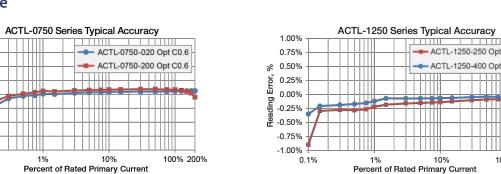
For more information go to: www.P65Warnings.ca.gov

100% 200%

# Performance

0.75% +

-0.75%



Percent of Rated Primary Current Graphs show typical performance at 23°C, 60 Hz. Graph shows a positive phase angle when the output leads the primary current.

Standard Model Numbers	
For options and non-stock models, consult factory for pricing.	

Standard ACTL-0750 Models	Revenue (C0.6) ACTL-0750 Models
ACTL-0750-005	Not Available
ACTL-0750-020	ACTL-0750-020 Opt C0.6
ACTL-0750-050	ACTL-0750-050 Opt C0.6
ACTL-0750-100	ACTL-0750-100 Opt C0.6
ACTL-0750-150	ACTL-0750-150 Opt C0.6
ACTL-0750-200	ACTL-0750-200 Opt C0.6
ACTL-0750-250	ACTL-0750-250 Opt C0.6

	ACTL-0750-250		ACTL-0750-250		
Standard ACTL-1250 M	lodels	Revenue (C ACTL-1250		Revenue ACTL-12	(C0.2) 50 Models
ACTL-1250-250	)	ACTL-1250-2	50 Opt C0.6	ACTL-1250	)-250 Opt C0.2
ACTL-1250-400	)	ACTL-1250-4	00 Opt C0.6	ACTL-1250	)-400 Opt C0.2
ACTL-1250-600		ACTL-1250-6	00 Opt C0.6	ACTL-1250	)-600 Opt C0.2

WattNode and Accu-CT are registered trademarks of Continental Control Systems, LLC.



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## **VERIS ESS METER CTs**

### Continental CCS Control Systems, LLC

1 Models and Options

ACTL-1250-xxx ACTL-1250-xxx Opt C0.6 Accu-CT® Split-Core Current Transformer



### Features

- Rated currents: 150, 250, 300, 400, and 600 amps Excellent gain and phase performance
- Integral burden resistor, no shorting block needed
- Optional revenue-grade: 0.5% accuracy Opening: 1.77 x 1.26 in. (45.0 x 32.0 mm)
- Handles two 350 kcmil or one 750 kcmil conductor Can be wired in parallel
- UL Listed (UL 2808, XOBA) A certificate of calibration is available upon request
- Product page: https://ctlsys.com/p/actl-1250/ Manual: https://ctlsys.com/m/ACTL-1250-CT-
- Manual.pdf https://ctlsys.com/s/measuring-parallel-conductors/

