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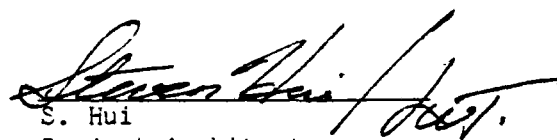
SOUTHERN CALIFORNIA EDISON COMPANY
Rosemead, California

SPECIFICATION 40-0176

CONSTRUCTION OF
RESTROOM FACILITY
SOLAR ONE GENERATING STATION

December 24, 1979

Approved for Issue:


S. Hui
Project Architect

Date 12.27.79

SOUTHERN CALIFORNIA EDISON COMPANY
Rosemead, California

SPECIFICATION 40-0176

CONSTRUCTION OF
RESTROOM FACILITY
SOLAR ONE GENERATING STATION

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GENERAL TERMS AND CONDITIONS

The parties agree to enter into a contract for Contractor to provide and for Edison to purchase the services specified in the Purchase Order of which these General Terms and Conditions are a part.

1. DEFINITIONS:

1.1 Apparatus: Edison's equipment on which the Work is to be performed by Contractor plus any parts furnished by Edison to Contractor for use in performing work.

1.2 Change Order: Document issued by Edison to Contractor to change the Purchase Order.

1.3 Contractor: The entity to which the Purchase Order is addressed and which performs the Work.

1.4 Edison: Southern California Edison Company.

1.5 Edison Representative: An Edison employee designated by Edison to coordinate, expedite, inspect and approve the Work.

1.6 Jobsite: Edison's property or public or private property for performance of the Work at Edison's direction.

1.7 Material: All equipment, materials, products, and supplies to be provided by Contractor as set forth in the Purchase Order.

1.8 Purchase Order: Document issued by Edison to Contractor which authorizes the Work and incorporates by reference this set of General Terms and Conditions and other specifically referenced documents, with the following priority in the event of conflicting provisions: Latest Change Order, Purchase Order, these General Terms and Conditions, other referenced documents.

1.9 Subcontractor: Either an entity contracting directly with Contractor to furnish any part of the Work, or an entity contracting with Contractor's subcontractors of any tier to furnish any part of the Work.

1.10 Work: All obligations of Contractor to be performed as specified in the Purchase Order, including Material and documentation.

2. SCHEDULE: Completion of the Work by the work completion date and furnishing of the documentation is essential to maintain the operating schedule for Edison facilities. If performance of the Work falls behind the schedule agreed to by the parties due to the fault of Contractor, Contractor shall accelerate its performance of the Work, at no charge in the price, until performance of the Work is commensurate with such schedule.

3. LABOR: Contractor shall comply with all existing Jobsite Work rules in performance of the Work at the Jobsite. Upon request, Contractor shall submit a copy of its labor agreements to Edison for review.

Contractor shall give to Edison prompt written notice of (i) every demand for collective bargaining (under the provisions of the Labor Management Relations Act (LMRA) as amended) made upon Contractor or any Subcontractor by any labor organization as soon as such demand may come to Contractor's attention, and (ii) any labor dispute or anticipated labor dispute, which may reasonably be expected to affect the performance of the schedule of the Work.

If Contractor's employees, or any union representing such employees, breach the labor agreement between Contractor and such union, Contractor shall exercise all remedies to which it is entitled under State and Federal law. Further, if Contractor's employees or such union engage in jurisdictional disputes that affect the performance of the Work or the work completion date, or Edison contractors, Contractor shall institute appropriate actions as required by the labor agreement between Contractor and such union and shall exercise all remedies to which it is entitled under Federal and state law. Nothing in this Section 3 shall limit or abridge Contractor's right to negotiate or execute such labor agreements on terms and conditions within Contractor's sole discretion. Edison reserves the right to provide Contractor with prefabricated equipment and neither Contractor nor Subcontractors shall disassemble or rework such prefabricated equipment unless so directed by a Change Order.

4. PERMITS, STATUTES AND CODES. The Work shall comply with the applicable requirements of all statutes, acts, ordinances, regulations, codes and standards as of the date of the Purchase Order. Edison shall obtain and pay for any required building or grading permit, or encroachment permit for a state highway. Contractor shall arrange and pay for any permit or inspection which may be required for performance of the Work.

5. PAYMENT:

5.1 Invoices: Contractor shall submit invoices as set forth in the Purchase Order and in sufficient detail to permit Edison to evaluate the reasonableness of all charges applicable to the Work.

5.2 Claims: For any claims against Edison for extra Work, changes, or delays, notice of a claim shall be submitted to Edison within ten calendar days after completion of the related Work.

5.3 Time and Material Charges: For time and material Purchase Orders, the following shall apply:

5.3.1 Labor: The labor portion of the Work shall be paid at the hourly rates set forth in Purchase Order. Such rates shall include all related costs, including but not limited to: bare payroll costs, payroll additions, overhead costs, profit, small tools and personal supplies.

5.3.2 Material: All Material costs shall be paid by Edison as invoiced by the supplier to Contractor (including freight charges and applicable taxes) plus a percentage of such costs for all applicable handling costs as specified in the Purchase Order. No profit shall be allowed for Material costs.

5.3.3 Invoices: Contractor shall submit invoices monthly which include an itemization of (i) the labor hours by craft, the applicable rate, and the total dollar amount, (ii) the Material costs as invoiced to Contractor, plus applicable handling costs, and (iii) the total dollar amount. A copy of the supplier's invoice for Material shall be included. Edison reserves the right to audit all labor hours and Material invoices related to the Purchase Order.

6. CHANGES: Contractor shall perform additional deletions or changes to the Work as orally directed by the Edison Representative, live, or by a Change Order, at the applicable prices, rates, and reimbursable costs set forth in the Purchase Order. Contractor shall promptly notify Edison in writing if the work completion date, expenditure limitation, or prices are affected by such changes and an equitable adjustment of such provisions shall be authorized by a Change Order. Changes to the terms and conditions shall be made by mutual agreement and set forth in a Change Order.

7. SUSPENSION: The Edison Representative may orally direct Contractor to suspend performance of all or of any part of the Work at any time, and to resume performance of the Work. An equitable adjustment in the work completion date and price shall be confirmed by a Change Order if such suspension increases the cost of the Work.

8. TERMINATION: Edison may orally direct Contractor to terminate the Work at any time, which termination shall be confirmed by a Change Order. Any charges resulting from such termination shall be equitably negotiated by the parties. Edison, at its option, may take possession of any Material procured to date of termination if such costs have been paid or are included in the termination charges. The provisions of this Section 8 shall be Contractor's sole remedy resulting from such termination.

9. TITLE AND RISK-OF-LOSS: Title and risk of loss or damage to the Work shall pass from Contractor to Edison upon acceptance of the Work by Edison.

Contractor shall have risk of loss or damage to the Material Edison furnished components and Apparatus during the time that Contractor has custody of such items.

Title of the Work shall be free and clear of any and all liens and encumbrances whatsoever. If a lien of any nature is filed against the Work or Jobsite by any entity which has supplied Material or services at the request of Contractor or a Subcontractor, Contractor shall promptly, at its own expense, take any and all action necessary to cause any such lien to be released or discharged immediately. Edison shall, at all times, retain title to Edison furnished components.

10. INSURANCE: With respect to liabilities arising out of performance of the Work at the Jobsite, Contractor shall maintain and shall require that each Subcontractor maintain, insurance as described below. Such insurance shall not be terminated nor expire except on thirty days prior written notice to Edison. Contractor shall, and shall require its Subcontractors to, furnish certificates of insurance to Edison prior to performance of the Work.

(i) Workers' Compensation Insurance with statutory limits, as required by the state in which the Work is performed, and Employer's Liability Insurance with limits of not less than \$500,000. Contractor shall require that its carriers furnishing such insurance shall waive all rights of subrogation against Edison, its officers, agents, employees and other contractors and subcontractors.

Workers' Compensation Insurance shall include Longshoremen's and Harbor Workers' Act coverage, Jones Act coverage, and Outer Continental Shelf coverage as applicable.

With respect to all Work performed in the State of Nevada, Contractor shall maintain Workers' Compensation Insurance with the Nevada Industrial Commission.

(ii) Comprehensive Bodily Injury And Property Damage Liability Insurance, including owner's and Contractor's protective product completed operations, contractual and automobile liability, with a combined single limit of not less than \$500,000 for each occurrence. Such insurance shall (a) name Edison, its officers, agents, and employees as additional insureds, but only for Contractor's acts and omissions; (b) be primary for all purposes; and (c) contain standard cross liability provisions. Any deductible from payments for claims shall be at Contractor's expense.

Contractor shall report immediately to the Edison Representative, and confirm in writing, any losses or damages incurred by Contractor or any of its Subcontractors, or its receipt or notice of any claim by a third party, or of any occurrence that might reasonably be expected to give rise to such claim in connection with or arising out of the Work.

If Contractor fails to comply with all of the insurance provisions of this Section 10 or causes such insurance to become uncollectible, Contractor shall indemnify and hold harmless Edison and its officers, agents, employees, assigns and successors in interest from and against any and all liability, damages, losses, costs including attorney's fees and expenses, or any of them resulting from the death or injury to any person or damage to any property, including property of Edison, to the extent caused by Contractor's non-compliance with this Section 10 or caused by the uncollectibility of such insurance.

11. CONSEQUENTIAL DAMAGES: Except as otherwise provided herein, Contractor shall not be liable to Edison for any consequential damages including, but not limited to, loss of or under-utilization of Edison facilities, loss of revenue, and claims of any customer of Edison, resulting from Contractor's performance or nonperformance of its obligations under the Purchase Order.

Edison shall not be liable to Contractor for any consequential damages including, but not limited to, loss of anticipated profits and loss of use of or under utilization of Contractor's labor or facilities, resulting from Edison's performance or nonperformance of its obligations under the Purchase Order.

12. INDEMNITY: Contractor shall at its own cost, defend, indemnify and hold harmless Edison, its officers, agents, employees, assigns, and successors in interest, from and against any and all liability, damages, losses, claims, demands, actions, causes of action, costs including attorney's fees and expenses, or any of them, resulting from the death or injury to any person or damage to any property, including property of Edison, to the extent caused by the negligence of Contractor, Contractor's agents, Contractor's employees, its Subcontractors or its Subcontractors' employees, or any of them, and arising out of the performance or nonperformance of its obligations under the Purchase Order.

Any tools, supplies, equipment or other items loaned from Edison to Contractor shall be done solely as a convenience to Contractor. Contractor agrees that such items are being loaned "as is" and Edison makes no representations as to the condition, suitability for use, freedom from defect or otherwise of such items. Contractor shall defend at its own cost and indemnify and hold harmless Edison, and its officers, agents, employees, assigns, and successors in interest, from and against any and all liability, damages, losses, claims, demands, actions, causes of action, costs including attorney's fees and expenses, or any of them, resulting from the death or injury to any person or damage to any property, arising out of any negligence or strict liability based on actual or alleged use, delivery or transportation of any and all loaned tools, supplies, equipment or other items having defects, or claimed to be defective.

13. ACCEPTANCE: Acceptance tests and inspections shall be performed by Edison within a reasonable period after Contractor has completed and released the Work to Edison. Edison may refuse to accept the Work, or any part thereof, not to be as specified in the Purchase Order. Contractor shall promptly correct such Work as approved by Edison.

14. WARRANTY: With the exception of non destructive examination and technical direction services, Contractor warrants that the Work shall be free from defects of workmanship, materials, and design unless of Edison's design, and shall conform to the requirements of the Purchase Order. Contractor shall, at its sole expense and promptly after notification, and within one year after acceptance of the Work, correct or replace such defective Work as approved by Edison. Any transportation charges shall be at

Contractor's expense. Edison shall have the right to use such defective Work until it can be removed from service for correction or replacement, however, any additional damage resulting from such continued use shall be at Edison's expense. The warranty period for such corrected or replaced Work shall be one year starting upon acceptance of such Work.

For non destructive, examination or technical services Work, Contractor warrants that such services shall reflect Contractor's best professional knowledge, judgment and accepted industry practice. Contractor shall at its sole expense and promptly after notification by Edison within one year after completion of such services, correctly reperform any nonconforming services.

15. UNCONTROLLABLE FORCES: Contractor shall not be liable for delay in the work completion date or inability to perform the Work, due to any cause beyond its reasonable control, such as strike, flood, fire, lightning, war, sabotage, act of a public enemy, earthquake, or material availability, provided that Contractor promptly notifies Edison in writing of the nature, cause, date of commencement and expected impact of the event and has exercised due diligence in proceeding to meet the work completion date. Edison shall extend the work completion date for an equitable period due to such causes or request Contractor to accelerate the Work as set forth in Section 6. Changes.

16. NON-WAIVER: The failure of Edison to enforce any of the terms and conditions or to exercise any right or privilege in the Purchase Order shall not be construed as thereafter waiving any such terms and conditions or right or privilege. A waiver by Edison shall be by a Change Order.

17. GOVERNING LAW: The Purchase Order shall be interpreted, construed and governed under the laws of the State of California, if executed and to be performed wholly within the State of California.

18. ASSIGNMENT: Neither the Purchase Order nor any interest under it shall be assigned without the prior written consent of Edison. The Purchase Order shall not be deemed an asset of Contractor. If Contractor enters into any voluntary or involuntary receivership, bankruptcy, or insolvency proceedings, the Purchase Order may be cancelled at Edison's option upon written notice to Contractor.

19. SUBCONTRACTORS: Contractor shall at all times be responsible for the acts and omissions of Subcontractors and persons directly or indirectly employed by them. Nothing in the Purchase Order shall constitute any contractual relationship between a Subcontractor and Edison or any obligation on the part of Edison to pay or to be responsible for the payment of, any sums to any Subcontractor.

20. NOTICES: Any legal notice pertaining to the Purchase Order shall be in writing and sent registered or certified mail, postage prepaid, to Edison or to Contractor, as appropriate, at their respective addresses appearing in the Purchase Order.

21. EMPLOYMENT PRACTICES: The employment practices printed on the back of the Purchase Order form shall apply.

22. CONTRACTOR'S LICENSE: When applicable, Contractor shall maintain a valid Contractor's License in the state in which the Work is performed.

23. ENTIRE AGREEMENT: The Purchase Order contains the entire understanding between Edison and Contractor as to the subject matter of the Purchase Order and merges and supersedes all prior agreements, commitments, representations and discussions between Edison and Contractor pertaining to the Purchase Order.

SECTION 2

SUPPLEMENTAL REQUIREMENTS

2.1 PROJECT SUMMARY

The requirements of this Specification include all Work necessary to construct a mens and womens restroom facility at the Solar One Generating Station.

2.2 DEFINITIONS

The specific terms used herein, whether in the singular or in the plural, shall have the following defined meanings:

2.2.1 Edison Representative/Engineer/Architect

The terms Edison Representative, Engineer, and Architect are used synonymously throughout this Specification.

2.2.2 Specification

This document which contains the General Terms and Conditions as Section 1, Section 2 and 3, and any supplements, drawings, sketches and data sheets attached hereto or incorporated by reference.

2.2.3 Edison/Company

The terms Edison and Company are used synonymously throughout this Specification.

2.3 JOBSITE

The Jobsite location is the Solar One Generating Station, located on the north side of U.S. Highway 66, approximately six miles east of Dagget, San Bernardino County, California.

2.4 WORK COMPLETION DATE

The Work shall be completed by April 4, 1980.

2.5 CORRESPONDENCE

After award of Purchase Order, all correspondence of a technical nature shall be directed to:

Mr. S. Hui
Project Architect, Solar One Project
Southern California Edison Company
P. O. Box 800
Rosemead, California 91770

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2.6 SCHEDULE

Within ten calendar days after date of award of Purchase Order, Contractor shall submit, to the address given in Section 2.5, its proposed Work schedule as described in the following:

2.6.1 Work Schedule

Submit for approval a schedule showing the order in which Contractor proposes to proceed with the Work. Schedule shall include dates on which the different stages of Work are to begin and the estimated dates of completion of each stage of Work. The schedule shall be clearly legible on a full size 11 in. x 17 in. chart.

The schedule shall be consistent in all respects with the time requirements described in the Purchase Order and shall be adequate to meet all other requirements of this Specification. The schedule should indicate the dates of Material acquisition and delivery to Jobsite. It shall also show estimates of monthly Work progress based upon those dates, i.e., the percentage of each major item scheduled to be completed at any given time, together with commencement and completion dates for all items of Work.

2.6.2 Progress Charts

Contractor shall enter on a copy of the chart the actual progress of Work at the end of each week, or at such intervals as directed by Engineer, and submit the copy to the Engineer as directed.

2.7 AS-BUILT (RECORD) DRAWINGS

When instructed by the Engineer, one complete set of design drawings shall be designated for mark-up purposes to depict field changes. Such field changes include alterations in routing of cable, conduit or piping to avoid interference; relocation of components and apparatus, such as light fixtures and structural changes. These deviations from original particulars of construction do not change the intent of the design or necessitate engineering redesign, but they require approval by the Engineer. Such changes shall be recorded on the "as-built" set of design drawings as they are instituted. Light green pencil shall be used to indicate deletions; red to show additions and changes. The complete set of "as-built" drawings, fully marked-up, shall be submitted to the Engineer within one week after Acceptance of the Work.

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2.8 SHIPPING ADDRESS

All Material to be shipped to the Jobsite shall be marked with the following shipping address:

Southern California Edison Co.
Solar One Generating Station
3 Mi. E/O Daggett
Santa Fe Avenue
c/o Cool Water Generating Station
Daggett, California 92327

2.9 DOCUMENTATION SUBMITTALS

All correspondence regarding Documentation Requirements, including drawing submittals for review and approval as specified in Table 3-1, shall be sent to the address given in Subsection 2B, Documentation Requirements.

END OF SECTION 2

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SUBSECTION 2A

SUPPLEMENTAL GENERAL TERMS AND CONDITIONS

The following sections constitute additions and changes to Section 1, General Terms and Conditions, of this Specification:

2A.1 INSURANCE

The insurance provisions of Section 10, General Terms and Conditions of this Specification, are deleted in their entirety and replaced with the following:

2A.1.1 Edison Provided Insurance:

With respect to liabilities arising out of the performance of the Work at the Jobsite, Company shall maintain, or cause to be maintained, for the benefit of Contractor and Subcontractors, excluding Subcontractors and suppliers making only deliveries or pickups, operators or renters of aircraft, and suppliers of manufacturers from whom only purchases are made, and consultants, the following types of insurance with limits as shown:

a. Workers' Compensation Insurance with statutory limits, including All States Endorsement, and Employer's Liability Insurance with limits of not less than \$2,000,000. Workers' Compensation Insurance shall include Longshoremens and Harbor Workers' Act coverage, Jones Act coverage and Outer Continental Shelf coverage, as needed. Contractor and Subcontractors shall execute an assignment to Company of all returned premiums, premium refunds, dividends, and other monies due or to become due to it or them in connection with such insurance.

Workers' Compensation Insurance policies will normally be furnished to the named insureds prior to the time that Work is performed at the Jobsite.

b. Comprehensive General Liability Insurance for each named insured issued in accordance with Company's Master Insurance Program. The limits of insurance coverage for each insured shall be (i) primary insurance of \$1,000,000 for any one coverage, any combination of coverages, or all coverages combined, arising out of one occurrence, subject to a \$1,000,000 aggregate for each policy year, and (ii) excess coverage of \$9,000,000 combined single limit each occurrence, subject to a limit of \$9,000,000 annual aggregate excess of \$1,000,000 primary coverage and associated aggregate, subject further to a limit of \$45,000,000 each occurrence for all insureds under this excess coverage.

1) For any property damage claims made against Contractor or Subcontractor, a deductible for the account of Contractor or Subcontractor shall be \$2,500 each occurrence, as respects all loss or damage.

