SOLICITATION NO. DACW37-02-Q-0030

OPERATION AND MAINTENANCE

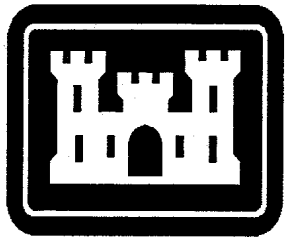
GULL LAKE DAM AND RESERVOIR, GULL LAKE

BRAINERD, MINNESOTA

SPECIFICATIONS
FOR

GULL LAKE MODERNIZATION
SHOWER BUILDING RENOVATION

September 2002



US Army Corps of Engineers
St. Paul District

CONSTRUCTION PROJECT DOCUMENTS

OPERATION AND MAINTENANCE
GULL LAKE DAM AND RESERVOIR, GULL LAKE
BRAINERD, MN

GULL LAKE MODERNIZATION
SHOWER BUILDING RENOVATION

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SECTION 01000

GENERAL

GENERAL

1.1 General

1.1.1 ORGANIZATION OF SPECIFICATIONS

The specifications which govern the materials and equipment to be furnished and the work to be performed under this contract are listed in the Table of Contents. No attempt has been made in the specifications to segregate work to be performed by any trade, craft, or subcontractor. Any segregation between the trades or crafts shall be solely a matter for agreement between the Contractor, Contractor's employees, and subcontractors.

1.1.2 Summary of Work: The following is a summary of work required under this contract. All work shall be completed by October 31st, 2002. Contractors should note the scheduling restrictions for the work listed below.

a) Remove existing cedar shake roof and install new metal roof system
b) Repair Exterior Doors
c) New electrical heaters and wiring

1.1.3 Site Visit: A site visit is recommended before bidding on this project. Contact Greg Struss at 218-829-3334

1.2 REFERENCES

Reference to the standards, specifications, or codes of any technical society, organization, or association, or local, state, or Federal authority shall mean the specific edition or revision listed.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SHOP DRAWINGS

1.3.1 The Contractor shall submit the safety plan, schedule, references, and license information with his quote.

2. PRODUCTS

2.1 APPROVAL OF MATERIALS OR ALTERNATES

Requests for approval of materials and products, or substitutes thereof, will not be considered prior to award of the contract.

2.2 WARRANTIES

Any items that are submitted for review or approval of the Contracting officer should include a copy of the manufacturer's standard warranty if one is available. Submit warranty information for the new roof system and for electric heaters.

3. EXECUTION

3.1 GROUNDS AND ROADWAYS

3.1.1 Availability of Grounds

The boundary limits of the grounds made available for the Contractor's use during the life of the contract are shown on the drawings.

3.1.2 Traffic hazards

When continuous haul operations or other condition created by the Contractor's operations result in interference or hazard to traffic on streets and highways, beyond that of ordinary public usage, the Contractor shall erect warning signs and provide flagging services as necessary to safeguard the public as required in SECTION 01500: TEMPORARY CONSTRUCTION FACILITIES.

3.1.3 Haul routes

The Contractor shall be responsible for securing all permits required along haul routes. The Contractor shall be the sole permittee and shall be responsible for meeting all obligations of the permits.

3.2 DISPOSAL OF DEBRIS AND WASTE

The Contractor shall be responsible for clean-up and disposal of all debris at the project work site. Disposal shall be off Government property. In the interest of conservation, it is required that the Contractor make a reasonable effort to dispose of the material offsite for some useful purpose. Timber may be cut into convenient lengths and utilized for making saw logs, posts, cordwood, wood chips for paper making or other uses, or other similar use.

3.2.1 Disposal in a locally operated sanitary landfill

Contractor shall select the disposal site (off site of Government property). The Contractor shall secure the required permits for disposal.

3.2.2 Disposal of Solid Construction Debris and Waste

Disposal of Solid Construction Debris and Waste shall consist of removal from Government property and disposal in compliance with Federal, state, and local requirements for solid waste disposal. Contractor shall select the disposal site.

3.3 EXISTING UTILITIES

3.3.1 General

The Contractor shall coordinate with the utility representatives listed below. The shower building has an existing 200 amp service and 2 electrical panels.

Electrical: Minnesota Power
1-800-228-4966

Water and Sewer: Gull Lake
Greg Struss
218-829-2797

3.3.2 Utilities

The approximate locations of known existing buried utilities and utilities in the shower building are shown on the drawings to the extent of available information at the time the drawings were prepared.

3.3.3 Interruption of Services

Utility services shall not be interrupted except for brief periods to facilitate cut-ins. The Contractor shall further coordinate with the owner of the utility and notify affected consumers at least 10 calendar days in advance of interruption of services.

