

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
OFFICE ENGINEER, MS 43
1727 30TH STREET
P.O. BOX 168041
SACRAMENTO, CA 95816-8041
FAX (916) 227-6214
TTY 711



*Flex your power!
Be energy efficient!*

April 8, 2010

03-Sac-5501
03-2C8444

Addendum No. 5

Dear Contractor:

This addendum is being issued to the contract for BUILDING CONSTRUCTION IN SACRAMENTO COUNTY IN SACRAMENTO AT THE TRANSPORTATION LABORATORY AT 5900 FOLSOM BOULEVARD.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on Tuesday, April 20, 2010.

This addendum is being issued to revise the Project Plans, and the Notice to Bidders and Special Provisions and Bid Book.

Project Plan Sheets 1, 12, 35, 36, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 59, 60, 62, 64, 65, 75, 80, 92, 93, 94, 95, 96, 97, 98, 101, 102, 103, 104, 105, 106 and 120 are revised. Copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 48A, 48B, 172A, 172B, 172C and 172D are added. Copies of the added sheets are attached for addition to the project plans.

In the Notice to Bidders and Special Provisions, in the "SPECIAL NOTICES," the following Special Notice is added :

"A portion of this project is funded by the Clean Renewable Energy Bonds. Due to the limited funds available for the work, the Department specifies maximum bid amounts; refer to Section 2-1.05, "Maximum Bid Amounts," of these special provisions."

In the Special Provisions, Section 2-1.05, "MAXIMUM BID AMOUNTS," is added as attached.

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," subsection "INTERNAL TIME OF COMPLETION" is added after the first paragraph as follows:

"INTERNAL TIME OF COMPLETION

The Contractor shall diligently prosecute to completion the work described in "Photovoltaic System" of these special provisions before the expiration of 135 WORKING DAYS starting after contract approval.

The Contractor shall pay to the State of California the sum of \$5,400 per day, for each and every calendar day's delay in finishing the work described in "Photovoltaic System" in excess of the number of working days prescribed above. Delays due to inclement weather shall not apply.

Liquidated damages shall accrue separately and independently of deductions for internal time of completion.

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For this contract, a working day is defined as:

working day: Time measure unit for work progress. A working day is any day except when you cannot perform work on the controlling activity for at least 50 percent of the day with at least 50 percent of the normal labor and equipment due to any of the following:

1. Adverse weather-related conditions that cause you to dismiss the crew
2. Maintaining traffic under the contract
3. The Engineer's direction to suspend the controlling activities for reasons unrelated to your performance
4. An unanticipated event not caused by either party such as:
 - 4.1. Act of God (Pub Cont Code § 7105)
 - 4.2. Act of a public enemy
 - 4.3. Epidemic
 - 4.4. Fire
 - 4.5. Flood
 - 4.6. Governor-declared state of emergency
 - 4.7. Landslide
 - 4.8. Quarantine restriction
5. An issue involving a third-party, including:
 - 5.1. Industry or area-wide labor strike
 - 5.2. Material shortage
 - 5.3. Freight embargo
 - 5.4. Jurisdictional requirement of a law enforcement agency
 - 5.5. Workforce labor dispute of a utility or non-highway facility owner resulting in a utility or non-highway facility reconstruction not described and not solely for the Contractor's convenience."

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the following paragraphs are added after the first paragraph:

"A first order of the work shall be to submit and obtain approval of the required submittals for the storage building and photovoltaic systems as specified in Section 12-13.01, "Pre-Engineered Steel Building," and Section 12-16.09, "Photovoltaic System," of these special provisions.

After the submittals have been approved, the materials and equipment contained in the required submittals for the storage building and photovoltaic systems shall be ordered. Materials and equipment required to do the work shall be on hand before starting the work.

The storage building shall be constructed along with roofing and exterior siding, as approved by the Engineer, prior to installing the photovoltaic system.

Attention is directed to "Internal Time of Completion" in Section 4, "Beginning of Work, Time of Completion and Liquidated Damages," of these special provisions regarding completion of the Photovoltaic System."