## Patents

U.S. Patent 8,847,576

### Table 1: Models

	Rated Primary Current	Maximum Current	Output at Rated Amps	Line Frequency	Nominal Gain Accuracy	Nominal Phase Accuracy	Interna Burden (Ohms)
ACTL-1250-150	150 A	720 A	0.33333 Vac	50-60 Hz	±0.75%	±0.50°	13.3
ACTL-1250-250	250 A	720 A	0.33333 Vac	50-60 Hz	±0.75%	±0.50°	8.00
ACTL-1250-300	300 A	720 A	0.33333 Vac	50-60 Hz	±0.75%	±0.50°	6.67
ACTL-1250-400	400 A	720 A	0.33333 Vac	50-60 Hz	±0.75%	±0.50°	5.00
ACTL-1250-600	600 A	720 A	0.33333 Vac	50-60 Hz	±0.75%	±0.50°	3.33
ACTL-1250-150 Opt C0.6	150 A	720 A	0.33333 Vac	50-60 Hz	±0.50%	±0.25°	13.3
ACTL-1250-250 Opt C0.6	250 A	720 A	0.33333 Vac	50-60 Hz	±0.50%	±0.25°	8.00
ACTL-1250-300 Opt C0.6	300 A	720 A	0.33333 Vac	50-60 Hz	±0.50%	±0.25°	6.67
ACTL-1250-400 Opt C0.6	400 A	720 A	0.33333 Vac	50-60 Hz	±0.50%	±0.25°	5.00
ACTL-1250-600 Opt C0.6	600 A	720 A	0.33333 Vac	50-60 Hz	±0.50%	±0.25°	3.33
ACTL-1250-150 Opt 1V	150 A	400 A	1.000 Vac	50-60 Hz	±0.75%	±0.50°	40.0
ACTL-1250-250 Opt 1V	250 A	600 A	1.000 Vac	50-60 Hz	±0.75%	±0.50°	24.0
ACTL-1250-300 Opt 1V	300 A	600 A	1.000 Vac	50-60 Hz	±0.75%	±0.50°	20.0
ACTL-1250-400 Opt 1V	400 A	600 A	1.000 Vac	50-60 Hz	±0.75%	±0.50°	15.0
ACTL-1250-600 Opt 1V	600 A	720 A	1.000 Vac	50-60 Hz	±0.75%	±0.50°	10.0
ACTL-1250-150 Opt 1V,C0.6	150 A	400 A	1.000 Vac	50-60 Hz	±0.50%	±0.25°	40.0
ACTL-1250-250 Opt 1V,C0.6	250 A	600 A	1.000 Vac	50-60 Hz	±0.50%	±0.25°	24.0
ACTL-1250-300 Opt 1V,C0.6	300 A	600 A	1.000 Vac	50-60 Hz	±0.50%	±0.25°	20.0
ACTL-1250-400 Opt 1V,C0.6	400 A	600 A	1.000 Vac	50-60 Hz	±0.50%	±0.25°	15.0
ACTL-1250-600 Opt 1V,C0.6	600 A	720 A	1.000 Vac	50-60 Hz	±0.50%	±0.25°	10.0

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### **VERIS ESS METER CTs**

# ACTL-1250-xxx, ACTL-1250-xxx Opt C0.6

Rated Primary Current: also called "rated amps", this is the nominal full-scale current rating for the sensor. At the rated primary current, the CT will output its nominal output of 0.33333 Vac. The accuracy is specified at

percentages of the rated primary current. Maximum Current: also called "maximum continuous amps" or "max amps" is the UL Listing maximum

continuous current rating for a particular sensor model.

Note: ACTL-1250 part numbers are equivalent to ACT-1250 parts.

Note: the ACTL-1250 is also available in Opt C0.2 (0.2% accuracy) and Opt C0.3 (0.3% accuracy) versions. These are documented in separate datasheets. Note: the burden resistor is built into the ACTL-1250.

WARNING: This product can expose you to chemicals including antimony trioxide, which is known to the State of California to cause cancer. For more information go to: www.P65Warnings.ca.gov

# 1.1 Options

With Option C0.6, the Accu-CT meets IEEE/ANSI C57.13-2008 class 0.6 accuracy and IEC 60044-1 class 0.5 and class 0.5 S accuracy from -30°C to 55°C and from 1% to 120% of rated primary current.

- Accuracy improves from ±0.75% to ±0.5%.
- Phase angle improves from ±0.50 degrees to ±0.25 degrees.

## 1.1.2 Opt C0.3

Option C0.3 provides IEEE C57.13 class 0.3 accuracy and is documented in a separate datasheet: "ACTL-1250-C0.3-Datasheet".

1.1.3 Opt C0.2 With Option C0.2, the Accu-CT accuracy increases to 0.2% and meets IEEE/ANSI C57.13-2008 class 0.3

accuracy and IEC 61869-2 class 0.2 and class 0.2S accuracy. See the datasheet: "ACTL-1250-C0.2-

1.1.4 Opt FT The Accu-CT can be ordered with custom lead lengths. For example, Opt FT=20 for 20-foot leads. We also sell extra lead wire to allow for field extension of the leads. Option FT does not affect the accuracy

## specifications.

1.1.5 Opt M The Accu-CT can be ordered with custom lead lengths. For example, Opt M=4 for 4-meter leads. We also sell extra lead wire to allow for field extension of the leads. Option M does not affect the accuracy specifications.