3.3.4 Minnesota One Call Excavation Notice System

For any excavation work performed within the State of Minnesota, the Contractor shall meet the requirements of Minnesota Statutes, Chapter 216D "One Call Excavation Notice System." The Gopher State One Call notification center telephone numbers are:

Metro area	(612) 454-0002
Outstate	(800) 252-1166

3.5 SCHEDULING

3.5.1 General

It shall be the responsibility of the Contractor to schedule and execute the work, incorporating the necessary requirements set forth in these specifications. The Contractor shall develop and submit a schedule for completion of the work. This schedule shall be submitted with the quote for the work. The schedule shall list the starting and ending dates of work and a preliminary schedule of when work will be performed.

3.5.2 Notification

The Contractor shall inform the Government in writing within 5 days after receipt of notice to proceed and before work begins as to which hours of the day and days of the week work under this contract will be performed. The shower building and campsite has the least amount of visitors on Mondays and Tuesdays. The Contractor shall schedule any closures of the building on these two days. The Contractor may close the shower building during removal of the old roof system. After the roof is removed, the Contractor shall allow 1 hour (from noon to 1:00 PM), for campers to use the facility.

3.5.3 Scheduling Restrictions

The Shower Building is in use from May 1 through the third Monday in September. During this period, no work shall be performed on weekends and Federal Government holidays, unless authorized in writing by the Government. The Contractor shall perform all work from Monday through Thursday (8:00 AM to 8:00 PM) and Friday (8:00 AM to 3:00 PM). Additionally, no work shall be performed on Friday May 10th, Thursday May 23rd, and Friday May 24th.

3.6 CONSTRUCTION RESTRICTIONS

3.6.1 Blasting

Blasting will not be permitted.

3.7 OTHER CONTRACTS

The Contractor shall coordinate with other contractors in the performance of the work and schedule such work to provide for a minimum of delays and interferences. Coordination shall be through the Contracting Officer. Work listed below is currently required under separate contract or is scheduled to be awarded as a separate contract prior to completion of work under this contract. These contracts will be considered in the application of CONTRACT CLAUSE: OTHER CONTRACTS.

3.7.1 Other contracts: None.

3.8 SAFETY PLAN.

The Contractor shall submit a safety plan with the quote. Safety plan shall be in accordance with Federal OSHA rules and regulations. Contractor shall address safety of campers when using the facility during the one hour during the day. The Corps of Engineers safety regulations require all Contractor employees to wear hard hats and safety shoes.

3.9 EXPERIENCE.

The Contractor shall be an experience residential or commercial building Contractor and licensed by the State of Minnesota. Submit license information with the quote. At least two references shall be provided for work done within the last two years on similar type construction projects. Provide references with the quote.

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SECTION 01330

SUBMITTAL PROCEDURES

1 GENERAL

1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers as follows:

SD-01 Data

SD-04 Drawings

SD-06 Instructions

SD-07 Schedules

SD-19 Operation and Maintenance Manuals

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Government Approved

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the CQC requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Submit shop drawings to the following location:

US Army Corps of Engineers
Saint Paul District
190 East 5th Street
Saint Paul, Minnesota 55101

Attention: Tim Paulus, Design Branch

3.2 SUBMITTAL REGISTER (ENG FORM 4288)

The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

3.3 SUBMITTAL PROCEDURE

3.3.1 Submittal Copies

The Contractor shall submit 3 copies of each submittal (both government approved and for information only) unless otherwise indicated. Each transmittal shall address only one submittal item. Transmittals returned for resubmission shall be resubmitted in their entirety. When approved by the Contracting Officer, routine test reports and delivery tickets may be

submitted with daily quality control reports in place of following submittal procedures under this section.

3.3.2 Schedule

Shop drawings shall be submitted with ample time to secure Government approval prior to the time the items covered thereby are to be delivered to the site. Additional time should be allowed for possible resubmittal. Materials fabricated or delivered without Government approval of the shop drawing will be subject to rejection. All submittals shall be made prior to commencement of applicable work, and allow adequate time for government review acceptable to the Contracting Officer.

3.3.3 Shop Drawings

Shop drawings shall be reproductions on high quality paper with clear legible print. Drawings shall generally be bordered a minimum of one inch and trimmed to neat lines. Shop drawing quality will be subject to approval. Each shop drawing, including catalog data, shall be identified with a title block including the name of the Contractor, contract number, name and location of project, and name of the item of work or structure to which the shop drawing applies. Catalog data, including specifications and full descriptive matter, may be submitted as shop drawings. Catalog data must be supplemented as necessary to include all pertinent data to verify conformance to the contract documents. When catalog data includes non applicable data, the applicable data shall be clearly indicated.

3.3.4 Operation and Maintenance (O/M) Manuals

a. Provide O & M manual for the heaters. The Contractor shall submit three bound sets of operation and maintenance (O/M) manuals covering the equipment for which O/M data submittals are required. O/M manuals shall include the following:

1. Product literature, performance data, and ratings.
2. Installation instructions.
3. Operating instructions.
4. Maintenance instructions and address of authorized service center.
5. Wiring diagrams and parts lists.
6. Shop and setting drawings.
7. Test data and certifications.

b. Designate correct model number where literature covers more than one model.

c. Write and furnish duplicate operation and maintenance instructions for items fabricated or assembled by Contractor.

d. Data shall be folded or photographically reduced to 8-1/2" x 11" size and placed into 3-ring hard cover binders; group according to specification section and file with tab pages on which the following is to be typed: Item, Manufacturer, Contractor's Order No., Supplier's Order No., and Manufacturer's Order No.