In the Special Provisions, Section 12-1.01, "SCOPE," the second paragraph is revised as follows:

"The building work to be done consists, in general, of constructing a storage building, repair shop, power generation system using photovoltaic modules with inverters and such other items or details, not mentioned above, that are required by the plans, Standard Specifications, or these special provisions shall be performed, placed, constructed or installed."

In the Special Provisions, Section 12-6.02, "CABINETS," is replaced as attached.

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In the Special Provisions, Section 12-8.03, "ROLL-UP STEEL DOORS," is deleted.

In the Special Provisions, Section 12-10.06, "FREE STANDING STEEL SHELVING AND PALLET RACKS," subsection "PART 2 - PRODUCTS," the first paragraph is replaced as follows:

"Shelving and pallet racks: Shelving and pallet racks shall be factory fabricated steel shelves and supports capable of supporting loads of 25 pounds per square foot of shelf area. Pallet racks shall support 50 pounds per square foot of shelf area. Shelves and pallet racks shall not deflect more than 5/16 inch when subjected to the loads specified herein and shall show no permanent deflection after removal of such loads. Shelves shall be supported and attached by means of clips or rivet connections. Studs or bolts shall not be used. Shelves shall be adjustable in vertical increments of 3 inches or less. Shelving shall be of the approximate dimensions and number shown on the plans and shall have a baked enamel finish."

In the Special Provisions, Section 12-13.01, "PRE-ENGINEERED STEEL BUILDING," subsection "PART 2 - PRODUCTS," the second and third paragraphs are replaced as follows:

"Roof Panels: Roof panels shall be not less than 0.022 inch thick (24-gage), cold-formed, galvanized sheet steel conforming to ASTM Designation: A 563/563M, Grade 33 [230] with G90 [Z275] coating. Panels shall have primary vertical ribs spaced at 12 inches maximum with 3 intermediate secondary ribs located between the primary ribs. The depth of the primary ribs shall be between ¾ inch and 1½ inches. The net minimum width of the panels shall be 24 inches. Each roof panel shall have an integral anti-siphon trough or break. Roof panels shall be continuous from ridge to eaves for all roof slopes 35 feet or less in length.

Wall Panels: Wall panels shall be not less than 0.022-inch thick (24-gage), cold-formed, galvanized sheet steel conforming to ASTM Designation: A 563/563M, Grade 33 [230] with G90 [Z275] coating. Wall panels shall be continuous from eaves or gables to sill except at wall openings."

In the Special Provisions, Sections 12-16.08, "SYSTEM STUDIES AND FIELD TESTING," subsection "PART 1 - GENERAL," subsection "SHORT-CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDIES," the first subparagraph of the first paragraph, is revised as follows:

"Complete single-line diagram of the existing and new system studied with all buses identified to report data. The single line diagram of the existing and new system will be made available upon request."

In the Special Provisions, Sections 12-16.08, "SYSTEM STUDIES AND FIELD TESTING," subsection "PART 1 - GENERAL," subsection "SHORT-CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDIES," item 5 in the third subparagraph of the first paragraph, is revised as follows:

"5. Settings of main breaker relays on the incoming supply feeders shall be coordinated and approved by the Department."

In the Special Provisions, Sections 12-16.08, "SYSTEM STUDIES AND FIELD TESTING," subsection "PART 1 - GENERAL," subsection "ELECTRICAL ARC FLASH HAZARD ANALYSIS, WORKING LABELS AND TRAINING," items 3 and 4 in the second paragraph, are revised as follows:

"3. Arc Flash Hazard Training by a qualified professional in the field of electric arc hazard with a minimum of three (3) years experience in providing training classes and providing appropriate class room material. Training will be conducted in Sacramento at the Transportation Laboratory and a class of 25 individuals is expected for the training.

4. Instructor will make one site trip to the Transportation Laboratory and will show how to make use of personnel protective clothing recommended by the arc flash hazard study."

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In the Special Provisions, Sections 12-16.08, "SYSTEM STUDIES AND FIELD TESTING," subsection "PART 1 - GENERAL," subsection "ELECTRICAL ARC FLASH HAZARD ANALYSIS, WORKING LABELS AND TRAINING," the first sentence in the third paragraph, is revised as follows:

"Coordinate with the Department to obtain up-to-date information on the existing power supply equipment."