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- 2) The completed operation hazard and products hazard insurance afforded hereunder for bodily injury and property damage liability shall continue in force for a period of two years after completion or acceptance of the Work, whichever is the last to occur.
 - 3) Company shall add Contractor and Subcontractors as named insureds on such insurance, and such insurance policies shall be primary and non-contributing with any other insurance carried by the named insured.
 - 4) The insurer shall issue certificates of Comprehensive General Liability Insurance to the named insureds covering their liabilities, except as otherwise provided in the policy, arising out of injury, loss or damage suffered or incurred at or adjacent to the Jobsite, and injury, loss or damage occurring elsewhere resulting from operations, activities, incidents or occurrences at the Jobsite.
 - 5) The inclusion of more than one insured under such insurance shall not operate to impair the rights of one insured against another insured.
- c. In the event of contemplated reduction in coverage or cancellation of any insurance referred to in Sections a and b, Company shall mail thirty days advance written notice of such contemplated reduction or cancellation to each named or additional insured at its or their address on file with Company at the time of such notice. In the event of such contemplated reduction in coverage or cancellation, Company shall use its best efforts to provide for the continuation of such insurance for contractor and Subcontractors.
- d. The named insureds shall not, by reason of its or their inclusion under the insurance referred to in this Section 2A.1.1 incur liability for payment of premium for such insurance.
- e. Following execution of the Purchase Order, Contractor shall notify Company of the execution of any subcontracts with, or issuance of any purchase orders to, Subcontractors by Contractor and upon such notice, the Subcontractors shall be notified by Company of their inclusion in the insurance set forth in this Section 2A.1.1. Absent receipt of such notice, Company shall not have any obligation to provide the insurance set forth in this Section 2A.1.1 to Subcontractors.
- f. Contractor shall require all Subcontractors to certify that they have excluded from their subcontract price the cost of insurance for Workers' Compensation Insurance and Comprehensive General Liability Insurance.

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g. Contractor shall provide, and shall be responsible for requiring Subcontractors to provide, Company with information necessary for administration of the insurance set forth in this Section 2A.1.1, and Company shall handle all insurance matters relating to Subcontractors directly with such Subcontractors.

2A.1.2 Contractor Provided Insurance

With regard to liabilities arising out of performance of the Work at the Jobsite, Contractor shall maintain and shall require each Subcontractor to maintain insurance as described below. Such insurance shall not be terminated nor expire except on thirty days prior written notice to Company. Contractor shall, and shall require its Subcontractors to, furnish certificates of insurance to Company prior to performance of the Work.

a. Automobile Bodily Injury and Property Damage Liability Insurance with a combined single limit of not less than \$500,000 for each occurrence. Such insurance shall cover liability arising out of the use by Contractor and Subcontractors of owned, non-owned and hired automobiles in the performance of the Work at the Jobsite. As used herein, the term "automobile" means vehicles licensed or required to be licensed under the California Vehicle Code. Company shall be named as additional insured on such insurance. Such insurance shall be primary for all purposes and shall be so endorsed, and any deductible from payments or claims shall be at Contractor's sole expense.

b. Contractor shall report immediately to the Engineer, and confirm in writing, any losses or damages incurred by Contractor or any of its Subcontractors, or its receipt or notice of any claim by a third party, or of any occurrence that might reasonably be expected to give rise to such claim in connections with or arising out of the Work.

c. If Contractor fails to comply with all of the insurance provisions of this Section 2A.1 or causes such insurance to become uncollectible, Contractor shall indemnify and hold harmless Company, and its officers, agents, employees, assigns and successors in interest from and against any and all liability, damages, losses, costs including attorney's fees, and damages to property and personnel of Company, or any of them, to the extent such liability, damages, costs and losses would not have been incurred by Company if Contractor had complied with this Section 2A.1 and had not caused such insurance to become uncollectible.

END SUPPLEMENTAL GENERAL TERMS AND CONDITIONS

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SUBSECTION 2B

DOCUMENTATION

2B.1 DOCUMENTATION REQUIREMENTS

All Documentation specified in Table 3-1, Section 3, shall be provided by Supplier in the form and quantity specified.

A. All Documentation submitted shall be accompanied by a letter of transmittal which shall provide the following:

1. Edison Project Name(s)
2. Edison Purchase Order Number
3. This Specification Number
4. The Item Number as Referenced on the Documentation Submittal Schedule, Table 3-1
5. The Document Identification Number, Title, Revision and Date
6. Supplier's Description and Quantities of Items Sent
7. Supplier's Correspondence Identification
8. Updated Drawing List

B. Submittals shall be addressed as follows:

Southern California Edison Company
Engineering Data Management (EDM)
Administrative Services Department
P. O. Box 800
Rosemead, California 91770

C. Drawings shall be submitted in sets and each set shall be accompanied by a drawing list which shall list each drawing in the set with its number, title, revision identification and release date.

D. A Master Drawing List shall identify, in numerical order, all the drawings used in the design and manufacture of the Work defined by this Specification. All drawings shall be listed by drawing number, title, revision identification and date, and status.

E. Unless otherwise specified in writing by Company, all documents submitted to Edison for approval shall be returned to Supplier not later than 30 days after receipt by Edison. Edison shall indicate approval status and action required.

F. Edison-approved documents shall not be changed without prior written approval from Company. Approved changes shall be incorporated into the applicable documents and transmitted in the final form to Edison.

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DOCUMENTATION

G. Supplier's drawings shall be reviewed and approved by Edison only as to arrangement and conformance to Specification. Such approval shall not be construed to relieve or mitigate Supplier's responsibility for accuracy or adequacy of design, materials and/or equipment represented thereon.

H. Catalogs, bulletins and other published documents shall not be microfilmed. They shall be prepared in the best commercial practice and be suitable for microfilming to the quality requirements specified herein. In general, these documents shall conform to the quality requirements for hard copy specified in Section 2A.2.A.

2B.2 DOCUMENTATION QUALITY REQUIREMENTS

All submittals of Documentation shall be in the following form. The preferred form is shown in Table 3-1.

A. Hard Copy Documents

1. Legibility and contrast of the documents shall be such that every line, number, letter and character shall be clearly legible.
2. Reproductive quality shall be of such clarity as to produce a third generation copy which will meet the legibility requirements of Item 1.
3. Documentation shall be right reading from the image side and shall have dark lines on a light background (positive).
4. Documentation may be reproducible (translucent or transparent) or nonreproducible (opaque).
5. Insofar as practicable, Documentation shall be typed and arranged in a neat and professional manner. Handwritten documents shall conform to the legibility requirements of Item 1, above, and the quality requirements of Item 2, above.
6. Documents, when applicable, shall contain a table of contents, list of figures, and tables of applicable, referenced or complementary documents.

END SUBSECTION 2B

SUBSECTION 2C

JOBSITE REQUIREMENTS

2C.1 CONTRACTOR'S FACILITIES

Before proceeding with the erection of any construction facilities, including temporary structures, equipment, offices and warehouses, Contractor shall provide the Engineer with dimensions, descriptions, and proposed location of all such facilities, with capacities and capabilities of the equipment. The construction facilities shall be adequate for the purpose intended, and shall conform with the requirements of this Specification and all local and State regulations.

2C.2 IDENTIFICATION OF CONTRACTOR'S FACILITIES

2C.2.1 Identification of Equipment

When requested by Edison, all vehicles and construction equipment used by Contractor or Subcontractors on the Work shall be clearly marked with the Contractor's or Subcontractor's business title.

2C.2.2 Identification of Contractor's Employees

Contractor shall provide each of its employees and its Subcontractors' employees with a numbered badge bearing the name or initials of the contracting firm. Each employee shall wear his badge upon his person while at the Jobsite.

2C.3 SANITATION

All portions of the Work shall be maintained in a neat, clean, and sanitary condition at all times. Toilets shall be supplied by Contractor, where needed, for use of the employees on the Work. Their use shall be strictly enforced. The Engineer shall be permitted to use the Contractor's sanitary facilities.

2C.4 VISITOR'S LOG

If so required by the Engineer, Contractor shall maintain a visitor's log in which each visitor shall be required to sign his name, date, and purpose of visit. It shall be forwarded to the address given in Section 2.5 when the Work is completed.

2C.5 ACCESS AND PARKING

The Engineer shall indicate the access route to the Jobsite and the parking areas to be used by transport vehicles and all employees of Contractor. These directions shall be strictly adhered to and no other routes or areas shall be used without permission of the Engineer.

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JOBSITE REQUIREMENTS

2C.6 UTILITIES

2C.6.1 Water

Contractor shall furnish the necessary water for industrial use on the Work, and drinking water. The industrial water is available at the adjacent Cool Water property.

2C.6.2 Electric Power

Company shall furnish all necessary 480 volt, 3-phase, electrical power to a single location at the Jobsite. Contractor shall install and be responsible for all transformers, switches, fuses and other necessary electrical connections beyond the Company termination point.

2C.6.3 Telephone

Company will provide no telephone service. Contractor shall make arrangements with the local telephone utility if telephones are desired.

2C.7 DUST CONTROL

Contractor shall make every reasonable effort to keep the amount of dust raised during the course of the Work on the Jobsite and on haul and access roads to a minimum. Any methods known to be effective and are approved by the Engineer shall be used. The measures employed shall not create a hazard or cause a nuisance to nearby residences, crops, the Work, or the operations of other contractors. No additional money shall be paid to Contractor for dust control. Petroleum products shall not be used for dust control.

2C.8 CLEAN UP

During the progress of the Work, Contractor shall keep the area occupied by it, and access to such areas, in a neat, clean and safe condition.

Upon completion of any portion of the Work, Contractor shall promptly remove all rubbish and equipment, temporary structures, and surplus construction Material not intended for future use at or near the same location during the later stages of the Work.

Upon completion of the Work, Contractor shall, at its own expense, satisfactorily dispose of or remove from the vicinity of the Work all rubbish, unused Material belonging to it or used in the performance of the Work, and shall leave the premises in a neat, clean and safe condition.

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JOBSITE REQUIREMENTS

2C.9 FIRE PROTECTION

Fire protection for Contractor's Material, facilities and equipment shall be furnished and maintained by Contractor. No fire protection equipment or personnel shall be provided by Edison.

END SUBSECTION 2C

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SUBSECTION 2D

CONTRACTOR'S PERSONNEL REQUIREMENTS

2D.1 CONTRACTOR'S REPRESENTATIVE

Throughout the construction period, Contractor shall maintain a Jobsite office and have present at the Jobsite a representative who is empowered to speak and act for and on behalf of Contractor.

All written instructions, orders, or other communications delivered to Contractor's representative at the Jobsite shall be considered as having been delivered to Contractor's main office.

2D.2 SUPERINTENDENCE

Contractor shall provide, and maintain continually at the Jobsite, adequate and competent superintendence of all required operations. The superintendents shall be experienced in each type of construction required by this Specification; they shall be employees of Contractor, and approved by the Engineer. If, in the opinion of the Engineer, the safety, quality, or progress of the Work is being impaired by a shortage of the Contractor's supervisory personnel, Contractor shall assign additional qualified personnel to the Work.

2D.3 PROGRESS MEETINGS

Unless waived by the Engineer, Contractor shall attend weekly progress meetings at the Jobsite. The participants shall include the Contractor's principal representatives, Subcontractors' representatives, as appropriate, and the Engineer. The purpose shall be to review progress, schedule Work and deliveries of Material. The result to be desired from the progress meetings shall be to inform all concerned on the matters discussed and to obtain coordinated action that will best assure performance pursuant to the basic schedule.

2D.4 QUALIFICATIONS OF EMPLOYEES

Contractor shall employ only competent and skilled employees to perform the Work. If Edison notifies Contractor that any employee on the Jobsite is, in its opinion, incompetent, disorderly, uses threatening or abusive language to any person on the Jobsite, or is otherwise unsatisfactory, the following steps shall be taken:

- A. Contractor shall review the circumstances which prompted Edison to notify Contractor of the problem.

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CONTRACTOR'S PERSONNEL REQUIREMENTS

B. Upon completion of A, Edison and Contractor shall meet and determine whether (i) any further action is necessary, (ii) the employee is to be counseled regarding the problem or (iii) the employee is to be discharged.

C. The employee shall not be employed by Contractor on the Jobsite again if discharged, except with the written consent of Edison.

END SUBSECTION 2D

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SECTION 3

TECHNICAL REQUIREMENTS

SECTION 3

TECHNICAL REQUIREMENTS

SUBSECTION 3.1 - WORK REQUIREMENTS

3.1.1 SCOPE OF WORK

Contractor shall furnish all Work required to construct the restroom facility as indicated on the drawings and described herein.

3.1.2 MAJOR ITEMS OF WORK BY CONTRACTOR

The major items of Work to be performed by Contractor include, but are not limited to, furnishing and installing of the following:

- A. Jobsite preparation.
- B. Construction of the restroom facility and all accessories and appurtenances as indicated on the drawings and described herein.
- C. Installation of all utilities as specified herein.
- D. Installation of leach field and septic system.
- E. Installation of temporary water line.

3.1.3 MATERIAL FURNISHED BY CONTRACTOR

Contractor shall furnish all required Material to complete the Work, unless otherwise specified.

3.1.4 MATERIAL AND INSTALLATION QUALITY

All Material shall be new and as specified herein.

Material and workmanship shall be in accordance with local codes and ordinances of legally constituted authorities. Except where provisions of this Specification exceed such requirement, the Specification shall govern.

3.1.5 CLOSING IN OF UNINSPECTED WORK

- A. Contractor shall not allow nor cause any of its Work to be enclosed or covered up until it has been inspected, tested and approved by the Engineer and all legally constituted authorities having jurisdiction.

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WORK REQUIREMENTS

B. Should any of its Work be enclosed or covered up before such inspection and test, Contractor shall uncover the Work and after it has been inspected, tested and approved, Contractor shall make all repairs with like Materials necessary to restore all Work to its original condition.

3.1.6 EXAMINATION OF DRAWINGS

Contractor shall carefully study the architectural, civil structural, air conditioning, plumbing and electrical drawings and specifications. If any of the Work as laid out or specified is contrary to, or conflicts with any of the other trades or ordinances, same shall be reported to the Architect at once. The Architect shall then instruct Contractor how to proceed.

By the act of submitting a proposal for the Work, it will be deemed that such comparison or study has been made, that any contrary conditions or conflicts have been considered in the Contractor's bid and that he accepts all conditions at the Jobsite.

3.1.7 EXPLANATION OF DRAWINGS

Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, etc., which may be required. Contractor shall carefully investigate the conditions affecting all of the Work, and plan the Work accordingly. Drawings are generally diagrammatic and indicative of the Work to be installed. The Work shall be installed in the most direct and workmanlike manner.

3.1.8 PROTECTION OF MATERIAL

A. Contractor shall be responsible for the care, custody and protection of its equipment and all Material on the Jobsite until Acceptance of the completed Work by Edison.

B. Contractor shall provide all temporary storage rooms and shops that it may require at the Jobsite for the safe and proper storage of its Materials, tools, etc. These rooms shall be constructed only in locations approved by the Architect and shall in no way interfere with the progress of the Work.

C. Contractor shall replace, at no expense to Edison, any damaged or stolen Material or Material deemed unsatisfactory for use in the work as determined by the Architect.

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WORK REQUIREMENTS

3.1.9 INSPECTIONS

Contractor shall be responsible for arranging all inspections of the Work with the appropriate agencies having jurisdiction.

3.1.10 SURVEY MARKERS

During the progress of the Work, Contractor shall protect all survey markers, alignment hubs, and bench marks set by others. All markers damaged by Contractor shall be replaced by Contractor at no cost to Edison.

3.1.11 DOCUMENTATION SUBMITTAL SCHEDULE

Table 3-1, Documentation Submittal Schedule, is a compilation of the submittals specified throughout Section 3, Technical Requirements. However, the listings of Table 3-1 may be incomplete.

END SUBSECTION 3.1

SPECIFICATION 40-0176

3.1-4

ITEM	TYPE OF DOCUMENTATION REQUIRED	REFERENCE SECTION	NUMBER AND TYPE OF SUBMITTALS AFTER AWARD OF CONTRACT				APPROVAL DOCUMENTS REQUIRED NO. OF DAYS AFTER AWARD	REMARKS
			FOR APPROVAL		AFTER APPROVAL			
			QTY.	PREF. FORM	QTY.	PREF. FORM		
1.	Work Schedule	2.7	1	R	1	R	10	
2.	Concrete Materials & Mix Design	3.3A.9B	2	N	2	N	-	Prior to placement of concrete.
3.	Water Leakage Warranty	3.7A.4	1	R	-	-	-	On completion of Work
4.	Roof Maintenance Warranty	3.7D.5	1	R	-	-	-	On completion of Work
5.	Steel Doors & Frames Shop Drwgs.	3.8A.3	3	-	-	-	-	Prior to Ordering
6.	Hardware List	3.10A.3B	3	-	1	R	15	--
7.	Finish Hardware Warranty	3.10A.3D	1	R	-	-	-	On completion of Work
8.	Plumbing & HVAC Manufacturer's Data	3.15A.4A	6	-	-	-	30	--
9.	Operating Instructions	3.15A.4B	1	R	-	-	-	On completion of Work
10.	Sterilization Certif.	3.15A.4B	1	R	-	-	-	On completion of Work
11.	Air Balance Report	3.15A.4B	1	R	-	-	-	On completion of Work
12.	Motor Data	3.15A.4B	1	R	-	-	-	On completion of Work
13.	Manufacturer's Data	3.15A.4B	1	R	-	-	-	On completion of Work

LEGEND: N - Nonreproducible, R - Reproducible, A - 35 mm Aperture Card

TABLE 3-1 DOCUMENTATION SUBMITTAL SCHEDULE

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3.1-5

ITEM	TYPE OF DOCUMENTATION REQUIRED	REFERENCE SECTION	NUMBER AND TYPE OF SUBMITTALS AFTER AWARD OF CONTRACT				APPROVAL DOCUMENTS REQUIRED NO. OF DAYS AFTER AWARD	REMARKS
			FOR APPROVAL		AFTER APPROVAL			
			QTY.	PREE. FORM	QTY.	PREE. FORM		
14.	Test Data	3.15A.4B	1	R	-	-	-	On completion of Work
15.	As-Built Drwgs.	3.15A.4C	1	R	-	-	-	On completion of Work
16.	Electrical Shop Drawings	3.16A.6	5	-	-	-	30	--
17.	Electrical Material List	3.16A.12	1	R	1	R	30	--
18.	Electrical Material Ordered	3.16A.14B	R	-	-	-	-	Prior to Ordering
END TABLE 3-1								

LEGEND: N - Nonreproducible, R - Reproducible, A - 35 mm Aperture Card

TABLE 3-1 DOCUMENTATION SUBMITTAL SCHEDULE

SUBSECTION 3.2 - SITE WORK

Part 3.2A Earthwork

DESCRIPTION

3.2A.1 SCOPE OF WORK

3.2A.1.1 General

Work to be performed includes everything necessary for and incidental to the erection of the restroom facility and appurtenances. Contractor shall develop final, finish grades as required to the desired finish elevations. Contractor shall assume all responsibility for furnishing, correct placement and compaction, for all earth required by the Work specified herein.

3.2A.1.2 Protection of Existing Structures

Existing structures and utilities shall be adequately protected and supported. Suitable barricades or warning lights shall be provided to protect normal vehicular or foot traffic adjacent to open excavations, per OSHA requirements.

3.2A.1.3 Shoring

The sides of all foundation excavations or trenches 5 feet or more in depth shall be excavated in accordance with OSHA regulations. Materials used for sheeting, shoring, and bracing shall be in accordance with OSHA requirements.