# 1.1.6 Opt 1V

1.000 Vac (1000.0 mVac) full-scale output voltage. The one-volt output is NOT compatible with WattNode

# Note: models with Opt 1V may have lower maximum continuous amps ratings. See Table 1: Models for

### 1.1.7 Opt HF

This option improves the high frequency performance by eliminating the phase angle compensation

- Very flat frequency response up to 10 kHz.
- No change to the gain accuracy.
- The nominal phase angle error increases by approximately 0.25 degrees (15 minutes). The phase angle curve remains very flat from 1% to 120% of rated primary current.
- Due to the increased phase angle error, this option no longer meets IEEE C57.13 accuracy requirements. This option is not available with Opt C0.6, Opt C0.3, or Opt C0.2.

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SCHOOL DISTRICT

STRUCTURAL ENGINEER



**MBL-ENERGY** 954 Hampswood way, San Jose, CA 95120

ELECTRICAL ENGINEER

888-885-4401

# PEARCE RENEWABLES

**Pearce Renewables** 1222 VINE ST. STE 301 PASO ROBLES, CA 93446

ARCHITECT M M P V d e s i g n

718 West Arbor Drive San Diego, CA 92103

619.632.2883

## SEL RELAY CTs & PV RGM WATTNODE METER CTs

# CTBL Series

**Bus Bar Split-Core Current Transformers** The CTBL series of bus bar current transformers measure current in large conductors. They are UL Listed with a 0.33333 Vac (333.33 millivolt) AC output.

# **Features**

• Rated current: 800, 1200, 2000, 3000 and custom from

Custom sizes and rated currents are also available up to 12

Monitoring-grade: 1.5% accuracy

inches by 24 inches and 6000 amps.

 Output is 0.33333 Vac at rated current UL Listed (UL 2808, XOBA) for field installation

# No exposed metal parts on assembled CT

 https://ctlsys.com/product/bus-bar-opening-ct/ https://ctlsys.com/cat/current-transformer/

# Table 1: Models

Model	Rated Amps	Opening Width	Opening Length	PV RGM WATTNODE
CTBL-1.5×3.5-0800	800	1.5 inches (38 mm)	3.5 inches (89 mm)	METER CTs
CTBL-4.0×4.0-0800	800	4.0 inches (102 mm)	4.0 inches (102 mm)	WILTER CTS
CTBL-4.0×4.0-1200	1200	4.0 inches (102 mm)	4.0 inches (102 mm)	
CTBL-4.0×4.0-2000	2000	4.0 inches (102 mm)	4.0 inches (102 mm)	SEL RELAY CTs

 
 CTBL-4.0×4.5-3000
 3000
 4.0 inches (102 mm)
 4.5 inches (114 mm)

 CTBL-WxL-Amps (custom)
 100 to 6000
 1.0 to 12.0 inches
 2.5 to 24 inches
 Note: the custom models are specified with the opening (inside) width (W) and opening (inside) length (L) in inches, followed by the rated current in amps. For example, for 8 inch width, 10 inch length, and 5000 amps:

# 1 Specifications

- Line Frequency: 50 to 60 Hz
- Maximum Voltage: 600 Vac
- Output Lead Wires:
- Gauge: #18 AWG
- Type: MTW, UL 1015 Voltage: 600 Vac
- Output Voltage at Rated Amps: 0.33333 Vac (one-third volt)

- 1.1 Accuracy Output Accuracy (% of reading):
  - Accuracy: ±1.5% from 10% to 100% of rated current o Phase angle: 0.0 to 1.5 degrees leading from 20% to 100% of rated current

- CE UL: UL listed, XOBA, UL 2808, CAN/CSA-C22.2 No. 61010-1, E363660
- RoHS Compliant: EU Directive 2011/65/EU

# 1.3 Environmental

- Operating Temperature: -40°C to +70°C (-40°F to +158°F) Operating Humidity: non-condensing, 0 to 95% relative humidity (RH)
- Operating Altitude: up to 2000 m (6561 feet)
- Pollution Degree: 3 (harsh environment)

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• Outdoor Use: suitable for outdoor use when mounted in a NEMA 3R or 4 (IP 66) rated enclosure, provided the ambient temperature will not exceed 70°C (158°F)