In the Special Provisions, Sections 12-16.09, "PHOTOVOLTAIC SYSTEM," is added as attached.

In the Bid book, in the "Bid Item List," Item 27 is added as attached.

To Bid book holders:

Replace page 4 of the "Bid Item List in the Bid Book with the attached revised page 4 of the Bid Item List.

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the Notice to Bidders section of the Notice to Bidders and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the Bid book.

Submit bids in the Bid book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This addendum, attachments is available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/03/03-2C8444

If you are not a Bid book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

IGNACIO SANCHEZ DEL REAL
Acting Office Chief
Office of Plans, Specifications & Estimates
Office Engineer
Division of Engineering Services

Attachments

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2-1.05 MAXIMUM BID AMOUNTS

For the location in the following table, Bid Item 27, Photovoltaic System, do not bid more than the maximum amount shown:

Maximum Bid Amounts	
Location	Maximum Amount
Translab	\$800,000

If you bid more than the amount shown, your total bid is nonresponsive.

12-6.02 CABINETS

PART 1 - GENERAL

SUMMARY

Scope: This work shall consist of furnishing and installing wood cabinets, metal cabinets, molded epoxy resin tops, stainless steel counter top, and plastic laminate tops, splashes and returns as shown on the plans and in these special provisions.

SUBMITTALS

Product Data: Manufacturer's product data for plastic laminates, epoxy resin top and cabinet hardware shall be submitted for approval.

Samples: Five samples shall be submitted for each of the items shown below:

Plastic laminate, 12" x 12" for each type, color, pattern, surface finish and edging.
Molded Epoxy Resin 12"x12"x1" single sample only`

Stainless Steel Countertop: 12" x 12" samples for each surface finish.

Working Drawings: Working drawings for cabinets showing location of cabinets, dimensioned plans and elevations, attachment devices and other components shall be submitted for approval. Working drawings shall bear the "WI Certified Compliance Label" on the first sheet of the drawings. Provide rough in drawings for mechanical and electrical services where required

QUALITY ASSURANCE

Codes and Standards: Cabinets shall be manufactured and installed in accordance with the Manual of Millwork of the Woodwork Institute (WI) requirements for the grade or grades specified or shown on the plans.

Certificates of Compliance:

Prior to delivery to the jobsite, the cabinet manufacturer shall issue a WI Certified Compliance Certificate indicating that the products he will furnish for this job and certifying that they will fully meet all the requirements of the grade or grades specified.

WI Certified Compliance Label shall be stamped on all cabinet work.

Each plastic laminate top shall bear the WI Certified Compliance Label.

Prior to completion of the contract, a WI Certified Compliance Certificate for Installation shall be delivered to the Engineer.

DELIVERY, STORAGE AND HANDLING

Protection: Cabinets shall be protected during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

Manufacturers: Subject to compliance with these specifications, high pressure decorative laminates shall be Consoweld Corp.; Formica Corp.; Nevamar Corp.; or equal.

Metal Laboratory Casework:

BMC Industrial Educational Services Inc.
Kewaunee Scientific Corporation, Laboratory Division
Or equal

Epoxy Countertops

Durcon Company Inc.
Laboratory Tops Inc.
Prime Industries Inc.
Or equal.

MANUFACTURED UNITS

Cabinets shall be fabricated to the dimensions, profiles, and details shown on the plans with openings and mortises precut, where possible to receive hardware and other items and work. Metal cabinets materials shall be cold-rolled commercial steel sheet, complying with ASTM A 1008/A 1008M: matte finish suitable for exposed applications.

Minimum Metal thickness:

Sides, ends, fixed backs ,bottom, tops, soffits and items not otherwise indicted : 0.0428 inch
Back panels, doors, drawers, front, bodies and shelves may be 0.0329 inch.
Intermediate horizontal rails, table aprons and cross rails, center posts and top gussets: 0.0528 inch
Drawer runners, and hinge reinforcements: 0.0677 inch
Leveling and corner gussets: 0.0966 inch.