3.2A.2 CODES AND STANDARDS

Work shall be performed in compliance with the following codes and standards, as amended to the date of this Specification, which are hereby made a part of this Specification:

Uniform Building Code (UBC) 1976 Edition

Chapter 29 - Excavations, Foundations and Retaining Walls

American Society for Testing and Materials (ASTM)

ASTM D1556 - Test For Density of Soil in Place by the Sand-Cone Method

ASTM D1557-A - Test for Moisture - Density Relation of Soils, Using 10 lb.
(4.5 kg) Rammer and 18 in. (457 mm) Drop

ASTM D2922 - Test for Density of Soil and Soil-Aggregate in Place of
Nuclear Methods (Shallow Depth)

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EARTHWORK

MATERIAL

3.2A.3 BACKFILL MATERIAL

Suitable borrow material for backfill areas shall be available to Contractor, without charge, from on-site stockpiles or other areas designated by the Engineer.

EXECUTION

3.2A.4 EXCAVATION, GENERAL

Contractor shall perform excavation of every type of material encountered within the limits of the Work to the lines, grades and elevations indicated on the drawings. Grading shall be in conformance with the drawings. Satisfactory excavated material may be transported to and placed in fill or embankment areas within the limits of the site, approved by the Engineer.

Discrepancies in finished grade elevations in excess of the allowable tolerances shall be corrected by Contractor at his expense.

Unsatisfactory excavated material shall be disposed of by Contractor in areas designated by Engineer. During construction, excavation and filling shall be performed in a manner and sequence that will provide drainage of surface runoff at all times.

3.2A.5 STRUCTURAL EXCAVATION

The Work to be performed consists of structural excavation of every type of material encountered within the limits of the Work, to the lines, grades and elevations shown on the design drawings and as specified herein. Grading shall be in conformity with the sections shown.

Structural excavation shall not exceed 0.25 feet below the elevations indicated on the drawings unless otherwise determined by Engineer. Over-excavation must be backfilled to the satisfaction of Engineer.

Excavation in open cut for minor concrete structures such as electrical ducts, drains, culverts, catch basins or other designated similar cut slopes as shown on the drawings shall be made so that concrete can be placed directly against the undisturbed excavated surface, providing the surfaces of the excavation are firm and compact and will stand without sloughing. All points of excavation shall be outside the concrete lines shown on the drawings.

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Restroom Facility
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EARTHWORK

3.2A.6 LINES AND GRADES

Structural excavations shall conform to the lines and grades shown on the drawings and, where required, shall extend a sufficient distance to allow for forms, installation of services and inspection.

3.2A.7 TRENCH EXCAVATION

Over-excavation below the lines and grades shown on the design drawings shall be backfilled with suitable sand and recompact to a minimum of 90% of the maximum density determined by ASTM D1557-A.

Pipe trench walls shall be kept as near vertical as possible from the bottom of the trench to at least two feet above the top of the pipe. The bank of the trench from two feet above the top of the pipe to the normal ground surface shall be sloped as shown on the drawings, or shall be braced.

3.2A.8 DISPOSAL OF MATERIALS

Disposal of material shall be at the direction of Engineer.

3.2A.9 STRUCTURAL BACKFILL

Backfill material adjacent to foundations, footings, walls and similar structures below grade, beneath all concrete floor slabs on grade and where noted on the design drawings shall be approved by Engineer prior to placement.

- A. All excavations to be backfilled shall be cleaned of all shoring materials, trash and debris prior to placing backfill, and no such materials shall be included in the backfill.
- B. Backfill shall not be placed until the structural footings or other portions of the structure or facility have been inspected by Engineer. For foundations and footings, the backfill may be placed after a length of cure of three days.
- C. All structural backfill shall consist of "suitable material" as designated by the Engineer.
- D. Backfill material shall be placed in horizontal, uniform layers not exceeding eight inches in thickness, before compaction.
- E. Backfill placed within 18 in. of finished grade shall be selected material that contains no rocks or hard lumps greater than 3 in. in size and swells less than 3% when tested in accordance with UBC Test Method 29-2.

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EARTHWORK

F. Backfill against structures that have been waterproofed shall be done so as not to damage the waterproofing or the protective material that has been previously applied.

G. Backfilling of pipe trenches shall not commence until the pipe therein has been inspected, tested and approved by Engineer. After the section is approved for backfilling, a granular fill shall be placed in 6-inch layers and saturated with water. This method shall be continued until the material is 12 inches over the top of the pipe. Placing backfill into the trench remaining shall not be done until the first 12 inches of filling and field compacting has been completed. Filling and compacting with backfill shall continue in 8-inch lifts along the section of trench.

3.2A.10 COMPACTION

A. All areas to be graded, both natural ground and areas to receive additional fill, shall be rolled and compacted to the density specified. All areas not specified shall be compacted to a minimum of 90% of the maximum density as determined by ASTM D1557-A, unless otherwise specified by the Engineer.

B. All backfill shall be of material approved by the Engineer.

C. Fill material shall be compacted to the minimum shown on the design drawings or as specified below:

1. Maximum density shall be determined in accordance with ASTM D1557-A.
2. Density of soil in place shall be determined in accordance with ASTM D1556 or ASTM D2922.
3. Testing to determine moisture-density relations and degree of compaction shall be performed at no cost to Contractor by a testing agency retained by Company.

3.2A.11 GRADING

The graded surfaces shall be reasonably smooth, compacted and free from irregular surface changes and areas where ponding of runoff could occur.

3.2A.12 ACCEPTANCE

Acceptance of the Work, pursuant to Section 13, shall include a visual inspection of the Work and evaluation of applicable test results.

END PART 3.2A

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SUBSECTION 3.2 - SITEWORK

Part 3.2B
Sewers

DESCRIPTION

3.2B.1 SCOPE OF WORK

Contractor shall furnish all Work required to install and test the sewer system as indicated on the drawings and described herein.

3.2B.2 CODES AND STANDARDS

The Work shall be in compliance with the following codes and standards, as amended to the date of this Specification, which by reference are included as part of this Specification.

American Society for Testing and Materials (ASTM)

- ASTM A74 - Specification for Cast Iron Soil Pipe and Fittings
- ASTM C12 - Recommended Practice for Installing Vitrified Clay Sewer Pipe.
- ASTM C700 - Specification for Extra Strength and Standard Strength Clay Pipe and Perforated Clay Pipe.

Federal Specification

- RR-F-621C - Manhole Frames, Cover, Gratings, Steps, Sump and Catch Basin.

MATERIALS

3.2B.3 MATERIALS AND METHODS

3.2B.3.1 Pipe Materials

Vitrified clay and perforated vitrified clay pipes shall be extra strength, unglazed, bell and spigot, in minimum lengths of 4-1/2 ft., conforming to ASTM C700. Joints shall be compression type, factory-applied.

Pipe from the building to the septic tank shall be cast iron soil pipe and fittings, extra heavy, hub and spigot, conforming to ASTM A74. Joints shall have rubber gaskets complying with the chemical and physical requirements.

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SEWERS

3.2B.3.2 Septic Tank

The septic tank and distribution box shall be of the size, material, and design indicated on the drawings, and as manufactured by the M. C. Nottingham Company of Irwindale, California, or an Engineer approved equivalent.

EXECUTION

3.2B.4 ABSORPTION FIELD

The absorption field aggregate shall be clean, hard, durable, sound broken stone or crushed gravel; of uniform quality and free of disintegrated vegetable, or other deleterious materials; and well-graded, varying in size from 3/4 to 2-1/2 in. It shall be placed in the trench to the depth and grade shown on the drawings.

3.2B.5 TRENCHES

The width of the trench (other than absorption field) at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench wall will not exceed 8 in. on either side of the pipe. Contractor shall fill the over excavation with aggregate. The unacceptable portion of the trench shall be filled with clean approved material compacted to a minimum of 90% of maximum density, and the trench reexcavated to the approved limits.

3.2B.6 SEPTIC TANK

Septic tank and distribution box excavation shall be kept to a minimum, consistent with necessary access during construction. The base area of the septic tank shall be over-excavated six inches and backfilled with clean, well-graded on-site sand or silty sand to present a level surface.

3.2B.7 PIPE LAYING

3.2B.7.1 Pipes

Pipes shall be inspected for chips, cracks, breaks or other harmful defects prior to installation. Pipes shall be laid with the bells up grade, and to the line and grade shown on the drawings. Pipe laying and backfilling of trenches shall conform to ASTM C-12. Perforated pipe shall be laid with the perforations down.

3.2B.7.2 Couplings

Compression couplings and/or adapters shall be used as required. Metal parts shall be stainless steel.

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SEWERS

3.2B.7.3 Open Ends

Prior to backfilling or testing, all open ends shall be closed tightly as shown on the drawings, or by other method approved by the Engineer.

3.2B.8 TESTING OF SEWERS

Sewer lines shall be checked by the Engineer to determine whether or not any displacement of the pipe has occurred. The test shall consist of a bright light shown through the pipe. If the illuminated interior of the pipeline shows poor alignment, displaced pipe, or any other defects, the defects as designated shall be remedied by Contractor at its expense.

3.2B.9 INSPECTION

Contractor shall notify the Engineer orally or in writing that said Work is ready for inspection. Such notification shall be given not less than 24 hours before the Work is to be inspected. Contractor shall ensure that the Work will stand the test prescribed before giving the notification. Tests shall be conducted in the presence of the Engineer or his duly appointed representative. If Construction Manager finds that the Work will not pass the test, necessary corrections shall be made and the Work shall then be resubmitted for test or inspection.

3.2B.10 MANHOLES AND CLEANOUT

3.2B.10.1 General

Manholes shall be constructed of precast concrete rings, with cast-iron frames and covers as indicated. The invert channels shall be smooth and semicircular in section, conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit. The floor of the manhole outside the channels shall be smooth and shall slope toward the channels not less than one in. per ft. nor more than two in. per ft.

3.2B.10.2 Concrete

Cast-in-place concrete shall attain a minimum compressive strength of 3000 psi at 28 days.

SEWERS

3.2B.10.3 Jointing and Plastering

Mortar for joints shall consist of 1 part portland cement and 2 parts fine sand. The quantity of water in the mixture shall be sufficient to produce a stiff workable mortar, but shall in no case exceed 7 gallons of water per sack of cement. Water shall be clean and free of injurious acids, alkalies, and organic impurities. The mortar shall be used within 30 minutes from the time the ingredients are mixed with water. The joints shall be completely filled, and shall be smooth and free from surplus mortar on the inside of the manhole.

3.2B.10.4 Frames and Covers

Frames and covers shall conform to those indicated on drawings. Approved standard castings differing in nonessential details will be acceptable. The frames and covers shall have a combined weight as indicated and shall conform to Federal Specification RR-F-621. The word "SEWER", with letters at least one in high, shall be stamped or cast flush with the top of cover so as to be plainly visible. The frames and covers shall be set so that the top of the cover will be at the elevation indicated.

END PART 3.2B

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SUBSECTION 3.3 - CONCRETE

Part 3.3A Concrete

DESCRIPTION

3.3A.1 SCOPE OF WORK

Work includes furnishing, placing and performing all concrete Work indicated on the drawings and detailed herein. All embedded items shall be maintained in accurate position during concrete placement. Once placed, concrete shall not be cut to place Work omitted by oversight unless approved by Engineer. Contractor shall be responsible for placement of omitted items.

Concrete shall be placed and finished in such a manner as to be free from honeycomb, segregation and other defects. Concrete placing shall be performed by workmen skilled in the trade.

3.3A.2 CODES AND STANDARDS

The work shall be performed and tested in accordance with the following codes and standards, as amended to the date of this Specification, which are by reference made a part of this Specification.

American Concrete Institute (ACI)

ACI 302	-	Recommended Practice for Concrete and Slab Construction
ACI 305	-	Recommended Practice for Hot Weather Concreting
ACI 306	-	Recommended Practice for Cold Weather Concreting
ACI 318	-	Building Code Requirements for Reinforced Concrete
ACI 347	-	Recommended Practice for Concrete Formwork

American Society for Testing and Materials (ASTM)

ASTM C 31	-	Standard Method of Making and Curing Concrete Compressive Flexural Strength Specimens in the Field
ASTM C 33	-	Standard Specification for Concrete Aggregates
ASTM C 39	-	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C 94	-	Standard Specification for Ready Mixed Concrete

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ASTM C 109	-	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or 50 - mm Cube Specimens)
ASTM C 136	-	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C 138	-	Standard Test Method for Unit Weight, Yield and Air Content (Gravimetric) of Concrete
ASTM C 143	-	Standard Test Methods for Slump of Portland Cement Concrete
ASTM C 150	-	Standard Specification for Portland Cement, Type II
ASTM C171	-	Standard Specification for Sheet Materials for Curing Concrete
ASTM C 231	-	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 260	-	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C 289	-	Standard Test Method for Potential Reactivity of Aggregates (Chemical Method)
ASTM C 295	-	Recommended Practice for Petrographic Examination of Aggregates for Concrete

MATERIALS

3.3A.3 CONCRETE

The manufacture, delivery, and testing of ready-mixed concrete shall conform to ASTM C 94, Alternate No. 2. For the purpose of this Specification, ready-mixed concrete is defined as concrete produced regularly by a commercial establishment and delivered to the Jobsite in the plastic state. The interval between deliveries for placing shall not exceed 60 minutes.

3.3A.4 CEMENT

Cement shall be Type II or IIA portland cement meeting the requirements of ASTM C 150, with the additional requirement that alkali content shall not exceed six tenths percent (0.6%).

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CONCRETE

3.3A.5 AGGREGATES

All aggregate Material shall be natural sand and gravel, or crushed rock, or a combination of both, in compliance with ASTM C 33. Maximum size of aggregate shall be limited to 3/4 in., unless otherwise approved by the Engineer.

All aggregates shall be free from any substance which may be deleteriously reactive with alkalies in the cement in an amount sufficient to cause excessive expansion of the concrete. Contractor shall furnish satisfactory evidence verifying that the aggregate is free from such materials.

3.3A.6 WATER

Water for mixing concrete shall conform to ASTM C 94, Section 4.1.3.

3.3A.7 AIR ENTRAINING ADMIXTURE

Where an air entraining admixture is used it shall conform to ASTM C 260 and shall be capable of entraining an average of 6% \pm 2% air content at time of placement, in accordance with ASTM C 94.

3.3A.8 SLUMP

Unless otherwise allowed by the Engineer, the slump of concrete at time of placement shall be as follows:

	<u>Maximum</u>	<u>Minimum</u>
Reinforced Foundation, Walls and Footings	3 in.	1 in.
Slabs	4 in.	2 in.

3.3A.9 MIX DESIGN

A. Contractor shall be responsible for the performance of all operations and incidentals necessary to prepare concrete mix designs meeting the minimum compressive design strengths, f'c, specified on the drawings.

B. Contractor shall submit to the Engineer a written request for approval of the proposed concrete Materials and the concrete mix designs. This submittal shall include all test results and certificates of compliance to qualify the Materials and to establish the mix designs. No concrete shall be placed until Contractor has received such approval in writing. Concrete mix shall not change during the course of construction without prior approval by the Engineer.

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CONCRETE

EXECUTION

3.3A.10 PREPARATION OF BASE SURFACES

Earth surfaces shall be cleaned of all foreign matter and loose particles. Any free water that may be present in the forms shall be removed before placement of new concrete. Absorbent surfaces shall be just sufficiently wetted to prevent appreciable absorption of moisture from the freshly placed concrete.

3.3A.11 PLACEMENT

Concrete shall be proportioned, mixed, placed, and finished in such a manner as to provide freedom from honeycomb, segregation, and other defects of workmanship.

Concrete shall be placed about reinforcement in such a manner as to prevent separation of the coarse aggregate from the mortar or displacement of the reinforcement or imbeds. All reinforcement shall be thoroughly embedded.

3.3A.12 SLAB CONSTRUCTION

Slab construction shall generally follow the provisions of ACI 302.

3.3A.13 FINISHING AND CURING

3.3A.13.1 Finishing

Finishing of concrete slabs shall be based on the recommendations of ACI 302. Non-skid surfaces shall be provided on all slabs or walkways exposed to the weather.

3.3A.13.2 Curing

Forms supporting concrete shall be kept continually wet for not less than seven days. As soon as unformed surfaces of concrete have hardened sufficiently to prevent damage by curing, an intermittent fine spray of water shall be applied as necessary to keep such surfaces continually moist for not less than seven days. As an alternate, surfaces may be covered for not less than seven days with waterproof sheet materials conforming to ASTM C 171, with all seams overlapped and sealed with tape.

3.3A.14 TOLERANCES

Tolerances shall be based on the recommendations of ACI 347.

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CONCRETE

3.3A.15 REPAIR OF DEFECTIVE WORK

At the discretion of the Engineer, any concrete that has insufficient strength, is improperly formed, contains rock pockets, or is otherwise defective, shall be repaired or shall be removed and replaced, as required, at Contractor's expense.

3.3A.16 ACCEPTANCE

Acceptance of the completed Work, pursuant to Section 13, shall include Engineer receiving all submittals and all phases of the Work performed to the Engineer's approval.

END PART 3.3A

SUBSECTION 3.3 - CONCRETE

Part 3.3B Concrete Reinforcements

DESCRIPTION

3.3B.1 SCOPE OF WORK

Contractor shall furnish and install all reinforcing steel in accordance with ACI 315, Chapter 2, Section 2.9, as detailed on the drawings and described herein.

3.3B.2 CODES AND STANDARDS

The Work shall be in compliance with the following codes and standards, as amended to the date of this Specification, which by reference are made a part of this Specification:

American Concrete Institute (ACI)

ACI 315 - Manual of Standard Practice for Detailing Reinforced Concrete Structures

ACI 318 - Building Code Requirements for Reinforced Concrete

American Society for Testing and Materials (ASTM)

ASTM A 185 - Welded Steel Wire Fabric for Concrete Reinforcement

ASTM A 615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement - Grade 40

MATERIAL

3.3B.3 REINFORCING STEEL

Reinforcing bars shall be new billet steel, deformed bars, Grade 40, conforming to ASTM A 615. Steel shall be clean, free from rust, flaws, cracks, excessive mill scale, paint, oil, grease, or other deleterious matter which could reduce bond.

3.3B.4 WIRE FABRIC

Wire fabric reinforcement shall comply with the requirements of ASTM A 185.

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CONCRETE REINFORCEMENTS

EXECUTION

3.3B.5 FABRICATION

Steel reinforcement shall be fabricated in accordance with ACI 315. Before placement all steel shall be cleaned of loose mill scale, excessive rust, oil, and coatings which would reduce bond. Reinforcements shall be accurately positioned and secured against displacement during placing and vibration of concrete.

Bars shall be securely tied at intersections with No. 16 gauge annealed wire. Reinforcement shall be provided and placed as detailed on the drawings.

END OF PART 3.3B

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SUBSECTION 3.4 - MASONRY

Part 3.4A
Masonry Units

DESCRIPTION

3.4A.1 SCOPE OF WORK

Contractor shall furnish all Work and perform all masonry Work indicated on the drawings and specified herein.

3.4A.2 CODES AND STANDARDS

The Work shall be performed in compliance with the following codes and standards, as amended to the date of this Specification, which are hereby made a part of this Specification:

Uniform Building Code (UBC), 1976 Edition
Chapter 24 - Masonry

American Concrete Institute (ACI)

ACI 315 - Manual of Standard Practice for Detailing Reinforced
Concrete Structures

American Society for Testing and Materials (ASTM)

ASTM A 615 - Specification for Deformed and Plain Billet-Steel Bars for
Concrete Reinforcement

ASTM C 90 - Specification for Hollow Load-Bearing Concrete Masonry
Units

ASTM C 144 - Specification for Aggregate for Masonry Mortar

MATERIALS

3.4A.3 CONCRETE BLOCKS

Concrete blocks shall be Grade "N", standard weight, hollow, load bearing types conforming to ASTM C 90. The blocks shall be standard gray in color, unless otherwise specified by Engineer.

There shall be no variation in the color of units, whether Standard, Bond Beam, or other type of block.