3.4 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.5 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Five copies of the submittal will be retained by the Contracting Officer and 1 copy of the submittal will be returned to the Contractor.

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SUBMITTAL REGISTER
(ER 415-1-10)

CONTRACT NO.

TITLE AND LOCATION: Gull Lake Modernization
Brainerd, Minnesota

CONTRACTOR

SPECIFICATION SECTION

ACTIVITY NO	TRANSMITTAL NO.	ITEM NO	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSIFICATION		REVIEWER	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
					DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	O&M MANUALS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERNMENT	CODE	DATE	
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.	aa.
			1000	Safety Plan	x																					
			1000	Work Schedule	x																					
			1000	State Minnesota License	x																					
			1000	References	x																					
																X										
			07317-1.02	Roof System	X											X										
			07317-1.02	Roof Samples								X				X										
			07710-1.02	Prefinished Metal Color Samples								X				X										

SUBMITTAL REGISTER
(ER 415-1-10)

CONTRACT NO.

TITLE AND LOCATION: Gull Lake Modernization
Brainerd, Minnesota

CONTRACTOR

SPECIFICATION SECTION

ACTIVITY NO	TRANSMITTAL NO.	ITEM NO	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSIFICATION		REVIEWER	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
					DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	O&M MANUALS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERNMENT	CODE	DATE	
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.	aa.
			09900-1.06	Paint Product Data	X											X										
			09900-1.06	Paint Color Charts								X				X										
						X										X										
			16000-1.E	Electric Heater Shop Drawings		X										X										
			16000-1.E			X										X										
			16000-2.J	Equipment O/M Manuals										X		X										
			16000A-1.16	Panelboard Shop Drawings		X										X										

SUBMITTAL REGISTER
(ER 415-1-10)

CONTRACT NO.

TITLE AND LOCATION: Gull Lake Modernization
Brainerd, Minnesota

CONTRACTOR

SPECIFICATION SECTION

ACTIVITY NO	TRANSMITTAL NO.	ITEM NO	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSIFICATION		REVIEWER	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
					DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	O&M MANUALS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERNMENT	CODE	DATE	
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.	aa.

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES

1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Site Plan; FIO.

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES

1.2.1 Temporary Electrical Facilities

The Contractor may use Government's existing power supply for construction purposes at no charge. Single-phase power is available at each facility where construction is being performed. Contractor shall be responsible for providing temporary wiring and facilities complying with local codes.

1.2.2 Sanitation

The Contractor shall provide sanitary facilities for use by construction personnel during the project. These facilities will include toilet, washing, and drinking water facilities.

1.2.3 Telephone

The Contractor shall make arrangements and pay all costs for their telephone facilities desired. Government personnel will not take or deliver messages for the Contractor.

1.3 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as

required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads.

1.4 CONTRACTOR'S TEMPORARY FACILITIES

1.4.1 Staging Area

The boundary limits of the grounds made available for the Contractor's use during the life of the contract are shown on the drawings as Work Limits. Trailers, materials, or equipment shall not be placed or stored outside the work limits.

2 PRODUCTS

2.1 BULLETIN BOARD AND PROJECT SIGN

2.1.1 Project Sign

The Contractor shall furnish and erect a Project sign in a location selected by the Contracting Officer at the project site within 15 days after receipt of the notice to proceed. The requirements for the sign and its content shall be as shown on the drawings at the end of this section. Sign shall be maintained throughout the construction period, and upon completion of the project, the sign shall be removed from the site. The PROJECT DESCRIPTION and PROJECT NAME shall be as follows:

PROJECT DESCRIPTION: GULL LAKE MODERNIZATION

PROJECT NAME: SHOWER BUILDING RENOVATION AND ADDITION

2.2 GOVERNMENT FIELD OFFICE

Not required.

3 EXECUTION

3.1 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

3.2 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will

become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

***

SECTION 07317

ROOF SYSTEM

PART 1 GENERAL

1.01 SUMMARY

A. Provide Met-Tile roof system as shown and as specified.

1.02 SUBMITTALS

A. Product Data: Submit product data and installation instructions.

B. Samples: Submit actual samples of roof system.

C. Make submittals in accordance with Section 01330.

PART 2 PRODUCTS

2.01 ROOF PANELS

A. Metal Tile roof system as manufactured by Met-Tile. Type and color to match the existing ranger building. Roof system shall be complete including fasteners, flashing, ridge caps, etc.

2.02 ASPHALT SATURATED FELT

A. ASTM D226, 30# type.

2.04 NAILS

A. As recommended by roof manufacturer; length shall be sufficient to penetrate sheathing min. 3/4 in and the Met-Tile roof system.

PART 3 EXECUTION

3.01 INSTALLATION.

Install roof system per manufacturer. Provide installation instructions for approval.

A. Felt Underlayment: Apply felt underlayment horizontally over entire surface lapping ends and succeeding courses a minimum of 2 in. Fasten felt with a sufficient number of galvanized roofing nails or noncorrosive staples to hold underlayment in place until roof system is installed.

B. Ice Guard: Apply ice guard underlayment on first row of sheeting. Fasten with a sufficient number of galvanized roofing nails or noncorrosive staples to hold underlayment in place until roof system is installed.

1. Weather Exposure: Match existing.
2. Ridges and Edges: Cut and fit at ridges and edges per manufacturer's instructions to provide maximum weather protection. Install fasteners at ridges of sufficient length to penetrate sheathing as specified.

D. Flashing: Install flashing as shown and per manufacturer's recommendation.

***

SECTION 07710

ROOF SPECIALTIES

PART 1 GENERAL

1.01 SUMMARY

A. Provide roof specialties as shown and specified.

1.02 SUBMITTALS

A. Color Samples: Submit samples of prefinished metal products for color selection.

B. Make submittals in accordance with Section 01330.

PART 2 PRODUCTS

2.01 ROOF VENTS

A. Gravity flow ridge vent constructed of aluminum with baked enamel finish. Color to match Met-Tile roof.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install roof specialties in accordance with manufacturer's instructions. Coordinate roof openings with structure below and roof deck to assure proper opening.

B. Install products level and secure in place as shown. Clean, adjust, and check for proper operation as required. Install protective covering to avoid damage due to roofing operations.

***

SECTION 08110

STEEL DOORS & FRAMES

PART 1 GENERAL

1.01 SUMMARY

A. Paint and clean-up existing steel doors and frames as shown and as specified. Clean rusted areas on frames and doors with wire brushes. Remove rusted out areas on frame and patch with grout. Use metal roof flashing paint to reinforce weakened metal areas.

1.02 Submittals

A. Make submittals in accordance with Section 01330.

PART 2 PRODUCTS

2.01 DOORS

A. The existing exterior steel doors shall be removed for refinishing. All door edges shall be thoroughly cleaned with wire brushes and prepared for the priming coat.

2.02 FINISH

A. Clean steel doors and frames of rust, dirt, grease, oil and foreign substances. Apply and bake-on 1 coat of rust inhibitive primer. Fill irregularities and apply an additional coat of manufacturer's standard primer, baked on. Finish paint shall be applied under Section 09900.

***

SECTION 09900

PAINTING

PART 1 GENERAL

1.01 SUMMARY

A. Provide painting as shown and as specified.

1.03 WORK INCLUDED

A. Work includes painting and finishing items and surfaces throughout the project as designated on Drawings, in Schedules, and in Specifications.

1.05 DEFINITIONS

A. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

B. SSPC - Steel Structures Painting Council.
ASTM - American Society for Testing & Materials.

1.06 SUBMITTALS

A. Product Data: Submit manufacturer's product data, including label analysis and application instructions for each material specified.

B. Color Charts: Furnish color charts of proposed products for selection.

C. Make submittals in accordance with Section 01330.

1.07 DELIVERY, STORAGE & PROTECTION

A. Deliver materials in original, unopened packages and containers bearing labels as follows:
Name or title of material.
Fed. Spec. number, if applicable.
Manufacturer's stock number.
Manufacturer's name.
Contents by volume, for major pigment and vehicle constituents.
Thinning instructions.
Application instructions.

PART 2 PRODUCTS

2.01 PAINT & COATINGS

A. Subject to compliance with the specified requirements, provide products by one of the following, or approved equal:

Pratt and Lambert Paints (P & L).
Sherwin-Williams Paints.
Benjamin Moore Paints.
PPG Industries, Inc. (Pittsburg Paints).
Coronado Paints.

B. Contractor shall submit a specific list of products it wishes to use if manufactured by a company other than that noted in Painting Schedules.

D. Contractor shall bear responsibility for compatibility of shop primers and field-applied finish coatings. When shop primer and finish coats are products of different manufacturers, manufacturer of finish coats shall certify in writing to the compatibility of products, or shall recommend a suitable barrier or intermediate tie coat to be applied prior to finish coats. Otherwise, provide recommended undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and within recommended limits.

E. Provide best quality grade of coatings as regularly manufactured by approved paint manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

PART 3 EXECUTION

3.01 SUBSTRATE EXAMINATION

A. Examine substrates and surfaces and conditions under which work is to be performed. Notify in writing of any conditions detrimental to performance of this work. Do not proceed with this work until unsatisfactory conditions have been corrected; starting of painting work will be construed as acceptance of surface and conditions within any particular area.

B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.02 SURFACE PREPARATION

A. Perform preparation procedures for each substrate in strict accordance with paint manufacturer's instructions and as specified.

B. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove mounted accessories if necessary for complete painting of items or adjacent surfaces. Following completion of painting of each space or area, reinstall removed items using workmen skilled in trades involved.

C. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

D. Prepare cementitious surfaces of concrete block to be painted by removing all efflorescence, chalk, dust, dirt, grease, oils and by roughening as required to remove glaze.

F. Clean nongalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of SSPC, unless blast cleaning is indicated elsewhere.

3.03 MATERIAL PREPARATION

A. Prepare painting materials in accordance with manufacturer's directions. Mix materials before application to produce uniform density. Stir as required during application of materials. Do not stir surface film into material; remove film and, if necessary, strain material before using.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.

3.04 APPLICATION

A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for type of material being applied.

B. Apply additional coats when undercoats, stains or other conditions show through final coat of paint; paint film shall be of uniform finish, color and appearance.

E. Finish exterior doors on tops, bottoms and side edges the same as exterior faces, unless otherwise shown.

F. Sand lightly between each succeeding enamel or varnish coat.

G. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise specified.

3.05 PROTECTION

A. Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damages by cleaning, repairing or replacing, and repainting.

B. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.06 CLEAN-UP

A. During progress of work, dispose of discarded paint materials, rubbish, cans and rags. Upon completion of painting work, clean all paint-spattered surfaces by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

PART 4 SCHEDULES

4.01 PAINTING SCHEDULES, GENERAL

A. Provide the following coating systems for the various substrates indicated. Named products are specified to establish a standard of type and quality. See article "Paint & Coatings" for acceptable manufacturers.

Ferrous Metal - Primed & Prefinished, including miscellaneous metal fabrications, steel doors and frames:

Touch up bare metal with primer.
2 coats P & L Effecto Enamel (alkyd, gloss).

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Division 16 - Electrical

SECTION 16000

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 WORK INCLUDED

A. The Contractor shall be responsible for the electrical work. Electrical work includes installation of unit heaters as shown. Requirements for the unit heaters are given in PART 2.

B. Job information: obtain at project site including:
...conditions affecting this section of the work
...accessibility
...storage space

1.02 INTENT OF DRAWINGS AND SPECIFICATIONS

A. These specifications and attendant drawings are intended to cover a complete installation of systems. The omission of expressed reference to any item of labor or materials necessary for the proper execution of the work in accordance with present practice of the trade shall not relieve the contractor from providing such additional labor and materials.

1.03 DRAWINGS

A. The electrical drawings do not attempt to show the complete details of project construction, which affect the electrical installation.

B. The contractor shall refer to the architectural, civil, structural, and mechanical drawings for additional details, which affect the proper installation of this work.

C. The contractor is cautioned that diagrams showing electrical connections and/or circuiting are diagrammatic only and must not be used for obtaining lineal runs of wire or conduit.

D. Wiring diagrams do not necessarily show the exact physical arrangement of the equipment.

1.04 REFERENCE STANDARDS

A. Abbreviations of standards organizations referenced in this and other sections are as follows:

ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
EPA	Environmental Protection Agency
ETL	Electrical Testing Laboratories, Inc.
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
ISA	Instrument Society of America
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
UL	Underwriters Laboratories, Inc.
TIA	Telecommunication Industry Association
EIA	Electronic Industry Association

1.05 CODES, FEES, AND SALES TAX

A. The electrical installation shall comply with rules and regulations of the latest editions of the Occupational Safety and Health Act, National Electrical Code, State Electrical Code, Local Municipal Code, the Electrical Utility furnishing electrical energy to this project, other applicable National Fire Protection Association Codes, National Electrical Safety Code, present Manufacturing Standards (including NEMA), and any other board having jurisdiction over the electrical installation.

1. Most recent adopted edition of applicable codes and publications include, but are not limited to:

a. National Electrical Code.
b. Americans with Disabilities Act.
c. NFPA 101 Life Safety Code.

B. The contractor shall not assume that any drawing or specification forming a part of the contract documents authorizes the violation of any code, regulation, or standard. Where conflicts arise, it shall be deemed that the contractor has estimated the cost of all work to be completed in accord with the prevailing code.

C. The contractor shall be licensed to perform electrical work and shall pay all required fees and sales or use tax as applicable to this branch of work.

D. Upon completion of the work, the contractor shall deliver to the Government without cost, all required certificates of inspection and approval.

1.06 MATERIAL AND EQUIPMENT

A. All material and equipment shall be new and of the quality used for the purpose in good commercial practice, and shall be standard product of reputable manufacturers.

B. Each major component of equipment shall have the manufacturer's name, catalog number, and capacity of rating, on a nameplate securely affixed on the equipment in a conspicuous place. All material shall have a U.L. label where U.L. tests exist.

1.07 SUBSTITUTIONS AND APPROVAL OF MATERIALS

A. See Division One for explanation of procedure. Further, the following shall apply:

1. All pertinent information shall be forwarded to the Contracting Officer in triplicate for review and approval. This information shall be similar in format to shop drawings. Should information be lacking, approval request will be denied.

2. The Contracting Officer will have the right to determine the acceptance of material. The Contracting Officer shall not be held responsible for approval requests nor is he guaranteeing that approval requests will be reviewed in time for bidding. All reasonable attempts will be made to review products in time for approval.

B. Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the Contractor is responsible for all costs involved in integrating the equipment or accessories into the system and the assigned space and for obtaining the performance from the system into which these items are placed.

1.09 DAMAGE TO OTHER WORK

A. The contractor will be held rigidly responsible for all damages to the work of his own or any other trade resulting from the execution of his work. It shall be the contractor's responsibility to adequately protect his work at all times. All damages resulting from his operations shall be repaired, or the damaged portions replaced, by the party originally performing the work (to the entire satisfaction of the Contracting Officer), and all cost thereof shall be borne by the contractor responsible for the damage.

1.10 COOPERATION WITH OTHER TRADES

A. The contractor shall completely cooperate with all other trades in the matter of planning and executing of the work. Every reasonable effort shall be made to prevent conflict and interference as to space requirements, dimensions, locations, openings, sleeving, or other matters which tend to delay or obstruct the work of any trade.

1.12 CUTTING AND PATCHING

A. All cutting and patching as necessary and with the approval of the Contracting Officer to permit the installation of conduit or any part of the work under this branch shall be by this Contractor. Surface finishes, such as wall coverings or paint, shall not be the responsibility of the Contractor and shall be furnished by the appropriate division of work. However, surface finishes for late penetrations as a result of this contractor after painting and finishes have been completed, shall be the responsibility of this contractor.

1.14 CLEAN-UP & PAINTING

A. The contractor shall at all times keep the premises free from excessive accumulation of waste materials or rubbish resulting from his work, including tools, scaffolding, and surplus materials; and he shall leave his work room clean. In case of dispute, the Contracting Officer may order the removal of such rubbish and charge the cost to the responsible contractor. At the time of final clean-up, all fixtures and equipment shall be thoroughly cleaned and left in proper conditions for their intended use.

B. All final clean-up, washing, painting, etc., shall be scheduled at a time when project is substantially complete and the possibility of additional soiling does not exist. The contractor shall be responsible for the condition of all electrical equipment until acceptance of project by Government.

C. Clean interior of all panelboards, pull boxes, equipment enclosures, and all other debris resulting from electrical work.

E. All equipment shall have factory applied finish. Damaged finishes shall be refinished or replaced.

1.15 TESTS

A. The contractor shall provide all instrumentation, labor, and conduct all tests required under these specifications. All instrumentation and personnel required for testing shall be provided by the contractor, and all tests shall be conducted in the presence of the Contracting Officer or his authorized representative. All tests shall be made before any circuit or item of equipment is permanently energized.

B. Circuits shall be phased out and loads balanced within plus or minus 10% on each phase.

C. All phase conductors shall be entirely free from grounds and short circuits.

D. Inspect the ground system for adequate termination at all devices.

E. See Section 16075A - Grounding for further requirements.

1.18 FIELD MEASUREMENTS

A. The contractor shall take all field measurements necessary for his work and shall assume full responsibility for their accuracy.

1.19 STRUCTURAL INTERFERENCES

A. Should any structural interferences prevent the installation of the outlets, running of conduits, etc., at points shown on the drawings, the necessary minor deviations there from, as determined by the Contracting Officer, may be permitted. Minor changes in the position of the outlets or equipment if decided upon before the contractor has done any work shall be made without additional charge.

1.20 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

A. Before submitting a bid, the contractor shall familiarize himself with all features of the building and site which may affect the execution of his work. No extra payment will be allowed for the failure to obtain this information. If in the opinion of the contractor there are omissions or errors in the plans or specifications, the contractor shall clarify these points with the Government before submitting his bid.

1.22 RECORD DRAWINGS

A. The contractor shall keep a record of all conduit routes, wiring, and any other items of possible interest showing the recorded "as built" installation of the electrical system. A copy of these records shall be turned over to the Government at the completion of the project.

PART 2 PRODUCTS

2.1 Electric Unit Heaters

A. Provide U.L labeled and NEMA certified electric heater as shown and scheduled. Provide wall mounted thermostat for operation of the unit heater.

PART 3 EXECUTION - NOT USED

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Division 16 - Electrical

SECTION 16025

RACEWAYS AND FITTINGS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Applicable provisions of Division 1 shall govern work in this section. Work includes installation of unit heaters as shown.

PART 2 PRODUCTS

2.01 CONDUIT

A. Electrical metallic tubing (EMT) shall be used in sizes 1-1/4" and smaller for power systems. Raceway for power systems in sizes 1-1/2" and larger, and raceway for telecommunications systems 4" and larger shall be heavy wall rigid (HWR) or intermediate metallic conduit (IMC).

B. All conduit installed in concrete poured on grade, or in contact with earth, shall be Schedule 80 PVC or heavy wall rigid.