Fabrication, assembly, finishing, hardware application, and other work shall be completed to the maximum extent possible prior to shipment to the jobsite.

Laminate Clad Cabinets:

Laminate clad cabinets shall be custom grade, flush overlay construction.

Laminate cladding shall be high pressure decorative laminate complying with NEMA LD 3. Color, pattern and finish shall be as shown on the plans. Laminate surface and grade shall be as follows:

Horizontal and vertical surfaces other than tops shall conform to GP-50 (1.27 mil nominal thickness).

Postformed surfaces shall conform to PF-42 (1.07 mil nominal thickness).

Laminated Counter Tops and Splashes:

Laminated counter tops and splashes shall be WI custom grade.

Surface material shall be high pressure laminated plastic conforming to NEMA LD-3, 1.27 mil thickness.

Unless otherwise shown on the plans, splashes shall be 4 inches high from the surface of the deck. Back splashes shall be continuous formed and coved. Side splashes shall be top set.

Laminated counter tops self edged, counter tops to receive sinks or plumbing fixtures shall have a bullnose.

The underside of tops and backsides of splashes shall be covered with an approved backing sheet.

Stainless Steel countertops: Made from stainless steel sheet, ASTM A666, Type 304, not less than 0.0625-inch nominal thickness with No 4. satin finish. Countertop shall have 4 inch high back splash with full bull nose front edge.

Epoxy Countertops : Factory molded of modified epoxy resin formulation with smooth non-specular finish.

Physical Properties:

Flexural Strength: Not less than 10,000 psi
Modulus of Elasticity: Not less than 2,000,000 psi
Hardness (Rockwell M): Not less than 100
Water Absorption (24 hours): Not more than 0.02 percent
Heat Distortion Point: Not less than 260° F.

Chemical Resistance: Epoxy-resin material has the following ratings when tested with indicated re agents according to NEMA LD3, Test Procedure 3.4.5:

No effect: Acetic Acid (98 percent), Acetone, Ammonium Hydroxide (28 per cent), Benzene, Carbon Tetrachloride, Dimethyl formamide , ethyl acetate, ethyl alcohol, ethyl ether, methyl alcohol, nitric acid (70 percent), phenol, sulfuric acid (60 per cent and toluene.

Slight effect: Chromic Acid (60 percent) and sodium hydroxide (50 percent).

Color: Black

Countertop configuration: Flat with rounded edges and corners, and with drip groove and integral coved backsplash.

The countertop must be anti-static and non-conductive.

CABINET HARDWARE AND ACCESSORY MATERIALS

Cabinet hardware and accessory materials shall be provided for cabinets.

Hardware shall be provided with standard US 32D metal plated finish, unless noted otherwise on plans.

Drawer Slides: Drawer slides shall be side mounting full extension with fully enclosed rolling balls and rollers. Concealed slides and bearings, and positive stop. Capacity shall be not less than 75 pounds, except capacity shall be not less than 100 pounds for heavy duty drawers.

Door Guides: Sliding door guides shall be continuous, dual channel, metal guides, top and bottom. Bottom guide shall have crowned track.

Shelf Supports: Shelf supports shall be adjustable, semi-recessed, chrome finished pressed metal, heavy duty standards and support clip, with one inch adjustment increments.

Cabinet Hinges:

Cabinet hinges shall be steel concealed European style with vertical and horizontal adjustment, one hinge per door shall be self closing.

Cabinet hinge manufacturers shall be Stanley, Hager, McKinney, or equal.

Cabinet Pulls:

Cabinet pulls shall be 3/8 inch diameter approximately 5 inches long, approximately 1-3/8 inch offset, stainless steel finish.

Gate Hinges:

Gate hinges shall be two way, 180 degree spring loaded hinges.

Cabinet pull manufacturers shall be Stanley, Hager, McKinney, or equal.

FABRICATION

Shop Assembly:

Nails shall be countersunk and the holes filled, molds shall be neatly mitered and all joints shall be tight and true.

As far as practicable, work shall be assembled at the mill and delivered to the building ready to be set in place. Parts shall be smoothly dressed and interior work shall be belt sanded at the mill and hand sanded at the building. After assembly, work shall be cleaned and made ready for the specified finish.

All work shall be prepared to receive finish hardware. Finish hardware shall be accurately fitted and securely fastened as recommended by the manufacturer. Finish hardware shall not be fastened with adhesives.

Drawers shall be fitted with dust covers of ¼-inch plywood or hardboard above compartments and drawers except where located directly under tops.

Pre-cut Openings: Openings for hardware, appliances, plumbing fixtures, and similar items shall be pre-cut where possible. Openings shall be accurately located and templates used for proper size and shape. Edges of cutouts shall be smoothed and edges sealed with a water-resistant coating.

PART 3 - EXECUTION

INSTALLATION

Cabinets: Cabinets shall be installed without distortion so that doors and drawers fit openings properly and are accurately aligned. Hardware shall be adjusted to center doors and drawers in openings and to provide unencumbered operation. Installation of hardware and accessory items shall be completed as indicated on the approved drawings.

Laminate Tops: Laminate tops shall be securely fastened to base units and other support systems as indicated on the approved drawings.

Cabinet Hardware:

Doors for cabinets shall be equipped with one pair of hinges unless otherwise shown on the plans. Each door leaf shall be equipped with one pull.

Drawers up to 12 inches wide shall have one pull and drawers over 24 inches wide shall have two pulls.

12-16.09 PHOTOVOLTAIC SYSTEM

PART 1 - GENERAL

SUMMARY

Scope: This work shall consist of designing, furnishing and installing a fully operational photovoltaic (PV) system in accordance with the details shown on the plans and these special provisions.

The PV system shall be a utility interactive grid-tie PV electric generating system installed and fully operational.

The Contractor shall be responsible for providing and installing the complete PV system including the following:

1. Structural support system for mounting PV array
2. Attachment to roof structural system
3. Vandal resistant fastening
4. Roof penetration details
5. Support system for electrical conduits and components

Plans are diagrammatic and are intended to establish basic dimension of units.

The Contractor shall notify the Engineer when the PV system is delivered to the jobsite.

Related work:

Concrete and reinforcement for foundation shall conform to the provisions in "Cast-in-Place Concrete" in Section 12-3, "Concrete and Reinforcement" of these special provisions.

Guard post shall conform to the provisions in "Guard Posts" in Section 12-2, "Sitework" of these special provisions.

UTILITY REBATE

A rebate application has been submitted to the electric utility company by the State of California Department of Transportation (Caltrans). Caltrans shall receive the rebate once the installation of the PV system is approved by the local electrical utility company.

The Contractor shall meet the following requirements of the rebate:

1. Installed system, including all components, must meet or exceed the local electrical utility company interconnection requirements for self-generating equipment. The local electrical utility companies for each structure are listed in the following table.

Structure	Local power company
Translab. Phase 4	SMUD

2. Installed system components shall comply with the requirements of IEEE 1547-2003 Standard for Interconnecting Distributed Resources with Electric Power Systems.

After the installation work has been completed, the Contractor shall contact and arrange with the local electrical utility company representative to inspect and approve that the PV system complies with the rebate requirements.

The Contractor shall notify the Engineer at least 2 days prior to the inspection date.

DEFINITIONS

Array: A mechanically-integrated assembly of modules, together with support structure and foundation, thermal control, and other components, if used, to form a DC power-producing unit.

CSI: Stands for California Solar Initiative.

CEC-AC rating: Rating as defined by the CSI.

Insolation: Sunlight, direct or diffuse. The integrated intensity of sunlight reaching a given area, usually expressed in watts per square meter per day. This measurement may be used to express the average amount of solar energy falling on different regions of the country.

PV Module: A number of solar cells connected together electrically and sealed inside a weatherproof package with a clear face.

NRTL: Stands for Nationally Recognized Testing Laboratory.

Photovoltaic (PV): Pertaining to the direct conversion of light into electricity.

PTC (PVUSA Test Conditions): Test conditions applied to PV modules intended to represent wattage during operation. Irradiance of 94.92 watts/ft², 68 °F ambient temperature, 3.28-feet/second wind speed, and an air mass of 1.5.

String: A number of modules interconnected electrically in series to produce the operating voltage required by the load.

Standard Test Conditions (STC): Test conditions applied to PV modules. Irradiance of 92.94 watts/ft², cell temperature of 77 °F ambient temperature, and an air mass of 1.5.

Utility-Interactive Inverter: An inverter that can function only when electrically connected to the utility grid, and uses the voltage and frequency on the utility line as a control parameter to ensure that the photovoltaic array's DC output is converted to AC power fully synchronized with the utility power.

SYSTEM DESCRIPTION

Performance Requirements:

The PV system shall be designed for life expectancy of 25 years. The PV system shall be sized to meet or exceed alternating current (AC) energy generation requirements as shown on the plans. Available roof areas for mounting PV modules are shown on the plans.

Alternating current kilowatts of energy generation shall take into consideration system losses, including but not limited to wire losses, fault protection losses, inverter efficiency, and PV system component degradation over life expectancy of system. PV module manufacturer shall warrant that selected PV modules shall produce no less than 80 percent of the maximum rated power during the first 20 years of their service.

SUBMITTALS

Pre-Construction Submittals:

Pre-Construction submittals for the PV system shall be submitted for approval prior to the start of construction. Pre-Construction submittals shall include the following:

1. PV manufacturer qualifications
2. PV Installer qualifications
3. Manufacturer's installation instructions
4. Bill of Materials (BOM) including manufacturer and part number.
5. Cut sheets of each item listed on the BOM and Test Certification data.
6. Working drawings and design calculations.
7. Product data.

Working Drawings:

Working drawings, PV mounting system structural calculations, and PV electrical system electrical calculations shall be submitted for approval.

Working drawings shall show fabrication, installation, and finish for the PV system and shall consist of the following:

1. Fully dimensioned plans and elevations showing all major components of the PV system.
2. Installation details of PV mounting system, including mounting rack support and anchorage details, and any proposed penetrations through the roof surface.
3. Wiring diagrams including conductor identification (origin and destination) of all power and control conductors.
4. Rough-in requirements.
5. System grounding locations.

Product Data:

A list of materials and equipment to be installed and the manufacturer's descriptive data shall be submitted for approval prior to procurement. Any other data as requested by the Engineer shall also be submitted for approval.

Manufacturer's descriptive data shall include complete description, performance data, results of PV system performance estimate, and installation instructions for the materials and equipment specified herein.

Manufacturer's descriptive data shall be submitted for the following:

- PV modules
- Utility interactive inverter cabinet
- DC and AC disconnect switches
- Circuit combiner boxes
- DC and AC surge protection systems
- Factory finishes
- Hardware
- Sealants
- Grounding accessories

Closeout Submittals:

Closeout documents shall contain the following sections:

1. Operating instructions for the complete PV system.
2. Maintenance instructions for the complete PV system.
3. Operational manuals for each system listed on the BOM.
4. Specified product warranty information.
5. As-built drawings.
6. At the conclusion of all PV installation work and testing, a certificate of compliance shall be submitted stating that the work has been performed in compliance with the CSI and these special provisions.

Three copies of each closeout document shall be submitted in the following manner:

1. CD with PDF files
2. Individual 3-ring binder containing paper copies.

Inadequate or incomplete material shall be returned. The Contractor shall resubmit adequate and complete manuals at no expense to the State.

QUALITY ASSURANCE

Regulatory Requirements:

The PV system shall meet the requirements of the California Solar Initiative Program Handbook (CSI Handbook). Copies of the handbook can be found at the following website:

http://www.gosolarcalifornia.ca.gov/documents/CSI_HANDBOOK.PDF

If there is a conflict or overlap of requirements between the CSI Handbook, project plans, or these specifications, the most stringent requirements shall be applied.

PV Installer Qualifications:

The PV installer shall be a registered installer listed on the CSI database found at the following website:

<http://www.gosolarcalifornia.ca.gov/retailers/search-new.php>

The PV installer shall have experience in designing and installing at least one commercial PV system of 30 kW or greater.

The manufacturer providing components for the PV system shall have a minimum of 5 years successful experience, manufacturing and providing components for PV systems similar to those specified herein.

The manufacturer's limited warranty for the PV module shall be a minimum of 25 years s components.

PART 2 - PRODUCTS

All PV system components shall be factory assembled and tested.

PV system components shall be sized to the system capacity and voltage requirements as shown on the plans, and be designed to provide maximum power point tracking for voltage and current range expected from the PV array for temperatures and solar insolation conditions expected for project site conditions.

PV Modules: PV modules shall conform to the requirements shown on the plans.

Utility Interactive Inverter Cabinet: Utility interactive inverter cabinet shall conform to the requirements shown on the plans.

Circuit Combiner Box: Circuit combiner box shall conform to the requirements shown on the plans.

DC and AC Disconnect Switches: DC and AC disconnect switches shall conform to the requirements shown on the plans.

PV Module Mounting System:

PV module mounting system shall meet seismic and wind code requirements of the CBC 2007

PV module mounting system shall be Unirac, Prosolar or approved equal.

At the Contractor's option, an alternative PV module mounting system will be acceptable when supported by calculations and approved by the Engineer.

Accessories: All accessories necessary for the complete installation of the PV system components, shall be furnished and installed as required to have a complete and operational PV system.

PART 3 - EXECUTION

EXAMINATION

The Contractor shall verify that items provided under other portions of these special provisions are properly sized and located. Examine supporting members to ensure surfaces are at proper elevation and PV modules are free from dirt or other deleterious matter.

INSTALLATION

The roof is covered under a warranty. The PV system shall be installed on the roof in such a manner as to not void the warranty.

PV Module Mounting System:

Install PV modules array on roofs as shown on plans, in accordance with the provisions of the approved working drawings, and as described herein.

1. PV modules mounting rack and attachment shall be designed to withstand loading as shown on the plans and in conformance with the 2007 California Building Code.
2. Module racking systems shall be designed to accept framed PV modules.
3. Metal framed PV modules shall be grounded as shown on the plans and in conformance with the 2007 California Electrical Code, Article 690.

The Contractor shall notify the Engineer at least 2 days prior to installing the PV modules.

Utility Interactive Inverter Cabinet Mounting: Utility interactive inverter cabinet shall be installed on the concrete slab as shown on the plans.

TESTING AND APPROVALS

State Fire Marshal Approval: The complete PV system shall be reviewed, approved, and accepted by the State Fire Marshal, after installation of the system has been completed.

Functional Testing:

After installation is completed, functional testing shall be performed in the presence of the Engineer to demonstrate that the entire PV system is functioning properly.

Functional testing of the PV system shall not be performed until:

1. All of the Engineer's punch list items have been corrected
2. The local electrical utility company representative has approved the completed PV system
3. Obtaining State Fire Marshal approval

The functional test shall consist of operating the entire PV system for 5 consecutive days. In the event any of the system fails to perform satisfactorily, the entire test shall be repeated after the deficiency has been corrected.

Functional testing shall be performed in accordance with Section 86-2.14B, "Field Testing" and Section 86.2.14C, "Functional Testing," of the Standard Specifications.

The Contractor shall be responsible for the compatibility and adjustment of all operating functions of the PV system, in accordance with manufacturer's instructions and these special provisions.

The Contractor shall make necessary repairs, replacements, adjustments and retests at the Contractor's expense.

CLEANING

The Contractor shall clean surfaces in compliance with manufacturer's recommendations; remove excess mastic, mastic smears, foreign materials, and other unsightly marks

The Contractor shall clean metal surfaces exercising care to avoid damage.

The Contractor shall clean energy generating surfaces of the PV modules to ensure no obstructions block sunlight.

BID ITEM LIST
03-2C8444

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21 (F)	750001	MISCELLANEOUS IRON AND STEEL	LB	7,593		
22	840656	PAINT TRAFFIC STRIPE (2-COAT)	LF	1,530		
23	842000	PARKING BUMPER (PRECAST CONCRETE)	EA	49		
24	994650	BUILDING WORK	LS	LUMP SUM	LUMP SUM	
25	190110	LEAD COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
26	071321	TEMPORARY FENCE (TYPE CL-6)	LF	1,520		
27	018779	PHOTOVOLTAIC SYSTEM	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____