A Opening Length Width Length Width Crossbar Thickness T PV RGM WATTNODE METER CTs

| CTBL-1.5x3.5 | 3.5 in 89 mm | 38 mm | 139 mm | 95 mm | 27.5 mm | 22.0 mm | 26.6 mm | 27.8 mm | 23.6 mm | 0.44 kg | 27.5 mm | 22.0 mm | 26.6 mm | 27.8 mm | 23.6 mm | 0.44 kg | 27.5 mm | 28.6 mm | 27.6 mm | 28.6 mm

Core Material: silicon-iron

Specifications are subject to change without notice. © Copyright 2017, Continental Control Systems, LLC

# **CTBL Series** Continental CCS Control

# CTBL Installation Instructions August 2017

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PV RGM WATTNODE METER CTs

# Warning

To reduce the risk of electric shock, always open or disconnect circuit from power-distribution system

# Overview

 The Model CTBL split-core current transformer is rated for CAT IV installations and has been tested and approved to meet UL2808 and CSA/CAN 61010-1 for field installations by qualified

journeyman electrical contractors.

Systems, LLC

 Refer to brochures and specifications. • Install CTs with the arrow or label "This side towards source" facing towards the current source. Connect the white and black CT leads to the corresponding white and black CT input

# Installation and removal of current transformers are as follows:

(or service) of building before installing or servicing current transformers.

- I) Always open or disconnect circuit from power-distribution system (or service) of building before
- installing or servicing current transformers; II) The current transformer may not be installed in equipment where they exceed 75 percent of the
- wiring space of any cross-sectional area within the equipment; III) Restrict installation of current transformer in an area where it would block ventilation openings;
- IV) Restrict installation of current transformer in an area of breaker arc venting; V) "Not suitable for Class 2 wiring methods" and "Not intended for connection to Class 2
- VI) Secure current transformer and route conductors so that they do not directly contact live



terminals or bus.

This symbol, if it appears on any product, means "DO NOT APPLY OR REMOVE FROM HAZARDOUS LIVE CONDUCTORS". If the current transformers are used in a manner not specified by Continental Control Systems LLC, the protection provided by the current transformers may be impaired. Installation instructions are

The leads are MTW (machine tool wire) double insulated for field installation, UL rated for 600Vac. The direction of installation for proper phase output relating to the source of input current is shown on the label. The white lead is always in phase with the source.

For further instructions or help please contact: Continental Control Systems LLC

provided for a qualified installer.

STAMP

# LOS MEDANOS **ELEMENTARY SCHOOL**

610 CROWLEY AVE PITTSBURG, CA 94565

PROJECT

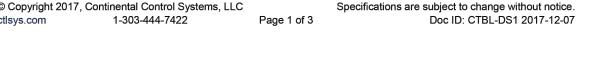
REVISION DATE ISSUED FOR PERMIT 12/07/2023 UPDATED DRAWINGS AS PER 06/06/2024 DSA COMMENTS
UPDATED DRAWINGS AS PER DSA COMMENTS

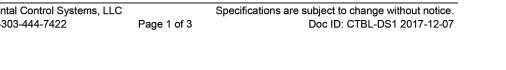
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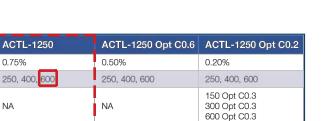
DATE:

**EQUIPMENT SPECIFICATIONS** SHEET-5

LM-E805







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ACTL-5.17.22: Specifications are subject to change

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# CTBL Series

Maximum Continuous Primary Current: same as rated amps

Overvoltage and Measurement Category: CAT IV, 600 Vac

Standard length: 8 ft (2.4 m)