1. PVC conduits shall not be allowed in poured concrete other than on grade.

2. PVC conduits shall terminate to metal elbow prior to exiting concrete or earth.

C. All conduit concealed within walls, concrete block or other material (such as wood frame, metal frame, or brick construction) shall be metal meeting the requirements previously stated.

D. All exposed conduit shall be metal unless noted otherwise.

E. All conduit installed in poured concrete walls shall be heavy wall rigid conduit securely fastened to the re-bar and forms for proper support.

F. All metal conduit shall be galvanized.

G. Minimum conduit size is to be 3/4" for branch circuit wiring.

H. Branch circuit conduit fill shall be determined using N.E.C. values for Type THW insulation regardless of insulation type used, (except for a single 2 or 3 wire circuit for motors).

I. Flexible metal conduit for equipment connections shall be all steel 1/2" minimum nominal trade size. Length shall not exceed 24" for connection to motorized equipment; minimum of 6' in length for lighting fixtures; ground liquid-tight where exposed to moisture or water.

1. Adhere to restrictions of NEC Articles 517-13(b) and 250-91(b), as well as other applicable articles, regarding use and grounding of flexible metal conduit.

J. A green equipment ground shall be installed in all conduits.

1. Bond devices and equipment to respective panel's ground bar.

2.02 COUPLINGS, CONNECTORS, AND FITTINGS

A. Use standard UL listed items to properly attach conduits, outlet boxes, pull boxes, cabinets, etc. to provide a complete raceway system. All connections shall have insulated throats.

B. Connectors and couplings for EMT conduit shall be all steel compression ring type or set screw type with locknut. Connectors shall have insulated throats. Die-cast, indenture, and push-on type fittings are not allowed.

C. Heavy wall rigid and IMC conduit fittings shall be threaded.

D. Conduit terminations 1-1/4" and larger shall be provided with double locknut and nylon insulated metallic insulating bushings.

E. Provide OZ type DX, FX, or AX conduit expansion deflection fittings where movement of structure may cause damage to raceways. Coordinate locations with all building expansion joints. Include seal-offs where raceways pass between interior and exterior of buildings.

2.03 CONDUIT SUPPORTS

A. Conduit clamps, straps and supports shall be steel or malleable iron listed for the application.

1. Straps shall have backing plates.

B. All supports shall be galvanized.

2.04 PULL BOXES AND JUNCTION BOXES

A. Provide as required by code, of code gauge steel in sizes as required by the code. Covers shall be of the same material. Boxes and covers shall have galvanized finish and they shall be securely fastened to structural members.

PART 3 EXECUTION

3.01 GENERAL

A. All conduit routing shall be concealed in finished areas.

1. Conduits shall be run surface in finished areas only with prior approval from Contracting Officer.

2. Where construction permits (such as in block walls) conduits and boxes shall be concealed.

3. Textured concrete walls shall have all conduits concealed.

B. Unfinished areas where installation of conduits is difficult, (such as poured concrete walls) surface mounting will be permitted.

1. Surface mounted conduits shall be installed in a neat fashion and shall be run parallel to the building structure.

D. Arrange conduit supports to prevent distortion of alignment of wire pulling operations. Support conduit using galvanized straps, lay in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers. Support and fasten metal conduit at a maximum of 8 feet on center. Do not support conduit with wire or perforated pipe straps. Before conductors are pulled, remove all wire used for temporary conduit support during construction.

E. Changes in direction shall be made with symmetrical bends, cast steel boxes, stamped metal boxes, or cast steel conduit bodies.

F. No continuous conduit run shall exceed 100 feet without a junction box.

G. Install no more than the equivalent of three 90 degree bends between boxes.

H. Cut conduit square using a saw or pipecutter; de-burr cut ends. Bring conduit to the shoulder of fittings and couplings and fasten securely.

I. Use hydraulic one-shot conduit bender or factory bent elbows for bends in conduit larger than 2" size - unless sweep elbows are required.

J. Use suitable conduit caps or other approved seals to protect installed conduit against entrance of dirt and moisture.

K. Maintain minimum 6" clearance between conduit and piping of other trades. Maintain 12" clearance between conduit and sources of heat such as flues, steam pipes, and heating appliances.

L. Where conduit penetrates fire rated walls and floors, seal opening around conduit with UL listed foamed silicone elastomer compound having a UL listed fire rating equal to that of penetrated wall or floor. Seal opening around penetration on both sides of the wall.

1. Seal raceway penetrations of fire-rated walls, floors and ceilings for

compliance with NEC 300-21 and NFPA 101 6-2.3.6.2. Fill void around raceway. Sleeves shall be heavy wall steel pipe, anchored to building construction and finished plumb with wall or ceiling. Fire stop material shall be Dow Corning 3-6548 Silicone RTV Foam, Chase Technology Corp. CTC PR-855 fire-resistant foam sealant, 3M 303 Fire Barrier, T & B S-101 Fire Barrier or Nelson Flameseal.