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MASONRY UNITS

3.4A.4 SAND

Sand shall conform to ASTM C 144, except that not less than 3 percent (by weight) shall pass the No. 100 sieve.

3.4A.5 MORTAR

Mortar shall be Type S, in conformance with UBC, Chapter 24, with the exception that lime shall not be used.

3.4A.6 GROUT

Grout shall be in compliance with the UBC, Chapter 24, with the exception that lime shall not be used.

3.4A.7 REINFORCING STEEL

Reinforcing bars shall be new billet steel, or intermediate grade, conforming to the requirements of ASTM A 615, except that 1/4-inch ties may be plain bars. Steel shall be clean and free from rust, flaws, cracks, excessive mill scale, paint, oil, grease, and other foreign matter.

Steel reinforcement shall be fabricated in accordance with ACI 315, Chapter 4, Fabricating Shop Practice.

EXECUTION

3.4A.8 REINFORCEMENT

Before placement, all reinforcing steel shall be thoroughly cleaned of loose mill scale, excessive rust, oil, and coatings which would reduce bond. Reinforcement shall be accurately positioned and secured against displacement during placing and vibrating of concrete. Bars shall be tied at intersections with No. 16 gauge annealed wire. Reinforcement shall be provided and placed as detailed on the drawings. All Bond Beam type blocks shall be horizontally reinforced.

The steel shall be accurately spliced using a lap of not less than 30 bar diameters.

3.4A.9 MASONRY UNITS

Masonry units shall be free of all dirt and dust before laying. They shall be maintained dry by being stockpiled off the ground and by being covered while stockpiled.

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MASONRY UNITS

Before placement, concrete masonry units may be lightly wetted with fog-mist spray, as allowed by the Engineer, to prevent excessive suction. Soaking of the units before or during the Work shall not be permitted.

Masonry units will be laid in running bond or as shown on the drawings. All masonry Work shall be done in a neat and professional manner by skilled block masons. Walls shall be true and plumb. Joints shall be straight, clean, and uniform in thickness. All Work shall be done in accordance with the UBC, Chapter 24, the drawings, and as specified herein.

All masonry Work shall be done in lifts no greater than four ft. in height, unless approved by the Engineer.

3.4A.10 JOINTS

All joints shall be 3/8-inch thick and stuck flush. Mortar burrs shall be removed by rubbing with a burlap bag.

All joints, horizontal and vertical, shall be made by completely covering the end or side of each unit with mortar, before laying, and not merely tipped with mortar. Units shall be laid on a full, fat, unfurrowed bed and set approximately 1/2-inch in the bed.

3.4A.11 FORMS AND CENTERING

Forms and centering shall be constructed true and rigid. Centering shall be kept in place not less than ten days after masonry construction is complete.

3.4A.12 BUILT-IN WORK

A. Sleeves, frames, conduits, bolts, anchors, inserts, reglets, and rough hardware shall be placed as the Work progresses.

B. Conduit in masonry shall be located in cores, and outlet boxes shall align with courses and joints so as to reduce the cutting of masonry to a minimum.

C. No piping, other than electrical conduit, shall be embedded in the masonry.

D. No changes shall be allowed in the masonry design unless approved by the Engineer.

3.4A.13 CURING

All masonry units laid in cement mortar shall be kept moist continuously for seven days after laying and grouting of cores.

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MASONRY UNITS

3.4A.14 CLEAN UP

When the Work is completed, all masonry shall be cleaned of excess mortar in joints and on surfaces, and of droppings.

3.4A.15 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Engineer.

END PART 3.4A

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SUBSECTION 3.5 - METALS

Part 3.5A
Miscellaneous Metalwork

DESCRIPTION

3.5A.1 SCOPE OF WORK

Contractor shall furnish all Work required to complete the miscellaneous metalwork as indicated on the drawings and specified herein. Major items of work include, but are not necessarily limited to furnishing and installing inserts, anchor bolts, curb angles, ladders, floor plates, and similar items.

3.5A.2 CODES AND STANDARDS

The Work shall be in compliance with the following codes and standards, as amended to the date of this Specification, which by reference are made a part of this Specification:

American Society for Testing and Materials (ASTM)

- | | | |
|------------|---|--|
| ASTM A 36 | - | Specification for Structural Steel |
| ASTM A 153 | - | Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware |
| ASTM A 307 | - | Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners |

MATERIAL

3.5A.3 STEEL

Unless otherwise specified herein or indicated on the drawings, all steel shall conform to ASTM A 36. All miscellaneous steel shall receive shop primer coating unless otherwise noted.

3.5A.4 BOLTS AND NUTS

Unless otherwise stated on the drawings, all bolts and nuts shall conform to ASTM A 307. Anchor bolts and nuts and all bolt/nut assemblies exposed to the weather shall be galvanized.

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MISCELLANEOUS METALWORK

EXECUTION

3.5A.5 LADDERS

Steel ladders shall be fabricated as detailed and anchored as indicated on the drawings. Color shall be selected by Engineer.

3.5A.6 DAMAGED OR CUT GALVANIZED PARTS

Damaged galvanized coatings and all exposed bare metal on galvanized parts shall be repaired using Galvanox Type 1, manufactured by Subox, Inc., distributed by R. E. Cunningham and Son, South El Monte, or Koppers Company Organic Zinc, in accordance with the manufacturer's printed instructions.

3.5A.7 ACCEPTANCE

Acceptance of the completed Work, pursuant to Section 13, shall include Engineer's approval of all phases of the Work.

END PART 3.5A

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SUBSECTION 3.6 - WOOD AND PLASTICS

Part 3.6A
Rough Carpentry

DESCRIPTION

3.6A.1 SCOPE OF WORK

Contractor shall furnish all Work required to complete all rough carpentry Work indicated on the drawings and specified herein, unless specifically excepted. Major items of Work include, but are not limited to, furnishing and installing the following:

1. Roof framing, bracing, joists, furring, sheathing, and all related Work for roof construction.
2. Rough framing of openings.
3. Grounds for plastering Work.
4. All other carpentry not otherwise classified.

3.6A.2 CODES AND STANDARDS

The Work shall be in compliance with the following codes and standards, as amended to the date of this Specification, which are hereby made a part of this Specification.

West Coast Lumber Inspection Bureau (WCLIB)

Standard Grading and Dressing Rules for Douglas Fir, West Coast Hemlock, Sitka Spruce and Western Red Cedar

American Plywood Association (APA)

Uniform Building Code (UBC)

Chapter 25 - Wood

3.6A.3 MATERIAL STORAGE

All lumber shall be stored on the Jobsite at a location indicated by the Engineer. Lumber shall be stored above ground level and in a manner that ensures proper ventilation and protection from weather.

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ROUGH CARPENTRY

MATERIAL

3.6A.4 LUMBER

Lumber shall be well seasoned and shall comply with Standard Grading and Dressing Rules of the (WCLIB). Except as indicated, lumber shall be Douglas Fir LARCH. Generally, for joints, planks, and timber, No. 1 Grade lumber shall be used. Construction Grade lumber shall be used for light framing, except as follows:

1. Fascia - Select grade.
2. Plywood roof sheathing - Structural I Grade, 32/16, 1/2-inch thick, exterior glue, and DFPA Grade-trademarked by the American Plywood Association.
3. Roof joists and rafters and posts - No. 1 Grade, or as indicated on the drawings.
4. Studs, rough frames, bracing, and suchlike - No. 2 Grade.
5. Plates and Sills - Foundation-grade redwood or pressure treated Douglas-Fir.

3.6A.5 ROUGH HARDWARE

Timber connectors and rough hardware shall be according to current standard.

3.6A.6 SIZES OF LUMBER

Lumber size shown on the drawings refer to nominal sizes. Where sizes are not shown, they shall be as required by the Uniform Building Code, Chapter 25.

EXECUTION

3.6A.7 GENERAL

Contractor shall furnish, erect, service, and remove scaffolding necessary for the general requirements of the Work.

All plates, blocks, girders, sills, and the like resting on concrete floors shall be foundation-grade redwood or pressure treated Douglas Fir.

Plaster grounds shall be installed as required and as shown on the drawings.

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ROUGH CARPENTRY

3.6A.8 FRAMING

All framing shall meet the requirements of the Uniform Building Code. Details not explicitly shown shall be in accordance with standard construction practice and workmanship.

Framing lumber and other Material shall be accurately cut and fitted to give even bearing over the entire contact surface of each joint. It shall be accurately set to required lines and levels and rigidly secured in place. No framing member shall be cut or notched for pipe or conduit without specific approval of the Engineer. Anchors and nailers shall be provided and installed where required to secure carpentry to masonry or steel. Plates may be secured to floor and walls with power-driven stud anchors.

All framing shall be secured by spikes except where bolts are shown on the drawings or specified herein. All such nailing shall be performed in a professional manner and in accordance with standard structural practice. At locations where nail ends are not exposed in the finished work, the two-inch material shall be spiked together using 16d spikes with the ends clinched. Double members shall be installed at all openings.

3.6A.9 NAILING

Nailing shall be done in a manner that will not affect the safe working stress of any member.

Rafters and joists shall be secured with two 16d spikes at each connection.

3.6A.10 BACKING

Backing shall be installed to receive plumbing fixtures, toilet accessories, and other paraphernalia fastened to the walls.

3.6A.11 ROOF SHEATHING

Plywood sheathings shall be 1/2-inch thick, C-D with exterior glue, with C side facing up. It shall be laid perpendicular to supports, each butt joint centered on a support and secured with 8d nails at spacings indicated on the drawings. All nailing shall be in accordance with the requirements of the Uniform Building Code. Ply-clips shall be provided at all unsupported plywood edges. Defects, holes, or cracks in the plywood roof deck shall be covered with sheet metal, well nailed. The direction of the surface grain shall be laid perpendicular to the main structural supports of the plywood sheathing. Joints parallel and perpendicular to supporting joists shall be staggered.

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ROUGH CARPENTRY

3.6A.12 INTERIOR FURRING

Furring strips shall be installed over ceiling areas as necessary. Furring that is to receive metal lath shall be 16 in. on centers. Furring strips supporting metal lath and plastered ceilings shall have, in addition to any nailing at supports, one of the following reinforcements in accordance with code:

- A. Not less than two strands of 14-gauge galvanized wire saddle tied or wrapped around supporting rafters at all connections and drawn tight.
- B. Sixteen-gauge galvanized perforated nailing straps around each furring strip and extending up and over rafter and well nailed thereto.
- C. Lag screws set in drilled holes at each connection and extending not less than three-inches into supports. Such lag screws shall have a 1-1/2 inch washer and be drawn up tight.

Holes shall be drilled 1/8-inch smaller than the nominal size of the screw.

Vertically driven nails of any size shall, except as specified for acoustic ceilings, not be considered as carrying any load. Toe-nailing of these connections shall not be allowed. Furring (spanning over four feet) shall have an intermediate cross tie in all spans.

END PART 3.6A

SUBSECTION 3.6 - WOOD AND PLASTICS

Part 3.6B
Interior Finish and Millwork

DESCRIPTION

3.6B.1 SCOPE OF WORK

Contractor shall furnish and install millwork and finish carpentry as indicated on the drawings and described herein.

3.6B.2 RELATED WORK SPECIFIED ELSEWHERE

Finish Hardware - Part 3.10A and drawing No. A-19

Painting, Stains - Subsection 3.9, Finishes

3.6B.3 CODES AND STANDARDS

The Work shall comply with the following codes and standards, as amended to the date of this Specification, which are hereby made a part of this Specification:

Woodwork Institute of California

Manual of Millwork for Premium Grade Doors

U.S. Commercial Standard (CS)

CS 171-58 - Hardwood Veneered Doors

3.6B.4 MATERIAL DELIVERY, STORAGE AND HANDLING

Do not deliver millwork of any kind to the Jobsite until notified by the Engineer that the building is in proper condition and arrangements are made to properly handle the Material.

All items of interior finish when received at the Jobsite shall be stored in a suitably protected location, stacked on timber supports, under cover, in accordance with best current practice. Separators shall be placed between all units and all milled surfaces, and edges shall be protected from damage.

MATERIAL

3.6B.5 COUNTER TOPS

Laminated plastic as manufactured by Wilson Art, or Architect approved equal, applied over one inch thick plywood.

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INTERIOR FINISH AND MILLWORK

Corners shall be self-edged and sanded to a smooth finish.

EXECUTION

3.6B.6 FIELD MEASUREMENTS

Obtain field measurements as may be required and report any discrepancies between the drawings and field dimensions to the Engineer. All Work shall be executed in accordance with the Standard of Woodwork Institute of California.

3.6B.7 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Engineer.

END OF PART 3.6B

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SUBSECTION 3.7

THERMAL AND MOISTURE PROTECTION

SUBSECTION 3.7 - THERMAL AND MOISTURE PROTECTION

Part 3.7A
Waterproofing

DESCRIPTION

3.7A.1 SCOPE OF WORK

The Contractor shall furnish all Work required to complete the waterproofing of interior slab of building as herein specified.

3.7A.2 MATERIALS

3.7A.2.1 Interior Slab

Waterproofing membrane sheeting shall be Nervastral Barrier manufactured by Rubber and Plastics Compound Company or an Engineer approved equivalent. Sheeting shall be 0.010 in. thick, nonreinforced impermeable sheeting composed of vinyl polymers and copolymers.

3.7A.3 APPLICATION

A. Earth surfaces shall be compact and smooth prior to placing membrane sheeting. If required, a 2 in. thick fine sand layer shall be placed below the sheeting to ensure its protection.

B. Sheeting shall be placed in a manner to ensure watertightness. All joints shall be overlapped a minimum of 6 in. Sheeting shall be carefully fitted around service openings and sealed with cement, as required.

C. To ensure protection of sheeting, a 2 in. sand layer shall be placed above membrane prior to placement of concrete.

3.7A.4 GUARANTEE

Contractor shall furnish Edison with two copies of a one year warranty against water leakage.

3.7A.5 ACCEPTANCE

Acceptance of the Work shall include all Work performed to the satisfaction of the Engineer.

END PART 3.7A

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SUBSECTION 3.7 - THERMAL AND MOISTURE PROTECTION

Part 3.7B
Insulation

DESCRIPTION

3.7B.1 SCOPE OF WORK

Contractor shall furnish all Work necessary for the execution and completion of all insulation as indicated on the drawings and described herein.

3.7B.2 CODES AND STANDARDS

The Work shall be compliance with the following codes and standards, as amended to the date of this Specification, which by reference are made a part of this Specification.

American Society for Testing and Materials (ASTM)

ASTM C 516 - Specification for Vermiculite Loose Fill Insulation

Federal Specification (FS)

FS HH-1-521E - Insulation Blankets, Thermal (Mineral Fiber, For Ambient Temperatures)

FS HH-1-585C - Insulation, Thermal (Vermiculite)

MATERIAL

3.7B.3 INSULATION MATERIALS

A. All roof insulation shown on drawings or specified herein shall be Kraft faced, Fiberglas Insulation as manufactured by Owens-Corning Fiberglas Corporation, Toledo, Ohio, or an Architect approved equivalent. Insulation shall have a thermal resistance "R" value of R-13 at the roof. Insulation shall comply with Federal Specification HH-1-521E Type II, and have a vapor resistance rating of 1 perm or less.

B. The block wall insulation shall be Zonolite Masonry Insulation as produced by W. R. Grace and Co., a specially-treated water repellent, free-flowing vermiculite, processed for the specific purpose of insulating masonry walls. Block wall insulation shall conform to ASTM C 516, or Federal Specification HH-1-585C, and be treated for water repellency.

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INSULATION

EXECUTION

3.7B.4 APPLICATION

A. At roof - install Friction-Fit Insulation between the wood joists. Extend the insulation entirely across the top keeping the blanket snug against the plate at both ends. If necessary, stuff the gap between the insulation and the plate with loose insulation. After installing the insulation, nail chicken-wire to bottom of joists.

B. Block walls - Insulation shall be poured from the bag into the concrete block cavity directly or via a hopper placed on top of the wall. Pour may be made at any convenient interval, but the height of any pour shall not exceed 20 feet. Rodding or tampering is not necessary. Block joints at pilesters or other vertical inembers shall be mortared in by the mason, and weep holes shall be filled with glass fiber rope or copper screen to prevent leakage.

3.7B.5 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END PART 3.7B

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Solar One

SUBSECTION 3.7 - MOISTURE PROTECTION

Part 3.7C
Sheet Metal and Caulking

DESCRIPTION

3.7C.1 SCOPE OF WORK

Contractor shall furnish all Work required to perform and complete the sheet metal Work and caulking as indicated on the drawings and as described herein.

3.7C.2 MAJOR ITEMS OF WORK

The major items of Work include, but are not limited to, furnishing and installing the following:

- A. Flashing and reglets.
- B. Vent flashings.
- C. Caulking.
- D. Louvers.

MATERIAL

3.7C.3 METAL AND SOLDER

Galvanized sheet metal shall comply with ASTM A 525 and shall be of gauges shown. When not specifically noted, sheet metal shall be 22 gauge minimum.

Solder shall be 50-50 solder, meeting requirements of ASTM B 32.

3.7C.4 FABRICATION

A. The sheet metal Work shall be accurately formed and fabricated in accordance with the Architectural Sheet Metal Manual of Sheet Metal and Air Conditioning Contractors National Association Incorporated.

Exposed soldering on finished surfaces shall be scraped smooth. Lock seam work shall be made flat and true to line, sweated full of solder. All exposed edges of sheet metal shall have a 1/2 inch minimum hemmed edge.

B. Acid fluxed work shall be thoroughly washed with soap, soda, and water solution after soldering.

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SHEET METAL AND CAULKING

C. All exterior joints shall be soldered watertight. Only resin flux shall be used, and solder shall be feather cut to a thin edge. Before soldering, the edges to be soldered shall be cleaned.

D. All sheet metal Work shall be so formed and installed as to provide suitable allowance for expansion and contraction without causing undue stresses in any part of the completed Work. At all sheet metal roof flashings, furnish and install 26 ga. G.I. x 18 inch underlay at joints where one sheet of sheet metal abuts another sheet of metal. Underlay shall be formed to suit and centered on joint.

3.7C.5 METAL FLASHING

Miscellaneous flashing where indicated unless otherwise noted on drawings, shall be 22 gauge galvanized sheet metal, minimum.

3.7C.6 INSPECTION

Contractor shall make all repairs to the Work if damaged, leaving it in condition satisfactory to the Engineer. Any defects in galvanized finish shall be corrected by galvanizing insured surfaces with galvanized paste equal to "Amco" as made by the American Solder and Flux Company.

3.7C.7 COOPERATION

The sheet metal trade shall cooperate with the roofer in the installation of all Work to be built into or in connection with the roofing work so that all connections and flashing will be water and weathertight.

3.7C.8 WORKMANSHIP

A. All Work shall be performed in a neat manner and in accordance with the best practices of the trade; and in accordance with the Architectural Sheet Metal Manual of Sheet Metal and Air Conditioning Contractors National Association Incorporated. All careless Work will be rejected and replaced with new Work.

3.7C.9 CAULKING

A. Furnish and install caulking as indicated on the drawings and as required to make all exterior openings watertight.

B. Materials shall be Thiokol (Polysulfide Polymer); General Electric Sealant, or an Architect approved equal.

SHEET METAL AND CAULKING

C. Caulking shall be applied in strict accordance with the manufacturer's recommendations.

D. Contractor shall cleanup after the Work has been accomplished.

3.7C.10 LOUVERS

Louvers shall be stationary, heavy duty, series 110, 16 gauge, galvanized steel as manufactured by Air Louvers Ltd. or an Architect approved equivalent. Provide aluminum insect screen mounted on interior side.