# Output: voltage output, integral burden resistor

Output Protection: includes internal burden resistor

1.2 Regulatory

Indoor Use: suitable for indoor use

Specifications are subject to change without notice

Doc ID: CTBL-DS1 2017-12-07

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1.4 Mechanical

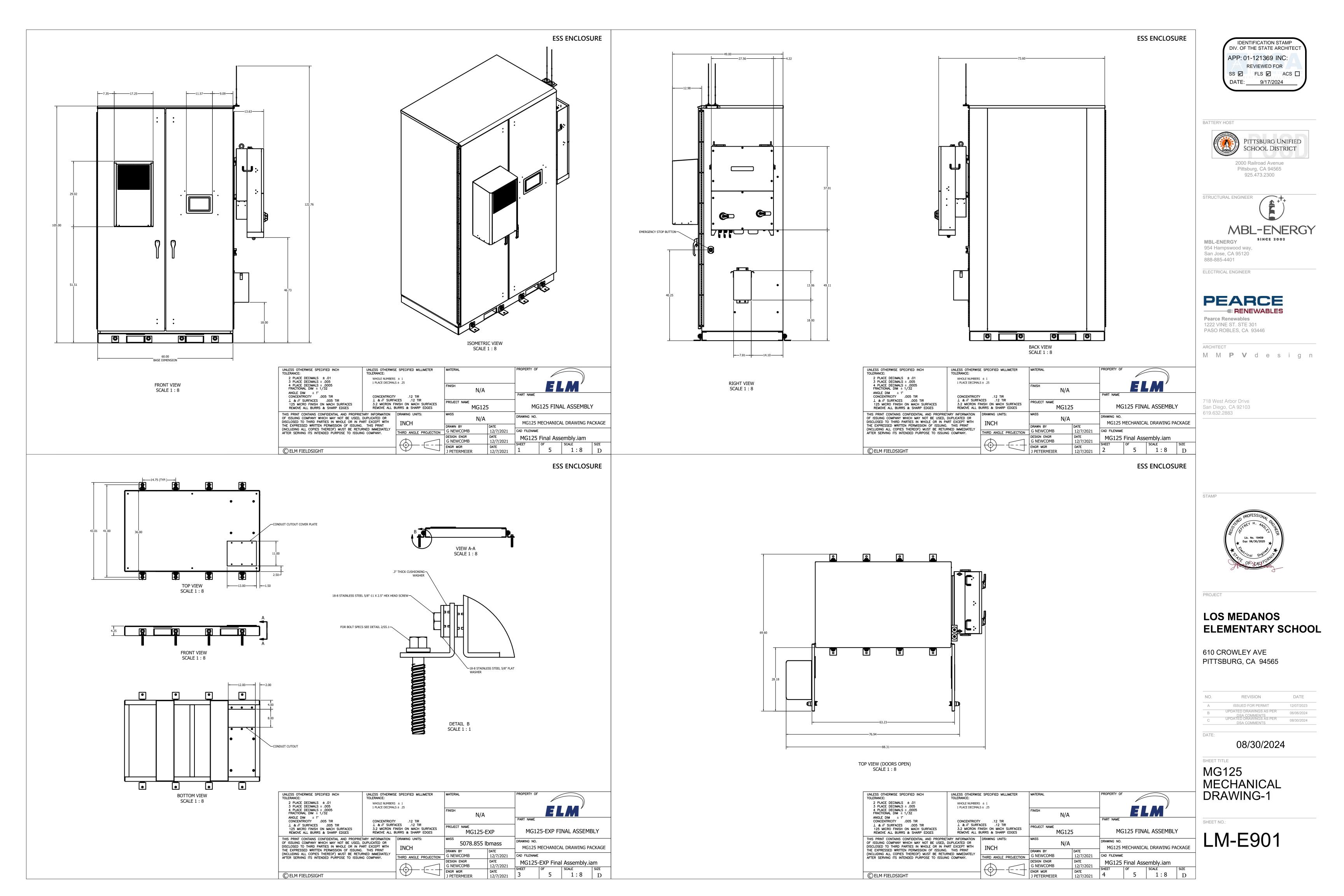
The overall thickness dimension excludes the Nylon screws. The overall length dimension excludes the wire strain relief. The weight includes the lead wires. Contact CCS for dimensional information on CTBL models with custom sizes and rated amps.