M. Seal penetrations of perimeter walls and floors below grade to prevent entry of water. Use materials compatible with wall or floor construction and approved by Contracting Officer.

O. Underground Conduits:

1. All underground steel conduits (direct burial or concrete encased), shall have waterproof couplings. Steel conduit couplings are usually not waterproof. Waterproofing shall consist of compound applied when the coupling is attached. For direct burial of rigid steel conduit, use PVC tape, 2" wide, 1" around the coupling and minimum 4" to either side.

R. Boxes shall be sized to accommodate device served and code requirements for number of wires and splices.

S. Back to back or thru-the-wall boxes are not permitted. A minimum horizontal separation of 24" should be maintained between boxes on opposite sides of a common wall. Interconnecting boxes within a common wall shall not be done with straight lengths of conduit. Rather these conduits shall include at least two code complying 90 degree bends to help attenuate transfer of sound.

1. Where minimum separation is not possible, and boxes are interconnected with a common conduit, that conduit shall incorporate at least two 90 deg. bends to help attenuate sound transfer.

T. No outlet or junction box shall be installed where it would be inaccessible or its usefulness would be impaired by other equipment.

V. Structural members whose strength is impaired by improper cutting, drilling, or excessive defects shall be replaced or reinforced in a manner acceptable to the Contracting Officer. Any structural cutting requires the Contracting Officer’s prior approval.

W. Maintain integrity of rated structures (floors, walls, ceilings) whenever such structures are penetrated by conduit, cable.

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Division 16 - Electrical

SECTION 16050

WIRES AND CABLES

PART 1 GENERAL

1.01 GENERAL

A. Applicable provisions of Division 1 shall govern work in this section.

B. All conductors shall be rated 600 volt made of refined, soft drawn copper of highest commercial conductivity, with insulation compounds listed by U.L. as suitable for the duty or application in question, and subject to the following:

... No. 12 AWG minimum, (with exceptions as indicated for special systems.) stranded conductors terminated in connectors designed for stranded conductor or with crimp type connectors.
... No. 6 AWG and smaller shall be phase color coded throughout. Larger conductors shall be coded at all accessible points with approved type colored plastic tape.
... Coding in accordance with Article 210 of The National Electrical Code.

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

A. Copper conductor: General Cable, Okonite, Rome, Triangle, or Southwire.

2.02 APPLICATIONS

A. In general: Code grade type THHN, THWN, XHHW in conduits.

B. Feeders, all conductor No. 8 AWG and larger, and all conductor in or below ground floor slab: Color grade type THWN, THW, XHHW.

C. High temperature locations: all wiring to equipment mounted on boiler, incinerator, exhaust hoods, ballast compartments of fixtures, and elsewhere where ambient temperature conditions warrant, in the opinion of the Contracting Officer shall be Code grade type THHN or otherwise with insulation suitable for 90 degrees C. operating temperature.

D. Size conductors to compensate for voltage drop. Maximum 2 percent voltage drop is permitted for branch circuits, 3 percent maximum drop for feeders.

1. As a minimum use #10 AWG conductor for 20 amp, 120 volt branch circuit home runs longer than 100 feet.

2.03 MECHANICAL CONNECTORS

A. Joints, taps, and splices in conductor No. 10 AWG and smaller shall be made with spring compression type solderless connectors with plastic cover of type and size required. Approved manufacturers: Minnesota Mining & Mfg. Co., Scotchlock, Thomas and Betts Piggy Pigtails. Bolted connectors are required where specifically noted.

B. Joints, taps, and splices in conductor No. 8 AWG and larger shall be made with solderless crimp type or bolted connectors of an approved type and size.

C. Conductors No. 6 AWG and larger shall be connected to panels and apparatus by means of approved lugs or connectors.

2.04 INSULATION

A. Each joint, tap, and splice in conductor No. 8 AWG and larger shall be taped with weatherproof plastic tape providing insulation not less than that of the conductor, and in any case, not less than two half lapped layers. Use Scotch 33 tape or equal.

PART 3 EXECUTION

3.01 GENERAL

A. Do not install wiring in raceways containing water or debris. Use special care and proper U.L. listed lubricants for pulling wire to avoid overstrain of conductor.

B. Seal around both sides of all penetrations through rated walls, ceilings, floors, etc., with an approved fire sealant. See Specification Section 16025A for list of approved sealants.

C. Integrity of conduit grounding path shall be as required by NEC Article 517-13b.

3.02 COLOR OF PHASE CONDUCTORS

A. Use black and red for single-phase 120/240 volt systems.

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SECTION 16075

GROUNDING

PART 1 GENERAL

1.01 GENERAL

A. Applicable provisions of Division 1 shall govern work in this section.

B. Complete raceway system shall be grounded so ground will be electrically continuous from source to all outlet boxes and equipment.

C. Provide bonding conductors as required to securely ground all electrical equipment enclosures.

D. Flexible metal conduit must be bonded with a green grounding conductor.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

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