3.7C.11 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END PART 3.7C

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SUBSECTION 3.7 - MOISTURE PROTECTION

Part 3.7D
Roofing

DESCRIPTION

3.7D.1 SCOPE OF WORK

Contractor shall furnish all Work required to complete the installation of roofing and application of plasticool coating as indicated on the drawings and as herein specified.

MATERIALS

3.7D.2 ASPHALT

Asphalt shall be an Engineer approved brand with a melting point of less than 180°F.

3.7D.3 ROOFING FELT, MASTIC, AND FIBER COATING

These Materials shall be the product of one of the following:

Owens Corning Fiberglass
Johns Manville
El Rey
Pioneer

The Materials required for 100 sq. ft. of deck shall be follows:

Combination Sheet	1 ply	15 lbs.
Perma Ply No. 11	2 plies	22 lbs.
Asphalt - Plies		64 lbs.
Asphalt - surface (steep)		25 lbs.
Perma Cap		<u>78 lbs.</u>

Total Weight per 100 sq. ft. 204 lbs.

Plasticool Standard as manufactured by Energy Conservation Rep.,
P.O. Box 48405, Los Angeles, Ca. 90018; Telephone (213) 931-5562, or an
Architect approved equivalent.

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ROOFING

EXECUTION

3.7D.4 APPLICATION OVER PLYWOOD

A. General: Roof deck shall be dry, smooth and well secured. Large cracks or holes shall be metal covered. Roof shall be swept broom clean. All inclined surfaces shall be properly graded to outlets. All metal fittings shall be in place, ready for roofing contractor to attach to his work except as otherwise indicated or specified.

B. Nail Combination Sheet, 2 in. side lap, on 9 in. centers on side lap and stagger nail on 18 inch centers on lines 12 in. from each edge.

Embed two plies of Perma Ply No. 11 in shingle fashion, lapping 19 in. into uniform solid moppings of hot asphalt, using a nominal 30 lbs. per 100 sq. ft. per ply.

Embed 12 ft. or 18 ft. lengths of Perma Cap into uniform solid mopping of hot steep asphalt, using not less than 25 lbs. per 100 sq. ft. per ply. Perma Cap side laps shall be at least 12 inches from bottom sheet side laps. Roofing shall be applied as specified and as outlined in Owens Corning Fiberglas specification No. 420-WM or an Architect approved equal.

C. Vents: All vents shall be set in hot asphalt on first layer of felt. The flanges shall be nailed and sealed with a 4 inch strip of reinforcing fabric mopped solid. After all felts are applied, a collar of felt shall be cut to fit around vents and overlap the flanges 6 inches on all sides. This collar shall be mopped into palce with asphalt. A plastic cement cant shall be formed around bse of vent. The vent pipes and other metal fittings shall be treated with asphalt protected coating.

D. Plasticool Standard to be applied by spray gun, after all roofing Work is completed.

3.7D.5 WARRANTY

Contractor shall furnish to Architect a written warranty to maintain roofs against weather hazards for a period of one year from the date the Work is accepted by Edison.

3.7D.6 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END PART 3.7D

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SUBSECTION 3.8 - DOORS AND WINDOWS

Part 3.8A
Steel Doors and Frames

DESCRIPTION

3.8A.1 SCOPE OF WORK

Contractor shall furnish all Work required to install all steel doors and frames in walls of sizes indicated on the drawings; as detailed thereon and as herein specified.

MATERIAL

3.8A.2 MANUFACTURE

Frames and hollow metal doors shall be as manufactured by Overly Manufacturing Company, 2943 Glendon Street, Los Angeles, California (663-8161), or an Architect approved equivalent.

3.8A.3 SHOP DRAWINGS

Contractor shall submit to the Architect, three complete sets of shop drawings of the hollow metal doors and frames.

3.8A.4 FRAMES

A. Frames shall be constructed of 16 gauge steel and shall be fabricated from prime quality hot rolled, pickled, annealed steel free from defects.

B. Where frames are to be installed in masonry walls, provide T shaped metal anchors to fit in mortar joints of masonry. For doors up to 7 ft. in height provide a minimum of 3 anchors per jamb.

C. Door frames shall be prepared and reinforced for Let-in butts. Butt reinforcement shall be 12 gauge deformed channel steel, 12 gauge lock strip and 14 gauge for surface applied items.

D. At exterior doors provide 10 gauge bent steel sills. Sills shall be shop welded to each jamb. Provide "Z" anchors welded to under side of sill; 2 for openings up to 3 ft. wide and 4 for openings up to 8 ft. wide. "Z" anchors shall be equally spaced.

E. Assemble door frames in shop using miter, welded full depth and width of frames and trim. All contact edges shall be closed to hairline joints.

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STEEL DOORS AND FRAMES

F. Provide concealed reinforcements to receive mortise type hardware, mortise, drill and tap to template requirements.

G. All frames shall be grouted solid.

3.8A.5 HOLLOW METAL DOORS

A. Hollow metal doors shall be manufactured from two sheets of 18 gauge steel, formed and welded for flush assembly. Sheets shall be welded to interval reinforcing channels or "Z" shaped runners spaced not more than six in. on center, full height of door. Provide rock batt insulation between the channels full thickness to fill all voids between the outer skins of the door to prevent ringing.

B. Where louvers in hollow metal doors are indicated, they shall be constructed as an integral part of the door and flush with the exterior surfaces of the door.

C. Provide concealed reinforcement to receive mortise type hardware; drill, tap to template requirements. Butt reinforcement: 12 gauge deformed channel, 12 gauge for locksets, 14 gauge for surface applied items.

D. Provide continuous horizontal stiffener channels welded to face sheets top and bottom of doors. No seams shall be visible. All welds shall be ground smooth.

EXECUTION

3.8A.6 CLEANING

A. Frames shall be thoroughly cleaned, removing all rust, scale, grease, oil and rough spots. Metal surfaces shall be chemically treated with phosphate compound to assure maximum paint adherence. Apply a coat of rust inhibitive primer.

B. After assembly, clean thoroughly, removing all rust, scale, grease, oil and rough spots. Chemically treat metal surfaces with phosphate compound to assure maximum paint adherence. Fill door edges with epoxy filler to conceal seam. Apply spray coat of rust inhibitive primer.

3.8A.7 INSTALLATION

Door frames shall be installed in concrete block and wood frame walls and shall be aligned properly so that, when in position, they shall be true and plumb.

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STEEL DOORS AND FRAMES

3.8A.8 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END PART 3.8A

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SUBSECTION 3.9 - FINISHES

Part 3.9A Lath and Plastering

3.9A.1 SCOPE OF WORK

Contractor shall furnish all Work necessary to perform all lath and plastering Work as indicated on the drawings and as herein specified.

3.9A.2 CODES AND STANDARDS

The Work shall be in conformance with the following codes and standards, as amended to the date of this Specification, which by reference are made a part of this Specification:

American Society For Testing and Materials (ASTM)

ASTM C 35 - Specification for Inorganic Aggregates for Use in Gypsum Plaster.

ASTM C 150 - Specification for Portland Cement.

3.9A.3 DELIVERY AND STORAGE

All manufactured Material shall be delivered to the Jobsite in unopened original packages, containers, or bundles bearing the manufacturer's name and brand. Plaster Material shall be kept dry and covered until ready for mixing. It shall be stored off the ground and away from sweating walls and other damp surfaces.

MATERIALS

3.9A.4 PLASTERING MATERIALS

- A. Portland cement shall be Type I or II and shall conform to ASTM C 150.
- B. Sand shall conform to ASTM C 35 and be supplied from sources approved by the Engineer.
- C. Water shall be potable.
- D. Lathing for exterior cement plaster shall be Aqua-K-Lath and applied in strict accordance with the manufacturaers recommendaions and instructions.
- E. Metal accessories such as corner beads, casings, bse screeds, and the like, shall not be lighter than No. 26 U.S. gauge steel, zinc coated, with perforated or expanded flanges or clips.

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LATH AND PLASTERING

EXECUTION

3.9A.5 APPLICATION OF LATHING

All walls that are to receive portland cement plaster shall be covered with Aqua-K-Lath.

3.9A.6 PROPORTIONING AND MIXING OF PLASTER

3.9A.6.1 Mixing

Mechanical mixers of a type approved by the Engineer shall be used for the mixing of plaster. Mixers shall be cleaned after each batch and kept free of plaster from previous mixes. The Material shall be thoroughly mixed with the proper amount of water to obtain uniformity of color and consistency of mass. Caked, forced, or lumpy material shall not be used. Mortar that has begun to stiffen shall be discarded. Retempering shall not be permitted. Size of batches shall be so regulated that the mixed material will be used within the time limits specified as follows:

Portland cement base coat	1/2 hour
Finish coats	1/2 hour

All Material shall be proportioned by volume unless otherwise noted.

3.9A.6.2 Portland Cement Plaster

Portland cement plaster may contain an approved plasticizing agent in lieu of lime putty. The amount of plasticizing agent necessary for proper workability shall be determined in advance of starting the Work, and the smallest amount needed to secure the desired plasticity shall be used. Plaster shall be composed of the following mixes.

A. Base Coats

1 part portland cement, 3-1/2 parts sand for scratch coat;
4-1/2 parts sand for brown coat.

B. Portland Cement Fine-Float Finish

1 part portland cement, 2 parts sand passing No. 20 mesh.

3.9A.7 APPLICATION OF PLASTER

Application shall be in accordance with Lathing and Plastering Data Guide and Reference Specifications of the Southern California Plastering Institute Incorporated.

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LATH AND PLASTERING

3.9A.8 PATCHING

Contractor shall repair cracks, mars, and defects to the satisfaction of the Engineer before beginning painting.

3.9A.9 CLEANING

On completion of the Work, Contractor shall remove all scaffolding, equipment, and debris and leave all surfaces and plumbing fixtures clean of plaster.

3.9A.10 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END PART 3.9A

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SUBSECTION 3.9 - FINISHES

Part 3.9B
Ceramic Tile

DESCRIPTION

3.9B.1 SCOPE OF WORK

Contractor shall furnish all Work required to provide a complete installation of ceramic tile as indicated on the drawings and as herein specified.

MATERIALS

3.9B.2 TILE AND MATERIALS

Contractor shall use the following Materials or an Architect approved equivalent.

A. Wall Tiles

American Olean - Bright and matte series
Size: 4-1/4 in. x 4-1/4 in.
Color: Per Master Color Schedule

B. Floor Tiles

American Olean Ceramic Mosaic Tile
Size: 1 in. x 1 in.
Color: Per Master Color Schedule

C. Thin-bed mortar and adhesive-set tile backing Material sealer shall be as recommended by the manufacturer and applied in conformance with the American Tile Institute.

D. Thin-set tile adhesives for walls shall be as recommended by the American Tile Institute for thin-setting tile adhesives.

E. Floor tiles shall be set in grout and shall slope to drains.

EXECUTION

3.9B.3 INSTALLATIONS

3.9B.3.1 Wall Tile and Bases

A. After the wall surfaces have been properly sealed - apply the thin setting adhesive in the manner as prescribed by the manufacturer. All tiles shall be laid in true horizontal and vertical lines.

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CERAMIC TILE

B. Grout shall consist of mixture of liquid portions, one part of liquid Anti-Hydro to three parts of water by volume and adding to it Snowite grout powder to form a paste of the consistency of medium soft butter.

C. Wipe tile walls and bases clean after grouting and protect them before any other trades have access to the rooms.

3.9B.3.2 Floor Tile

A. The concrete subfloor to receive the mortar setting bed shall be left below the finish floor elevation as indicated. The subfloor shall have all laitance, sand, dust, and loose particles removed with air blast. The surface shall then be saturated with water, excess water removed, and then uniformly dusted with portland cement just prior to spreading the mortar setting bed.

B. The setting mortar shall be mixed in the proportion of one part portland cement and 4 parts sand, by volume. The setting mortar shall be spread until the surface of the mortar setting bed is true and pitched as indicated. Portland cement shall be uniformly dusted over the surface of the mortar setting bed immediately preceding the setting of the tile.

C. The tile shall be firmly pressed and tamped into the mortar until they form a true plane at the elevations indicated, and are true and even with the finished floor lines and pitched at the points indicated. As soon as the mortar setting bed has sufficiently set, the tile shall be washed with water and the joints grouted with non-staining gray portland cement grout in the consistency of thick cream. The grout shall be forced into the joints, finished flush, all surplus grout removed, and the face of the tiles left clean. Tiles shall be soaked in clean water before setting, taking precautions to see that tiles are not stained before setting.

3.9B.4 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END PART 3.9B

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SUBSECTION 3.9 - FINISHES

Part 3.9C
Painting

DESCRIPTION

3.9C.1 SCOPE OF WORK

Contractor shall furnish all Work required to perform all painting Work as indicated on the drawings and as herein specified.

3.9C.2 WORK NOT INCLUDED

The following listed items are covered under other headings or are not to be painted in accordance with this section.

- A. Polished metal surfaces or finished hardware of plumbing trim.
- B. All apparatus which is delivered to the Work already painted, except touch-up painting as required.

3.9C.3 WORK INCLUDED

The Work shall include, but not necessarily be limited to furnishing and applying finishes to the following:

- A. Metal doors and metal door frames.
- B. Sheet metal work and miscellaneous metals.
- C. All exterior and interior walls.
- D. Equipment having factory prime coat of paint only.
- E. Exterior hand rail.
- F. Facia
- G. Steel Ladder
- H. Soffit and ceiling

MATERIAL

3.9C.4 GENERAL

- A. Material used in the Work shall be of the type, brand, and quality listed below. Requests for permission to substitute for the specified Material

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Solar One

PAINING

shall be in writing and subject to the approval of the Engineer. All products shall be delivered with the manufacturer's label intact, and shall be mixed and applied in strict accordance with manufacturer's directions.

B. No paint or varnish shall be thinned in any way except as recommended by the manufacturer's directions.

C. Paint manufactured by the Sinclair, Fuller, and Dunn-Edwards are acceptable "equals" and may be substituted for specified brands, subject to the approval of the Architect.

3.9C.5 PAIN FINISH SCHEDULE

The following list numbers as taken from Sinclair Paints, unless otherwise noted. Approvable equivalents are acceptable. Color of paints shall be determined by the Architect.

A. Exterior Non-Galvanized Metal: Doors and Frames

First Coat	20 Red Primer
Second Coat	248 Sash and Trim Primer
Third Coat	250 Sash and Trim Enamel

B. Exterior Galvanized Metal

Treat new galvanized metal with 12 Galva Wash.

First Coat	25 Zinc Dust Primer
Second Coat	248 Sash and Trim Primer
Third Coat	250 Sash and Trim Enamel

C. Interior Drywall and Interior Block Surface - Enamel Finish

First Coat	1770 Pigmented P.V.A. Sealer
Second Coat	975 Sinco Prime Undercoat
Third Coat	2200 Porcelain Eggshell Enamel

D. Exterior Concrete Block Masonry

First Coat	1010 Vinyl Block Primer
Second Coat	1300 Stuc-O-Life

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PAINING

EXECUTION

3.9C.6 WORKMANSHIP

All painting shall be performed in a first-class, workmanlike manner by experienced painters under the supervision of a craftsman skilled in the trade. Finished surfaces shall be free from runs, drops, ridges, waves, laps, and unnecessary brush marks.

3.9C.7 PREPARATION OF SURFACES

A. All surfaces that are to be treated shall be in a proper condition to receive the finish specified, and no paint or stain shall be applied until the surface has been inspected and approved by the Engineer. All dust, fingermarks, dirt, loose old paint, and suchlike, shall be removed.

B. Contractor shall replace, at its own expense, any paint that shows any indication of checking, blistering, or peeling for a period of one year from the date of final Acceptance by the Company.

3.9C.8 APPLICATION PROCEDURES

A. Painting shall be performed as scheduled, using hand brushing or rollers for all coats. The use of paint sprayers shall not be accepted. Covers or masking Material shall be used where necessary for protection of other work.

B. Except as otherwise specified, paints shall be applied only to thoroughly dry surfaces. In no case shall any paint be applied during rainy or misty weather, or to surfaces covered with frost or condensed moisture.

3.9C.9 RIGHT OF REJECTION

The Architect reserves the right to reject unsatisfactory Work and replace it at the expense of Contractor.

3.9C.10 PROTECTION OF WORK

Existing installations shall be adequately covered, and Contractor shall be held responsible for any damage to other Work caused by its employees. Contractor shall protect its own Work at all times.

3.9C.11 CLEANUP

On completion of the Work, Contractor shall remove all surplus material and rubbish and shall leave the premises in a clean and orderly condition. He shall remove all spots on hardware, glass, walls, floors, etc., caused by his workmen.

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PAINTING

3.9C.12 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END PART 3.9C

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3.9C-4

SUBSECTION 3.10 - SPECIALTIES

Part 3.10A
Finish Hardware

DESCRIPTION

3.10A.1 SCOPE OF WORK

Contractor shall furnish all Work required to complete the finish hardware Work as indicated on the drawings and as herein specified. Contractor shall provide all trim, attachments, and fastenings specified or required for proper and complete installation.

3.10A.2 RELATED WORK IN OTHER SECTIONS

Examine all sections for Work related to the Work of this Part 3.10A. The principal items of related Work are:

- A. Installation of hardware.
- B. Rough hardware.
- C. Toilet accessories.
- D. Handrail brackets.

3.10A.3 CONTRACTOR'S RESPONSIBILITY

A. Examine related Work and surfaces before starting the Work of this Section. Report to the Architect, in writing, conditions which will prevent the proper provision of this Work. Beginning the Work of this Section without reporting unsuitable conditions to the Architect constitutes acceptance of conditions by the Contractor. Any required removal, repair, or replacement of this Work caused by unsuitable conditions shall be done at no additional cost to Company.

B. Within 15 days after award of the Purchase Order, the Contractor shall prepare a hardware list (3 copies) and submit list to the Architect for approval. Approval of the hardware schedule by the Architect does not relieve Contractor of the responsibility of furnishing the Work complete. Computer and horizontal type schedules shall not be acceptable.

C. In order to insure proper placement and fit, all hardware in connection with metal doors and/or metal frames shall be made to template. Templates, or physical hardware items, shall be furnished to manufacturers concerned and shall be furnished sufficiently in advance to avoid delay in the Work.

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FINISH HARDWARE

D. All hardware shall be warranted for a period of one year from date of Acceptance of the Work. A written guarantee shall be delivered to the Architect by the Contractor at the acceptance of the Work. Defects in Materials and workmanship occurring during the warranty period shall be corrected to the complete satisfaction of the Architect at Contractor's own expense.

MATERIAL

3.10A.4 LOCK UNIFORMITY

Except where otherwise specified, all locksets, padlocks, latchsets, cylinders and component parts, as specified herein, shall be by one manufacturer.

3.10A.5 KEYING AND MASTERKEYING

All locksets, padlocks and cylinders shall be keyed and master keyed as directed by the Architect. Furnish a minimum of three change keys for each cylinder. Quantity of Master Keys shall be as required by the Architect. All cylinders shall be a minimum of six pins and removable cores.

3.10A.6 DOOR HARDWARE

Hand of lock shall be as indicated on the drawings. If door hand is changed during construction, Contractor shall make necessary changes in hardware at no additional expense to Edison.

3.10A.7 LOCK STRIKES

All lock strikes shall be boxed and shall have a curved lip of sufficient length to protect the trim and jamb.

3.10A.8 DOOR BUTTS

The sizes of door butts shall be as specified or as required to clear the trim. Exterior door butts on doors swinging out shall have security studs and a set screw in the barrel to prevent the removal of the pin when door is closed.

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FINISH HARDWARE

HW 1

2 Exterior Doors, Walk Area to Men's & Women's Toilets

EACH DOOR SHALL HAVE:

- 1 1/2 pr Butts FBB179 4 1/2 x 4 x US26D
- 1 ea Push Plate 40 8 x 16 x US32D
- 1 ea Pull 1510 4 x 16 x US32D
- 1 ea Closer 500S-3 x SBL
- 1 ea Deadlock 417 WBX x US26D
- 1 ea Kickplate 48 10 x 2" LDW x US32D
- 1 ea Stop 431ES x US26D
- 3 ea Mutes 33
- 1 ea 222 AV Extruded Aluminum Door Shoe, Length as Required

HW 2

Janitor Closet

EACH DOOR SHALL HAVE:

- 1 1/2 pr Butts FBB179 4 1/2 x 4 x USP
- 1 ea Lockset 8937-351 x US26D
- 1 ea Closer 500SH-3 x (539 as Required) x SBL
- 1 ea Kickplate 48 10 x 2" LDW x US32D
- 1 ea Stop 431ES x US26D
- 3 ea Mutes 33
- 1 ea 222 AV Extruded Aluminum Door Shoe, length as Required

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FINISH HARDWARE

HW 3

2 Interior Doors to Men's & Women's Toilet

EACH DOOR SHALL HAVE:

- 1 1/2 pr Butts FBB179 4 1/2 x 4 x US26D
- 1 ea Push Plate 40 8 x 16 x US32D
- 1 ea Pull 1510 4 x 16 x US32D
- 1 ea Closer 500S-3 x SBL
- 1 ea Kickplate 48 10 x 2 in. LDW x US32D
- 1 ea Stop 431ES x US26D
- 3 ea Mutes 33

END PART 3.10A

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SUBSECTION 3.10 - SPECIALTIES

Part 3.10B Toilet Partitions

3.10B.1 SCOPE OF WORK

Contractor shall furnish and install all metal toilet partitions as indicated on the drawings and as specified herein.

MATERIALS

3.10B.2 GENERAL

The metal toilet partitions and urinal screens shall be products manufactured by the Sanymetal Products Company, Incorporated, or an Architect approved equivalent. Partitions shall be "Academy" (overhead braced) constructed in accordance with the manufacturer's specifications.

3.10B.2.1 Hardware

Doors shall be equipped with concealed adjustable gravity hinges, chrome-plated where exposed; chrome-plated cast alloy or brass, aluminum or stainless steel hook and bumper, latch and bolt and combination door stop and latch keeper. Attach partitions, pilasters and baffles with non-ferrous chrome-plated, polished anodized aluminum, or stainless steel brackets.

3.10B.2.2 Finish

The finish shall be "Porcena" (baked acrylic). Color shall be as shown on the Master Color List.

EXECUTION

3.10B.3 INSTALLATION

Contractor shall be responsible for all necessary fastening members that may be required to install toilet partitions.

3.10B.4 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END OF PART 3.10B

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SUBSECTION 3.10 - SPECIALTIES

Part 3.10C
Toilet Accessories

DESCRIPTION

3.10C.1 SCOPE OF WORK

Contractor shall furnish and install all toilet and shower accessories as indicated on the drawings and specified herein.

MATERIALS

3.10C.2 SUBSTITUTIONS

Specific Materials have been designated in the following list. The intent is to state the type and quality of Material desired without ruling out use of other Materials of equal type and quality provided that use of such other Materials has been approved by the Architect.

If substitutions are to be considered, submit for approval a list showing the Material specified and the equivalent Material proposed as a substitute.

To avoid delays, Contractor shall place its order well ahead of the time the accessories are needed.

A. Recessed Paper Dispensers and Waste Receptable

Bobrick B-360P where indicated on drawings.

B. Surface Mounted Toilet Seat Cover Dispenser

Bobrick B-221 (1 dispenser/water closet enclosure).

C. Surface Mounted Multi-Roll Toilet Tissue Dispenser

Bobrick B-288 (1 dispenser/water closet enclosure).

D. Mirror and Shelf

Bobrick B-292-3624 where shown on the drawings.

E. All Purpose Soap Dispensers

Bobrick B-116 where shown on the drawings.

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TOILET ACCESSORIES

F. Partition Mounted Napkin Disposal For Two Toilet Compartments

Bobrick B-354 where shown on the drawings.

G. Grab Bars

Bobrick B-6293 where shown on drawings.

H. Towel Bar

Bobrick B-674 where indicated on the drawings.

I. Shower Curtain (Rods, Curtain Hooks, Vinyl Shower Curtain)

Bobrick B-210, B-204-1, B-204-2 where shown on the drawings.

J. Locks and Keys

Locks shall be keyed alike for each type of accessory; two keys shall be furnished for each lock or each group of accessories keyed alike. Locks shall be the manufacturers' standard locks.

K. Hook and Bumper

Bobrick B-212 (1 Hook and bumper/water closet enclosure)

3.10C.3 INSPECTION OF SURFACES

Before starting any Work, Contractor shall inspect all surfaces on which accessories are to be installed, and shall correct any unsuitable surfaces for installation of the accessories. It shall be the responsibility of Contractor to correct any defects appearing in the Work.

EXECUTION

3.10C.4 INSTALLATION

Install accessories in a manner to prevent damage to any of the surrounding finish and rigidly fasten into place.

3.10C.5 CLEAN UP

At the completion of the Work, Contractor shall remove all waste materials and debris resulting from this Work.

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TOILET ACCESSORIES

3.10C.6 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END OF PART 3.10C

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3.10C-3

SUBSECTION 3.10 - SPECIALTIES

Part 3.10D
Steel Lockers

DESCRIPTION

3.10D.1 SCOPE OF WORK

Contractor shall provide all work required to furnish and install all steel lockers as indicated in the drawings and specified herein.

3.10D.2 CODES AND STANDARDS

The Work shall be performed in compliance with the following standard, as amended to the date of this Specification, which is hereby made a part of this Specification.

Federal Specification

AA-L-486 - Locker, Clothing, Steel

MATERIAL

3.10D.3 UPRIGHT STEEL LOCKERS

"Interior" Standard Lockers, double tier, type DBQ, with sloped tops, manufactured by Interior Steel Equipment Company, Cleveland, Ohio, and distributed by Interior Systems, Inc., 720 No. Valley Street, Anaheim, California, 92801, Phone: 714/991-1781, or an Architect approved equal.

3.10D.3.1 Material

Parts shall be made from mild cold-rolled domestic furniture steel, free of surface imperfections and capable of taking a high grade baked enamel finish.

3.10D.3.2 Fabrication of Steel Lockers

Steel lockers shall be built per manufacturer's specifications and in accordance with Federal Specification AA-L-486.

- A. Ventilation: Double-tier lockers shall have six louvers at top and bottom of door.

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- B. Body: Body of locker including tops, backs, sides, and shelves shall be domestic 24-gauge steel-bottoms shall be of 20-gauge steel. Sides shall be flanged to give double thickness of metal at connections. Tops, bottoms, and shelves shall be flanged all four sides with channel formation at front of shelves. Shelves shall be full depth.
- C. Number Plates: Each locker shall have a polished aluminum number plate with black etched numerals not less than 3/8 inch high. Plates shall be attached to doors with pop rivets. Unless otherwise specified, lockers shall be numbered consecutively from one up.
- D. Equipment: All lockers shall be furnished with zinc or cadmium plated steel hooks with ball points. Hooks shall be attached to locker body with no less than two bolts.
- E. Finish: Lockers shall be given a heavy coat of high quality enamel. The lockers shall be baked at 300 degrees to assure a harder finish for longer usage.
- Colors shall be as specified in the Master Color schedule.
- F. Locks: Locks shall be padlocks, master keyed.
- G. Size: Locker size shall be 12 inches wide, 18 inches deep and 36 inches high. Note: overall height includes 9 inch sloped top.

EXECUTION

3.10D.4 INSTALLATION

Install in accordance with manufacturer directions.

3.10D.5 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END OF PART 3.10D

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SUBSECTION 3.11 - EQUIPMENT
(Not Applicable)

SUBSECTION 3.12 - FURNISHINGS
(Not Applicable)

SUBSECTION 3.13 - SPECIAL CONSTRUCTION
(Not Applicable)

SUBSECTION 3.14 - CONVEYING SYSTEMS
(Not Applicable)

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SUBSECTION 3.15 - MECHANICAL

Part 3.15A

Plumbing and HVAC

3.15.A.1 SCOPE OF WORK

Contractor shall perform all Work associated with the plumbing, sanitary sewage, heating, ventilating, and air conditioning (HVAC) as indicated on the drawings and as specified herein.

3.15.A.2 CODES AND STANDARDS

The Work shall be in compliance with the following codes and standards, as amended to the date of this Specification, which by reference are made a part of this Specification:

- A. Uniform Building Code (UBC), 1976 Edition
- B. Uniform Plumbing Code
- C. California Administrative Code, Title 24, Part 6, Article 2 - Energy Conservation Standards for New Nonresidential Buildings
- D. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Handbooks
- E. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

3.15A.3 MAJOR ITEMS OF WORK

The major items of Work shall include, but not necessarily be limited to, the following:

3.15A.3.1 Plumbing

- A. Furnish and install a sanitary soil, waste, and vent system inside the building and to the point of connection indicated on the drawings.
- B. Furnish and install a domestic cold and hot water system.
- C. Furnish and install the plumbing fixtures, drains, fittings and covers.

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3.15.3.2 Heating, Ventilating and Air Conditioning

- A. An HVAC system as indicated on the drawings.
- B. Ventilating and exhaust system as indicated on the drawings.
- C. Rectangular and circular ductwork.
- D. Temperature and system controls.
- E. Air balance and adjustments.
- F. All flex connections, air diffusers, registers, and accessories.
- G. All insulation and lining.

3.15A.4 SUBMITTALS

- A. Thirty days after acceptance of the Purchase Order, Contractor shall submit to the Engineer for approval brochures covering all Materials to be furnished, showing models, sizes and ratings of equipment.
- B. Thirty days prior to acceptance, Contractor shall submit the following:
 - 1. Complete operating instructions.
 - 2. Sterilization certificate. (Plumbing)
 - 3. Air Balance Report. (HVAC)
 - 4. Fan Speed, Pulley Sizes and Motor Loads.
 - 5. Manufacturer's complete description data on all mechanical equipment, including catalog information, part numbers, wiring and controls diagrams, maintenance requirements and any other information necessary for operation and maintenance of the equipment.
 - 6. All test data.
- C. On completion of the Work, Contractor shall submit "As-Built" drawings.

PLUMBING AND HVAC

3.15A.5 PLUMBING

3.15A.5.1 General

- A. Piping shall include all new pipe, fittings, valves, joint materials, supports, coatings, and all miscellaneous appurtenances required for a continuous system of piping.
- B. Secure all floor-mounted equipment to foundations, unless otherwise stated.
- C. All fixtures and equipment not specified otherwise, shall be provided with a shop paint coat.
- D. All couplings and connections shall be jointed with compounds for vapor tight, leakproof connections using code approved Materials applied per manufacturer's directions.
- E. Contractor shall furnish Materials and equipment strictly in accordance with types and makes as specified herein. Installation shall conform to manufacturer's recommendations and instructions and the applicable codes and standards.

3.15.5.2 Pipe Arrangement and Workmanship

- A. All piping shall be installed to run parallel to the building construction and arranged to form neat, symmetrical patterns to ensure the best appearance possible. Fittings shall be used for changes in sizes and direction of pipe; no bending will be allowed. All pipes shall be carefully cleaned and all scale, sand, dirt, etc., removed before installation. Full lengths of pipe shall be used whenever possible to minimize the number of couplings.
- B. Contractor shall proceed with the rough piping as rapidly as the Work will permit and shall have all of the rough piping in and stubbed out to the proper point and tested, in each case, before any lath, plaster or finished Work of the ceilings, partitions, walls or floors are in place.
- C. Horizontal pipe shall run level without pockets, and shall be as straight as possible. Hot and cold water pipes shall be separated by at least six-inches where piping is parallel. Lines shall be installed so systems may be drained at low points.

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3.15A.5.3 Hangers and Supports

A. All piping shall be firmly held in place by approved hangers, supports, and anchors. All hangers and supports shall be of design which will support the weight of pipe, fluid, and installation.

B. All supply stub-outs through the wall shall be secured behind the wall with drop eared tees and ells.

3.15A.5.4 Expansion and Contraction

Expansion and contraction in the water piping systems located inside building shall be compensated by use of swing joints.

3.15A.5.5 Escutcheons

Escutcheons shall be provided where exposed pipes pass through walls, floors, ceilings and partitions. In finished portions of the building, escutcheons shall be chrome plated. In other portions of the building, escutcheons shall be prime coated steel with set screw flanges. Where exposed to weather conditions, escutcheons shall be cast brass with set screw.

3.15A.5.6 Valves

Size, type and material shall be suitable for the location and service as indicated on the drawings and this Specification; location shall also be as indicated on the drawings, in addition to the following services and locations:

1. At each plumbing fixture.
2. For shut-off of risers and branch mains.
3. For flushing and sterilizing the domestic water systems.

3.15A.5.7 Adjustment and Instruction

Flush, purge, and clean all piping systems. Adjust volume, clean, and leave systems in operating order.

Instruct the Engineer in the operation and maintenance of the system at his convenience.

3.15A.5.8 Sanitary Waste and Vent Piping System

A. Above grade waste and vent piping shall be service weight no-hub cast iron soil pipe, and fittings per ASTM A74.

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Below grade waste and vent piping shall be service weight hub and spigot cast iron soil pipe and fittings.

B. Cleanouts shall be installed at the following locations:

1. All places indicated on plans.
2. At the terminal end of all horizontal waste runs.
3. At all off-sets of more than 45 degrees.
4. At maximum spacing of 100 ft. apart.
5. At all places not noted above or shown on plans, but required by local codes.

C. Cleanouts shall be manufactured by J. R. Smith, Zurn or Engineer approved equal. Manufacturer's name and model, figure or drawing number specified are for identification of types, quality and construction. All cleanouts shall have bronze countersunk rectangular slotted plugs, tapered threads, lubricated with emulsified lead paste. Flush with the floor cleanout tops shall have non-skid gasketed watertight covers secured independently or a plug.

D. Floor level cleanout assemblies shall be Smith No. 4023 cast iron adjustable with round nickel bronze top and gasketed watertight covers. (Smith No. 4023F with flashing flange, flashing ring as required).

E. Wall cleanout assemblies for drywalls, block or tile shall be Smith No. 4512 cast iron with Acorn No. 8211-3 AK, prime coated steel concealed hinge type access covers with removable door on all except tile walls. Cleanout assemblies for tile walls shall be Smith No. 4512 cast iron with Acorn No. 8211-1 AK, with 18-8 No. 4 finish stainless steel access covers.

F. Minimum slope for waste and drain pipes shall be 1/4 inch per ft. (or 2%).

G. Testing

1. Contractor shall perform all plumbing tests in accordance with the County of San Bernardino Building Code. In addition, Contractor shall notify governing authorities and obtain written approval for tested systems prior to backfilling of concealed work. The Engineer shall be notified 48 hours prior to test, and approval shall be obtained prior to backfilling of concealed work.

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2. Piping which will be concealed shall be tested in sections as approved and in a manner which will not leave any pipe or joint untested.
3. Where partial testing of the system is required prior to testing of the complete system, Contractor shall provide all necessary valves, caps, plugs, etc., to complete the tests.

3.15A.5.9 Domestic Water System

A. Water Piping

All cold and hot water supply of the domestic water system above ground shall be type "L" hard drawn copper piping with wrought copper solder joint fittings.

All cold and hot water supply piping below grade shall be type "K" hard drawn copper piping with wrought copper solder joint fittings.

B. Joints

For copper joints cut pipe square and ream to remove all burrs. End of pipe must be thoroughly cleaned to 1 inch more than depth of the fitting. Apply coat of non-corrosive paste flux. Make joint with 50-50 solder. Consult manufacturer's instructions for application of flux and soldering techniques.

Copper joints in the soil and below a building slab shall be made with United Wire and Supply Corp. SIL 56T and SIL flux blue label.

Use Maloney isolating couplings for dissimilar metals.

C. Insulation

Hot water supply piping shall be insulated with preformed fiberglass insulation with standard factory applied canvas jacket. R value shall be 4.0 (minimum) and be consistent with the requirements of California Administrative Code, Title 24, Table 5-1.

Insulation shall be Johns-Manville, Owens-Corning, GBS or Company-approved equal, installed in accordance with manufacturer's recommendations.

D. Valves

Valves shall be manufactured by Nibco-Scott, Jenkins, Stockham, Crane or Engineer-approved equal. Valves shall be rated for not less than 125 pounds water working pressure and in any event, shall be compatible in working pressure and end preparation to the pipes and fittings to which they are attached.

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E. Water Hammer Arrestors

Water hammer arrestors shall be all stainless steel Hydrotrol 5000 Series manufactured by J. R. Smith or Engineer approved equal. Water hammer arrestors shall be installed on all hot and cold water lines, and in an upright position at all plumbing fixtures.

F. Tests

Upon completion of a section or of the entire hot and cold water system, it shall be tested at a water pressure of 150 psi at the highest point of the system. For approval the piping system shall withstand the test without leaks for a period of twenty-four hours.

All devices which are subject to damage due to pressure relief devices whose settings are exceeded, shall be removed or valved off during testing period.

After the piping system has been tested and proven tight, all fixtures shall be re-connected, and before applying any required insulation, Contractor shall clean the system of all dirt, scale, oil, grease, waste, and all other foreign matter accumulated during the process of testing and reinstallation.

3.15A.5.10 Plumbing Fixtures

Plumbing fixture trim and exposed supplies and wastes shall be brass with polished chrome plated finish unless otherwise specified. Exposed wastes between trap and wall may be galvanized steel nipples with polished chrome plated brass casings. Concealed supplies and wastes may be galvanized steel pipe and concealed traps may be rough brass. Individual loose key stops or, if so specified, screw driver stops, shall be provided for all supplies, and unless integral with valves or faucets, or unless otherwise approved by the Engineer, shall be mounted under the fixture. All wastes shall be separately trapped. Exposed supplies and wastes to wall shall be provided with polished chrome plated cast brass wall escutcheons.

A. Wall Hung Fixtures

Fixtures specified with hangers or supporting arms shall have hangers or arms securely mounted on a 3/8 inch thick X 8 inch wide steel wall plate which shall extend at least one stud beyond the first and last fixture

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mounting points. Concealed arm assemblies shall be attached to plates by four, 3/8 inch X 1-1/4 inch steel bolts and nuts. Hangers and exposed arms shall be attached with 5/16 inch minimum full thread steel studs and jam nuts. Plates shall be drilled and tapped at the time of fixture installation.

Wall plates shall be recessed flush with studs and shall be securely attached to each stud crossed. In wood stud construction the plate shall be attached to each stud with two, 3/8 inch steel carriage bolts which shall extend through the center of the stud and be secured on the opposite side with steel washers and nuts. In steel stud construction a 1-1/2 inch X 18 inch long furring channel shall be attached to each notched stud with fillet welds one inch long on six inch centers front and back. Plates shall be continuous fillet welded at both top and bottom to each furring channel.

Floor type water closets shall be set on slotted cast brass floor flanges. Joint shall be made permanently gas and water tight by means of a preformed gasket and shall be held in place with 5/16 inch solid brass bolts concealed by china bolt caps.

Fixtures, trim and accessories shall be similar and equal to the following:

1. Water Closets - WC

American Standard Elongated "Cadet" with water saver trim, No. 2109.395 - vitreous china, floor mounted, siphon jet action bowl, close-coupled tank, Church 5330.063 seat and 3405.016 supply pipe.

2. Lavatories- L

American Standard "Ledgelyn" 3211.059, 19 in. x 16 in., enameled cast iron, with fitting ledge 2379.018 Aquarian II pop-up Lavatory faucet and 4418.026 adjustable "P" trap.

3. Urinals - U

American Standard "Trimbrook" 6150.015, wall-hung vitreous china, siphon jet action, 3/4 in. top inlet spud with Sloan Royal flush valve 186.

4. Service Sink - SS

American Standard "Akron" 7695.018 enameled cast iron, wall-hung, 24 in. x 20 in. with 8340.234 faucet, 7798.176 trap standard and 8379.026 rim guard.

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3.15A.5.11 Specialty Items

A. Shower Fittings - SH

Hot and cold water mixing control valve shall be Acorn Shafti-Therm. Shower head shall be Acorn 814-10Y.

B. Floor Drains - FD

Floor drain shall be J.R. Smith model 2010-A with cast iron body and adjustable nickel bronze strainer head.

C. Water Heater - WH

Water heater shall be electric, National Model No. N100CS with 100-gallon storage capacity, 15 KW Standard power input, 208 volt/3 phase. Unit shall be equipped with an ASME rated pressure-temperature relief valve and comply with all the requirements of Title 24, Section T-20-1521 and T20-1522.

3.15A.5.12 Domestic Water Systems Purge and Sterilization

The water supply and distribution system shall be sterilized with chlorine gas or liquid hypochlorite before acceptance for operation. Work shall be done by an approved application laboratory, or under the direct supervision of a representative of an approved testing laboratory. Unless otherwise required by local ordinances, sterilization shall conform to the following:

A. Method

The amount of chlorine shall provide a dosage of not less than 50 parts per million.

The chlorinating materials shall be introduced into the lines and distribution system in a manner approved by the Engineer.

After a contact period of not less than 24 hours, during which period the chlorine residual shall be maintained at not less than 50 parts per million, the systems shall be flushed out with clean water until the residual content is not greater than 0.2 parts per million.

Flush the entire system including all fixture outlets, dead ends and other points where stagnant water tends to collect.

All valves in lines being sterilized shall be opened and closed several times during the contact period.

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3.15A.6 HEATING, VENTILATING AND AIR CONDITIONING

3.15A.6.1 General

A. Drawings

The drawings do not indicate all offsets, fittings, and accessories which may be required. Contractor shall carefully investigate the conditions surrounding the installation of the Work, furnishing the necessary fittings which may be required functionally and/or by applicable codes and standards to complete the installation.

The general arrangement indicated on the drawings shall be followed as closely as possible. In the event a field condition arises which makes it impossible or impractical to install the Work as indicated on the drawings, Contractor shall submit in writing or verbally the proposed "departures" to the Engineer for approval. Only when notified to do so in writing by the Engineer shall the Contractor proceed with the installation of the "departure."

B. Weatherproofing

Equipment, motor(s), bearings, V-belts or other Materials requiring protection from weather when located on top of building shall be provided with adequate weatherproof protection. Weatherproof protection shall be constructed to prohibit water from standing or puddling on equipment.

C. Installation

All equipment provided under this section of the Specification shall be installed in strict accordance with manufacturer's recommendations and/or applicable codes and standards.

Should the drawings or Specification indicate the equipment is to be installed in a manner not in accordance with the manufacturer's recommendations or applicable codes, Contractor shall obtain direction from the Engineer prior to proceeding with the installation.

3.15A.6.2 Heat Pump

Electric Heat Pump shall be Carrier single-package, roof-mounted unit, model 50YQ of size as shown on the drawing schedule. Unit shall be factory assembled, tested, have complete refrigerant charge and be ready to operate. A low-voltage transformer (24 volt) shall be factory installed on unit for external control-circuit. Air filter shall be disposable type.

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3.15A.6.3 Locker/Toilet Exhaust Fans

The ceiling-mount exhaust fans shall be per drawing schedule. Furnished complete with grille-duct work, roof jack and shutter, and backdraft damper. Fan shall be U.L. listed and tested and rated in accordance with the applicable AMCA Standard Test Code and Certified Rating Seal. Local "ON-OFF" and speed control (solid state) switches shall be furnished to operate the fans.

3.15A.6.4 Ductwork

All duct work shall be constructed, erected and tested in accordance with the procedures detailed in ASHRAE Handbook of Fundamentals or the applicable standards of SMACNA.

Contractor shall install the ducting in the approximate locations indicated on the drawings. All duct work shall be securely anchored to the building in an approved manner that will render it free from vibration and lateral movement. Hanger straps shall be 1 in. X 16 Ga. on 6 ft. - 0 inch C.C. or 12 Ga. wire.

Duct work shall be galvanized steel conforming to SMACNA Low Pressure Duct Standards for 1.0" W.G. Class. An equivalent installation utilizing fiberglass duct board is acceptable.

Curved elbows shall have a centerline radius not less than one and one-half times the width of the duct. Where abrupt turns and square elbows are used, turning vanes shall be provided.

3.15A.6.5 Volume Dampers

Volume dampers shall be provided and installed as indicated on the drawing and as required for proper balancing of the systems.

Ducts shall be marked to indicate permanent damper position after the air distribution system has been tested and balanced.

3.15A.6.6 Turning Vanes

Turning vanes shall be hollow vane type as manufactured by Duro-Dyne or Engineer approved equal. The vanes shall be mounted on a heavy gauge rail and shall be secured to the ducts with sheet metal screws.

3.15A.6.7 Ceiling Diffusers and Registers

Return air registers shall be Krueger Series No. S80 ceiling mount, with opposed blade volume damper of the sizes and capacities shall be as indicated on the drawings.

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Rectangular supply ceiling diffusers shall be Krueger Series 180. The sizes and capacities shall be as indicated on the drawings. The diffuser assembly shall have a baked white enamel finish.

3.15A.6.8 Insulation

Concealed duct work shall be insulated with duct wrap. The insulation shall be firmly wrapped around the ducts with all joints lapped a minimum of 2 in. Securely fasten insulation in place with 16 gauge soft annealed black or galvanized wire spaced not more than 12 in. on centers for straight runs and 3 in. on-centers for elbows and fittings.

Exposed or roof mounted ductwork shall be internally lined with insulation. Secure the lining to all interior sides of the duct work with a continuous coating of Benjamin Foster 80-99 adhesive and Omark Insul-Pins Mechanical Pins on 14 in. centers on seams and butt ends. All joints and seams shall be coated with adhesive to ensure an approved erosion resistant coating in the air stream throughout the entire length of insulation.

All thermal duct wrap and lining shall conform to the provisions of the Uniform Building Code, 1976 Edition, Section 1005.

3.15A.6.9 Counterflashing

Where ducts penetrate the roof, all necessary counterflashing shall be furnished and installed.

3.15A.6.10 Controls

Contractor shall provide an automatic control system for the HVAC system complete with electric thermostat, time clock, and bypass timer as shown on the drawings.

The electric time clock shall be Paragon 7-Day Calender Dial Control model 7007-0, or approved equal, which shall turn the HVAC System "ON" and "OFF" automatically at set hours of each day and set days of each week. The time clock control shall only be by-passed by a By-pass Timer, R.H. Rhodes or approved equal. The thermostat shall have the capability of terminating all heating at a temperature no more than 70°F. The thermostat shall also be capable of causing continuous operation of the indoor fan.

Contractor shall be responsible for the proper coordination of all control Work and electrical Work in connection therewith. Contractor shall also be responsible for the proper operation of the entire system.

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3.15A.6.11 Air Balance

After completion of installation, Contractor shall engage the services of an independent test and balance agency which shall test, balance, and regulate the various air systems to provide quantities and capacities indicated. The test and balance agency shall furnish three copies of a written report providing all necessary data to evaluate the test and balance. The report shall contain all CFM quantities of supply, return, exhaust systems, total static resistance of the fans, leaving and entering coil temperatures, amperage and horsepower readings of the motors, fans and motor pulley sizes and speeds, including the manufacturer's model number and size for each item of equipment.

3.15A.7 ACCEPTANCE

Acceptance of the completed Work shall include all Work performed to the satisfaction of the Architect.

END OF SUBSECTION 3.15A

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SUBSECTION 3.16 - ELECTRICAL

Part 3.16A
Electrical, General

DESCRIPTION

3.16A.1 SCOPE OF WORK

Contractor shall furnish all Work required to furnish and install the electrical Work as indicated on the drawings and described herein, except as specifically excepted.

3.16A.2 MAJOR ITEMS OF WORK

The major items of work include, but are not limited to, furnishing and installing the following:

1. Install 100 amp breaker in main switchboard (MSB) and underground feeder and conduit to panel PP10.
2. Furnish and install new panel, 120/208 volt, 3-phase, 4 wire and connections to heating and air conditioning.
3. 120/208 volt, 3-phase, 4-wire wye system for general power, receptacles, lighting, heating and ventilation.

3.16A.3 WORK NOT INCLUDED

The following Work, and any other so designated on the drawings, will be installed or performed by others, but Contractor shall make all necessary provisions for attaching or connecting his Work thereto. Contractor shall set all necessary equipment and Materials and shall furnish other contractors with all drawings and directions necessary to enable them to properly construct their work so that the entire system shall be properly connected.

- A. All painting except as otherwise specified.
- B. All work and materials expressly or obviously belonging to others and neither specified nor indicated on the drawings as belonging to this Work.

3.16A.4 CODES AND STANDARDS

The Work shall be in compliance with the following codes and standards, as amended to the date of this Specification, which by reference are included as part of this Specification:

1. National Electrical Code (NEC)
2. California Administrative Code, Title 24

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3. Occupational Safety and Health Act (OSHA)
4. All other applicable local codes or ordinances

When this Specification or the drawings call for or describe materials, workmanship or construction of a better quality, higher standard or larger size than is required by the above rules and regulations, the provisions of this Specification and the drawings shall take precedence over the requirements of the said rules and regulations.

3.16A.5 LOCATIONS

- A. The locations of conduit, outlets, Apparatus and equipment indicated on the drawings are approximate only and shall be changed to meet architectural and structural conditions as required.
- B. Install conduit and equipment so as to avoid obstructions, preserve head room and keep openings and passageways clear. Make changes approved by the Engineer which may be necessary in order to accomplish this.
- C. The drawings are essentially diagrammatic to the extent that many offsets, bends, special fittings and exact locations are not indicated.

3.16A.6 SHOP DRAWINGS

- A. Five copies each of the following detailed shop drawings shall be submitted to the Engineer for approval within 30 days after award of the Purchase Order.
 1. Lighting, Power, and Receptacle Panels.
 2. Heating Contactors.
 3. Lighting Fixtures.

3.16A.7 CUTTING AND PATCHING

- A. Contractor shall do the drilling, cutting and patching of the general construction Work, rough finish and trim which may be required for the installation of his equipment. All patching shall be of the same materials, workmanship and finish as the original work, and shall accurately match all surrounding Work.
- B. All cutting and patching shall be done under the Engineer's supervision.

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3.16A.8 EXCAVATION AND BACKFILL

Contractor shall do all necessary excavation for the installation of all Work included in this Subsection. After the Work has been installed, inspected and approved, all excavations shall be backfilled and compacted in accordance with the Earthwork Subsection 3.2A in this Specification.

3.16A.9 SLEEVES AND INSERTS

Contractor shall furnish and install all required sleeves and inserts prior to the pouring of concrete.

3.16A.10 CLEANING EQUIPMENT AND PREMISES

- A. Contractor shall leave all parts of the Materials and equipment clean.
- B. During the progress of the Work keep the premises free of debris, packaging and the like and, upon completion of the Work, remove debris and surplus material from the premises and leave them broom clean.

3.16A.11 TESTS

- A. Contractor shall furnish all necessary instruments and equipment required for making tests and shall make tests of all wiring for shorts, open circuits, grounds, etc., and shall immediately correct any defective Work.
- B. When the entire installation has been completed and all lighting equipment has been installed, Contractor shall test all circuits and all switches, and demonstrate that the operation of the systems is in accordance with the drawings and this Specification.

3.16A.12 MATERIALS AND EQUIPMENT

- A. Within four weeks after award of the Purchase Order, deliver to the Engineer a complete list of all Materials, equipment, Apparatus and fixtures proposed for use. Include size, name of manufacturer and such other information required to identify items, or state that all Material furnished will be as specified. Where Specifications show a choice, indicate the selection made.
- B. All equipment used for the same purpose shall be of the same make. Equipment and Material shall be new and free from all defects.

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3.16A.13 SUBSTITUTIONS

A. Where trade names, catalog numbers and manufacturers of materials or equipment, are specified herein, they are maintained for the purpose of establishing standards of quality required.

B. Contractors shall base their bids on the materials or equipment thus specified. Should the Bidder desire to propose an alternate, he shall submit with his bid, a complete list of all items which differ from those specified, together with the increase or reduction in cost due to such substitution.

C. If no such list is submitted for approval or if alternate materials or equipment thus submitted are not approved before the Purchase Order is signed, it shall be understood that all materials and equipment, as specified herein, shall be used throughout the electrical Work.

3.16A.14 ORDERING OF MATERIALS AND EQUIPMENT

A. Within ten days after award of the Purchase Order, Contractor shall arrange for the purchase and delivery of all Materials and equipment required, in ample quantities and at the proper times.

B. Contractor shall deliver to the Engineer a complete list of Materials and equipment ordered, giving description, plate numbers and date of orders. If such a list is not delivered to the Engineer, Edison reserves the right to purchase the required materials and equipment and deduct the cost thereof from the Purchase Order sum.

C. Contractor shall immediately take up with the Engineer any inability to obtain suitable delivery of any Apparatus or materials required. Substitutions on account of inability to obtain delivery will not otherwise be allowed as the Work proceeds.

EXECUTION

3.16A.15 WIRING SYSTEMS

A. The lighting and power system shall be 120/208, three phase, 4 wire 60 Hz.

B. All neutral wires shall be white and equipment ground wires shall be green as approved by Code.

3.16A.16 POWER AND LIGHTING PANELBOARD 120/208V, 3Ø 4W

Contractor shall furnish and install one receptacle panelboard, Square D type "NQO" or equal approved by the Engineer, as made by Federal Electric Products

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Company, General Electric, ITE, Westinghouse or GTE Sylvania, with branch circuit breakers as indicated on the drawings. A typed panel schedule of circuits shall be mounted on the back of the panel door. The panel schedules shall have metal frames with sheet Lucite covers.

3.16A.17 DISCONNECTING SWITCHES

Safety Switches shall be quick-make-quick-break 600V enclosed (NEMA Type 1), externally operable, and unfused - except where otherwise shown on the drawings. Switches shall be of the proper ampere and voltage ratings, with the number of poles required to open all ungrounded conductors simultaneously. Where exposed to the weather, they shall have NEMA 3R weatherproof enclosures or be installed in a weatherproof housing.

3.16A.18 CONDUIT

All wiring, except where specifically mentioned otherwise, shall be installed in conduit as follows:

A. Conduit shall be rigid steel, galvanized or sherardized, or IMC standard thickness, equal to General Electric white or Walker "Dualcote" Sherardized, except short sections of flexible metallic conduit at motor connections or suspended lighting fixtures and radiant heaters and "Sealtight" for weatherproof requirements. Flexible metallic conduit or electrical metallic tubing may be used for concealed Work only where permitted by the authorities having jurisdiction. Rigid conduit or IMC, as specified above, shall be used for all runs in slab, underground or where exposed.

3.16A.19 INSTALLATION OF BUILDING CONDUIT

A. All conduit above ceilings and in walls shall be installed and concealed except as otherwise indicated on the drawings.

B. All conduit, outlet boxes, junction and pull boxes, etc., shall be installed so as not to interfere with piping, fixtures or equipment of other trades. The Contractor shall familiarize himself with the locations of pipes and equipment of other trades before installation.

C. All conduit 1 inch trade size and smaller may be installed within the floor slabs as approved by the Engineer. Conduit larger than 1 inch trade size shall be installed in the earth below the floor slab as specified and indicated.

D. Conduits approved for an exposed installation shall be grouped in neat parallel lines, properly supported, following the lines of the building structure as closely as possible and as directed.

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E. Conduit shall not be run through structural members of the building, except as specifically approved by the Engineer.

F. Conduit shall not be installed less than 6 inches from any hot water pipe.

G. Connectors for flexible metallic conduit shall be "Tite-Bite", "Tomic", "Jake" or equal type. Set screw type connector will not be acceptable.

H. All conduit to be installed in concrete Work shall be carefully laid and rigidly supported in the forms, as directed, in such a manner as to provide proper clearances, and so that all boxes and outlets will be in exact locations after concrete has set and forms are removed.

J. The joints in all conduit installed in the masonry Work and below the floor slabs on the ground shall be made liquid tight. The outside of each coupling and all wrench abrasions shall be coated with asphaltum compound.

K. All conduit larger than 1 inch trade size to be installed below the floor slabs on the ground shall be made up of full length uncut sections where possible and joints shall be thoroughly red leaded. Conduit shall be thoroughly coated with black asphaltum paint before burial.

L. Run die over all factory threads and see that they are perfectly clean, free from all coating material so that conduit will make perfect metallic contact with the fittings. No running threads will be permitted in the conduit installation.

M. The ends of all conduit shall be cut square, carefully reamed out to full size and shouldered in the fittings.

N. Upon completion of any run of conduit, test the run and see that it is dry and perfectly free from all obstructions. Plug each end with conduit pennies and bushings and leave plugged until ready to pull wire.

3.16A.20 INSTALLATION OF YARD CONDUIT

A. All yard conduit shall be installed so as not to interfere with existing yard piping or new piping and equipment of other trades.

B. All buried metallic conduits shall be made up of full length, uncut sections where possible and joints thoroughly red leaded. Conduit shall be thoroughly coated with black asphaltum paint before burial. No conduit shall be run less than 18 inches below the ground and the trench shall be backfilled with firmly compacted earth.

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- C. All buried metallic conduits shall be 3/4 inch size or larger.
- D. Buried PVC conduit (schedule 40) may be used for yard lighting, power and control circuits as directed by the Engineer. Provide code size ground conductors.

3.16A.21 UNDERGROUND DUCTS

- A. PVC encased in a 3 inch concrete envelope as directed by the Engineer is acceptable as underground ducts for power and communication feeders.
- B. Minimum slope for duct runs shall be two inches per 100 feet.

3.16A.22 SUPPORT OF CONDUIT AND OUTLETS

- A. Outlets boxes shall be accurately placed, independently and securely fastened to the structure, and in concealed work shall be set flush with the finished surfaces of the walls or ceilings.
- B. Bar hangers fitted with fixture studs shall be used to support outlet boxes in stud partitions and furred or plastered ceilings.
- C. Concealed or exposed conduit 1 inch and smaller shall be supported to the building structure with pipe straps, spaced not to exceed 5 foot intervals, and at outlet boxes as required by code.
- D. All concealed or exposed conduit larger than 1 inch shall be suspended with pipe hangers or grouped in racks.

3.16A.23 OUTLET AND JUNCTION BOXES

- A. All outlet boxes and covers shall be galvanized or sherardized, one-piece pressed steel, knockout type, of approved make, except boxes marked weather-proof shall be Crouse Hinds Type "FS" or "FD".
- B. The size of each box for light outlets and junction boxes shall be determined by the number of wires or conduits, or size of conduits entering the box, but shall be not less than 4 in. square.
- C. Outlet boxes and junction boxes shall be equipped with plaster rings, extension rings or fixture studs as may be required.
- D. Outlet boxes for local switches shall be 4 or 4-11/16 inches square with switch plaster rings for one or two-gang. Use 4-11/16 inch square boxes with switch plaster rings where two-gang switches occur.

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E. Outlet boxes for receptacles, telephones, etc., shall be 4 inches square or larger if necessary with single switch plaster rings.

F. Approved factory made knockout seals shall be used in all boxes in unused openings or where knockouts are not intact.

G. All outlet boxes shall be used as pull boxes wherever possible. Special junctions and pull boxes shall be installed only in approved locations or as indicated on the drawings.

H. The locations of electrical machinery, outlets and equipment indicated on the drawings are approximately correct. However, the Contractor shall consult the Engineer prior to installation for the exact location of outlets. The Engineer reserves the right to make any reasonable changes in location of the outlets, Apparatus or equipment up to the time of rough-in without additional costs. Locations of connections to electrical equipment furnished by others shall be taken from shop drawings of such equipment.

3.16A.24 FITTINGS

A. Contractor shall furnish and install all fittings, special devices and materials which may be required for the proper installation of the conduit systems.

B. Elbows, locknuts, bushings and couplings shall be of the same make, quality and finish as the conduit used.

C. Special fittings as may be required shall be Appleton or Crouse-Hinds.

D. Fittings for thin wall conduit shall be watertight, compression type.

3.16A.25 PLATES

A. Furnish and install stainless steel plates, as made by Sierra Manufacturing Company "S" line on all outlets for local switches, receptacle, telephone, junction boxes, etc., for flush installations.

B. Telephone outlet plates shall be Sierra Telephone Company devices. Standard horizontal split wall plates for cable lead in. One gang CAT No. S-753.

3.16A.26 WIRE AND CABLE

A. Furnish and install all wire and cable as indicated and as required to complete the installation.

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B. Conductors in all runs shall be 600V insulated copper. Use type THW for all feeders in damp locations. For all other locations, use type TW.

C. No wire smaller than No. 12 AWG gauge shall be used in the light and power wiring. No. 8 AWG gauge and larger shall be stranded.

D. Cable and wires shall be Anaconda, General Cable, General Electric, Rome or Triangle wire and cable. Deliver wire to the Jobsite in unbroken packages, bearing the Underwriter's and manufacturer's labels, showing the date of manufacture and the maximum allowable voltage.

3.16A.27 INSTALLATION OF WIRE AND CABLE

A. Wire and cable shall not be installed until all debris and moisture is removed from the conduits, boxes and cabinets. No lubricants shall be used except powdered soapstone to pull in wires and cables.

B. Provide pigtail splices with 8 inch long leads in all light, power and equipment outlet boxes for connections to lighting fixtures, receptacles, etc.

3.16A.28 WIRE JOINTS AND TAPING

A. Joints in wires smaller than No. 6 AWG shall be made with M.M.&M. "Scotchlok" solderless spring connectors or with ideal "Wire-Nut" or "Wing-Nut" solderless spring connectors. Joints in wires No. 6 AWG and larger shall be made with approved solderless connectors.

B. Make connections to switch or busbar lugs with similar approved solderless copper lugs for all wires No. 6 AWG and larger.

C. Joints shall be insulated and taped. Use half wrap rubber or varnished cambric and two layers of half wrap approved friction tape. Insulation or joints shall be built up to equal that on the wire and the outside painted with approved compound. Scotch tape No. 33 applied in a minimum to two layers of half wrap or built up to match the overall thickness of insulation of the cable may be used in lieu of above insulation and tape.

3.16A.29 TAGGING

A. All branch circuits shall be left tagged in the panelboards and in all ceiling junction boxes for the purpose of identifying the various circuits.

B. Feeders and mains shall be tagged in the switchboards.

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C. The method of tagging shall be with Brady adhesive-type markers as distributed by Graybar Electric Company.

D. Circuits shall be identified in the following manner, for example: "LA-1", "EA-1", Gnd., etc.

E. Markers shall be applied after wire is installed in the conduit.

3.16A.30 GROUNDING

A. Make good contact at all panel boards, outlet boxes, junction boxes and wherever the conduit run is broken. Permanently and effectively ground all metallic conduit, fixtures, motors, lighting service and other equipment as required by all applicable codes and regulations.

3.16A.31 EQUIPMENT CONNECTIONS

A. All outlets, devices, equipment, etc., furnished and installed under this Contract shall be completely connected to the circuits and feeders.

B. Contractor shall provide all fittings, flexible conduits, etc., required to complete the connection of all devices, motors and equipment including the complete connections to the heating, ventilation and air conditioning equipment.

3.16A.32 RECEPTACLES

A. Receptacles shall be Hubbell as specified in drawings. See Electrical Symbol List.

B. Furnish and install duplex convenience receptacles in the locations as specified on the drawings.

C. Weatherproof receptacles shall be used outside and other locations as specified.

3.16A.33 LOCAL SWITCHES

A. Furnish and install Toggle Type switches as specified on the Electrical Symbol List, with composition bases and ivorine handles at all local switch outlets indicated on the drawings. Switches shall be 20A, 120V Hubbell #1221-I or equal.

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3.16A.34 LIGHTING FIXTURES AND LAMPS

- A. Contractor shall furnish, install and connect all new lighting fixtures at all fixture locations and at all lighting outlets specified on the drawings. These fixtures shall be complete with glassware, fitters, canopies, sockets, reflectors, wiring and accessories necessary for their complete installation.
- B. All fluorescent fixtures shall be furnished complete with C.B.M. and E.T.L. "P" rated approved high power factor ballasts and standard warm-white, rapid start, T-12 fluorescent lamps.
- C. The incandescent lamps shall be 120V inside frosted.
- D. Lamp sizes shall be governed by the wattages at outlets as specified on the drawings.
- E. Contractor shall furnish and install all fixture supports.
- F. All fixtures to be furnished are listed and described in the fixture schedule.
- G. Immediately prior to acceptance inspection, all fixtures shall be washed and provided with new lamps.

3.16A.35 NAMEPLATES

- A. Contractor shall provide and install nameplates for panelboards, heating and ventilation control panels, disconnect switches, motor starters and other major equipment.
- B. The nameplate shall bear the Apparatus designation and shall be as approved by the Engineer.

3.16A.36 ACCEPTANCE

Acceptance of the completed Work shall include Engineer receiving all submittals specified, and all Work performed to the Engineer's satisfaction, including final testing of circuitry and correct operation of the completed electrical systems.

END PART 3.16A

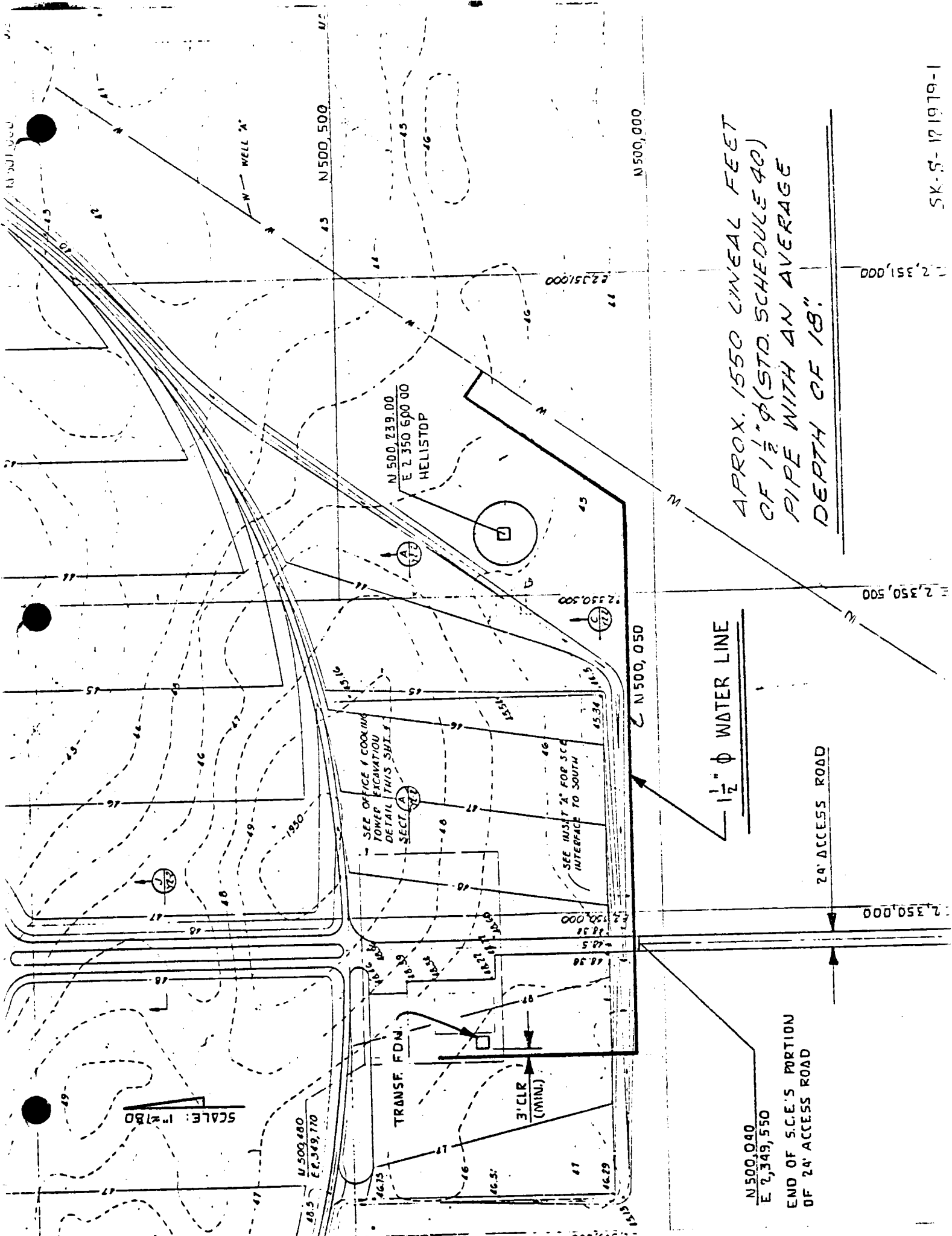
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APPENDIX 3A

EDISON DRAWING LIST

<u>Drawing No.</u>	<u>Title</u>
<u>Architectural</u>	
5157625-0	A-1 - Key Plan, Drawing List, Floor Plan, Sections, and Elevations
5157626-0	A-2 - Interior Elevations and Miscellaneous Details
<u>Civil/Structural</u>	
5133446-0	S-1 - Typical Masonry Details and General Notes
5133446-0	S-4 - Restroom Facility Plan, and Sections
5133447-0	S-2 - General Foundation Arrangement Plan
5133450-0	S-5 - Restroom Facility Sections and Details
5133442-0	C-6 - Restroom Facility Leaching Field
SK-5-121979-1	1 1/2 inch Waterline
<u>Mechanical</u>	
5157632-0	M-1 - HVAC Plan and Details
5157631-0	P-1 - Plumbing and Details
<u>Electrical</u>	
5157633-0	E-1 - Lighting and Power Plan, Schedules and Symbols

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SCALE: 1"=180'

N 500, 480
E 2, 349, 770

TRANSF. FDM.

3' CLR (MIN.)

SEE OFFICE FOR COOLING TOWER EXCAVATION DETAIL THIS SHEET SECT. A

SEE INSET 'A' FOR S.C.C. INTERFACE TO SOUTH

N 500, 239, 00
E 2, 350, 600 00
HELIPORT

WELL 'A'

1 1/2" Ø WATER LINE

24' ACCESS ROAD

N 500, 040
E 2, 349, 550
END OF S.C.E.'S PORTION OF 24' ACCESS ROAD

APROX. 1550 LINEAL FEET OF 1 1/2" Ø (STD. SCHEDULE 40) PIPE WITH AN AVERAGE DEPTH OF 18"

N 500, 500

N 500, 000

N 500, 050

E 2, 351, 000

E 2, 350, 500

E 2, 350, 000

SOUTHERN CALIFORNIA EDISON COMPANY
Rosemead, California

PROPOSAL REQUIREMENTS

SPECIFICATION 40-0176

CONSTRUCTION OF
REST ROOM FACILITY
SOLAR ONE GENERATING STATION

Part A
Information With Proposal

A.1 SCOPE

Bidder shall comply with all provisions of these Proposal Requirements. These Proposal Requirements shall be submitted with all instructions fulfilled and all spaces filled in to present a complete proposal for the Work described in the Specification. Incomplete proposals may be rejected.

Bidder shall not substitute, nor use a preprinted reference to Bidder's general terms and conditions in lieu of Edison's General Terms and Conditions as set forth in Section 1 of the Specification. Any proposal received with such substitution shall be considered nonresponsive and be subject to rejection.

All proposals submitted by bidders, including drawings and other data, shall become the property of Edison and shall not be used for any purpose other than in connection with the procurement of the Work.

A.2 INSPECTION OF JOBSITE

Each bidder, before submitting its proposal, shall visit the Jobsite to satisfy itself as to the nature and location of the Work, the general and local Jobsite conditions, the transportation and handling of Material, the environmental and physical conditions at the Jobsite, the character of the equipment, facilities, Edison-furnished equipment and services, labor conditions, safety and security precautions, and all matters which may affect the performance of the Work and its cost. Such Jobsite visits shall be arranged by and made with the Buyer. Notification of the initial Jobsite visit shall be made through the Buyer.

A.3 CONSTRUCTION PLAN

Bidder shall provide an attachment containing the following information:

- A. A narrative description of how the Work is planned to be performed including the Work area and laydown area required.

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Restroom Facility
Solar One

Bidder _____

Date _____

PROPOSAL REQUIREMENTS

- B. The number and size of construction teams to be utilized.
- C. A listing of the major types and quantities of construction equipment required (both Bidder owned and leased).
- D. The quantities of Material required for the Work.
- E. A summary milestone schedule showing the time phasing of the main activities to be performed within the start and Work Completion Date.

A.4 EXPERIENCE RECORD OF SUPERINTENDENT

Bidder shall provide an attachment listing the name(s) and experience record of the construction superintendents whom it expects to employ in the Work. The record shall cover in detail the superintendent's construction experience in the subject Work, and indicate his reliability for satisfactorily meeting scheduled completion dates.

The construction superintendent shall be at the Jobsite at all times during construction and shall be authorized to speak and act on behalf of Contractor.

A.5 SUBCONTRACTORS

Edison is actively involved in developing and employing minority owned and small business enterprises, and encourages its suppliers and contractors to identify and utilize minority owned and small business subcontractors when contracting for work with Edison.

Bidders shall provide evidence that minority/small business subcontractors have been solicited for subcontract work if such work is required by the Specification.

Bidder shall list the Subcontractors and the Work to be performed by each Subcontractor.

<u>Subcontractor</u>	<u>Minority Subcontractor Yes/No</u>	<u>Work by Subcontractor</u>
_____	_____	_____

A.6 TECHNICAL DEVIATIONS

Bidder shall provide a complete list of technical items of deviation and exception to the Specification on which this proposal is based, referencing the Section No. and explaining the deviation. If there are no deviations, Bidder shall so indicate.

SPECIFICATION 40-0176
Restroom Facility
Solar One

Bidder _____

Date _____

PROPOSAL REQUIREMENTS

A.7 SUPPLEMENTAL INFORMATION

Bidder shall furnish the following supplemental information as part of its proposal:

Maximum power demand at 480 volts, 3 phase, will be _____ kVA.

END PART A

SPECIFICATION 40-0176
Restroom Facility
Solar One

Bidder _____

Date _____

SOUTHERN CALIFORNIA EDISON COMPANY
Rosemead, California

PROPOSAL REQUIREMENTS

SPECIFICATION 40-0176

CONSTRUCTION OF
RESTROOM FACILITY
SOLAR ONE GENERATING STATION

Part B
Commercial Information

This Part B shall be individually stapled or clipped for easy removal from the balance of the proposal.

B.1 PRICES

Bidder shall submit a fixed price quote, including all taxes.

GRAND TOTAL PRICE for performing all the Work and all provisions of the Specification:

\$ _____
(Figures)

_____ Dollars
(Words)

B.1.1 Base Bid Breakdown

The following items represent an allocation of the Grand Total Price and shall not be used for any adjustments of that price.

<u>Item No.</u>	<u>Description</u>	<u>Price</u>
1.	Jobsite Preparation	\$ _____
2.	Building Construction	\$ _____
3.	Installation of Utilities	\$ _____
4.	Sanitation (Septic, leach, etc.) System	\$ _____
5.	Temporary Waterline	\$ _____

SPECIFICATION 40-0176
Restroom Facility
Solar One

Bidder _____

Date _____

PROPOSAL REQUIREMENTS

B.2 TERMS OF PAYMENT

Bidder shall state the specific terms of payment proposed and a schedule of such payments. If specific terms of payment are not proposed, Edison may designate "net 30 days" as applicable.

B.3 WORK SCHEDULE

The Work shall be completed on _____, as specified in Section 2.

At the option of Edison, the Work may be started ____ day(s) before or ____ day(s) after the specified starting date, without affecting prices. The Work duration remains unchanged.

B.4 LABOR CONTRACTS

Bidder shall list its present major labor contracts and the date of expiration for such contracts.

Contract	/	Date
Contract	/	Date

B.5 PROPOSAL EXPIRATION DATE

This proposal shall remain in force for a period of 90 calendar days from the day appointed for which bids are due.

SPECIFICATION 40-0176
Restroom Facility
Solar One

Bidder _____
Date _____

PROPOSAL REQUIREMENTS

B.6 REPRESENTATION

The undersigned hereby declares, as bidder, that the only persons or parties interested in this proposal as principals are those named herein; that this bid is made without any connection with any other person or persons making a bid for the same purpose; that this bid is in all respects fair and without collusion or fraud; and that if the bid, as submitted herein be accepted by Edison, bidder shall promptly execute and return to Edison the acceptance copy of a Purchase Order issued by Edison in accordance with the Specification; that Bidder shall perform the Work and all obligations of bidder and shall complete the Work within the time specified therein; and shall accept in full payment therefor the prices named herein.

Date _____

Bidder

Bidder's License No.(s) and Classes
(if applicable)

Address and Telephone No.

By

Title

SPECIFICATION 40-0176
Restroom Facility
Solar One

Bidder _____

Date _____



DEPARTMENT OF ENERGY
SAN FRANCISCO OPERATIONS OFFICE

CONTRACTOR REQUEST FOR PATENT CLEARANCE
FOR RELEASE OF UNCLASSIFIED DOCUMENT

Prime Contract No. DE-ACo3-77SF10501
Subcontract No. NA
Report No. (STMPO 499) DOE/SF/10501-022
Date of Report December 1979
Name & Phone No. of DOE Technical Representative Mike Lopez (415) 273-4264

TO: Roger S. Gaither, Asst. Chief for Prosecution
Office of Patent Counsel/Livermore Office
P.O. Box 808, L-376
Livermore, California 94550

FROM: Southern California Edison
P.O. Box 800
Rosemead, CA 91770

- Document Title: **Construction of Restroom Facility Solar One Generating Station**
- Type of Document: Technical Report, Conference Paper, Journal Article, Abstract or Summary, Copy of Oral Presentation, Other (please specify): _____
- In order to meet a publication schedule or submission deadline, patent clearance by (Routine) would be desired.

SENDER IS TO CHECK BOX #4 OR #5 BELOW.

4. I have reviewed (or have had reviewed by technically knowledgeable personnel) this document for possible inventive subject matter (Subject Inventions) and that no inventions or discoveries (Subject Inventions) are deemed to be disclosed in this document except as stated below:
- Attention should be directed to pages _____ of this document.
 - This document describes matter relating to an invention:
 - Contractor Invention Docket No. _____
 - A disclosure of the invention was submitted to DOE on _____ (date)
 - A disclosure of the invention will be submitted shortly _____ (approximate date)
 - A waiver of DOE's patent rights to the contractor:
 has been granted, has been applied for; or will be applied for _____ (date)
5. This document is being submitted, but no review has been made of this document for possible inventive subject matter.
- Please provide copy of clearance to: So. Calif. Edison Company
%Joyce Wells Room 497 P.O. Box 800
Rosemead, CA 91770

Reviewing/Submitting Official: Name (Print/Type) Bill Bon KleinSmid
Title Solar One Program Director
Signature William von KleinSmid Date 9-25-84

TO: INITIATOR OF REQUEST
FROM: ASSISTANT CHIEF FOR PROSECUTION
Office of Patent Counsel/Livermore Office

- No patent objection to above-identified release.
 Please defer release until advised by this office.

Signed Harold M. Dixon Date Mailed 10/9/84