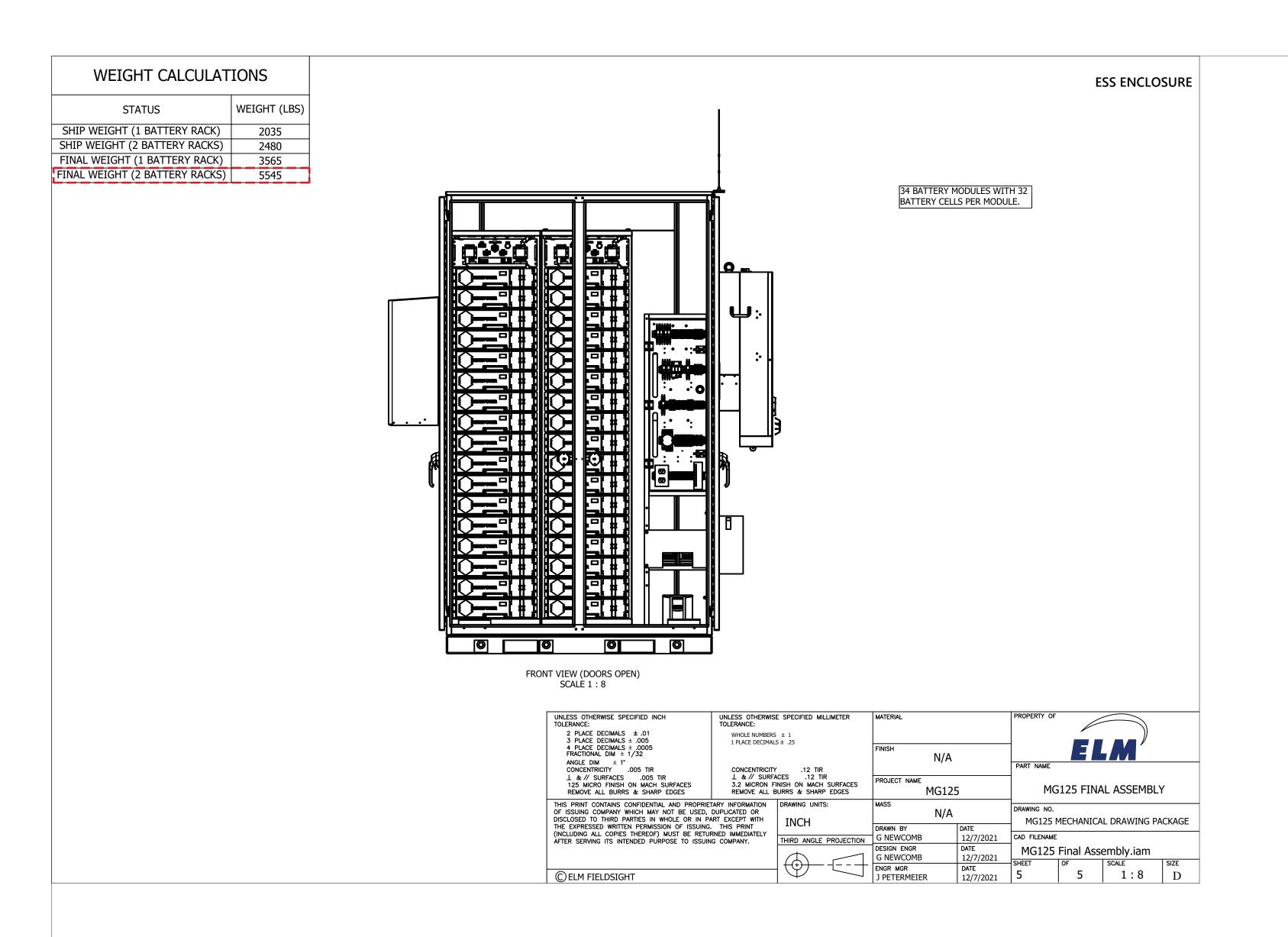
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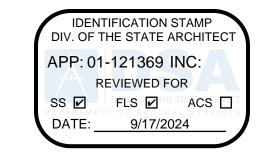
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CTBL Installation Instructions







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ELECTRICAL ENGINEER

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STAMP



PROJECT

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NO.	REVISION	DATE
А	ISSUED FOR PERMIT	12/07/20
В	UPDATED DRAWINGS AS PER DSA COMMENTS	06/06/20
С	UPDATED DRAWINGS AS PER DSA COMMENTS	08/30/20

08/30/2024

SHEET TITLE

MG125 MECHANICAL DRAWING-2

SHEET NO.: