

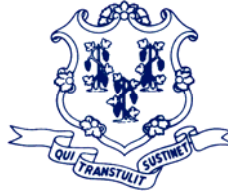
The Connecticut General Assembly

Joint Committee on Legislative Management

Donald E. Williams, Jr.
Senate President Pro Tempore

Martin M. Looney, *Senate Majority Leader*
Louis C. DeLuca, *Senate Republican Leader*

D'Ann Mazzocca, Ph.D.
Executive Director



James A. Amann
Speaker of the House

Christopher G. Donovan, *House Majority Leader*
Robert M. Ward, *House Minority Leader*

October 13, 2006

TO: All Vendors of Record

FROM: Linda Voghel
Office of Legislative Management

RE: Request for Proposal for State Capitol Cooling Towers Replacement
Responses to Vendor Questions and Requests for Clarification
Consulting Engineering Services Addendum

The following responses to vendor questions and requests for clarification are provided to those vendors of record who have received the Connecticut General Assembly's RFP for the State Capitol Cooling Towers Replacement.

Please note that the deadline for receipt of all proposals is Thursday, October 19, 2006 at 5:00 p.m. in the Office of Legislative Management, Room 5100 Legislative Office Building, Hartford, Connecticut.

Thank you for your interest.

JOINT COMMITTEE ON LEGISLATIVE MANAGEMENT

QUESTIONS AND RESPONSES

October 13, 2006

1. Are their drawings for this project?

Yes, the drawings request form included in the RFP must be completed and submitted to the Office of Legislative Management along with the \$100 deposit and a completed W-9 form to obtain the drawings. Deposits will be returned to vendors upon award of the contract and receipt of the drawings from vendors.

2. Can you provide the names of the vendors who attended the pre-bid meeting and walk-through?

Yes, they are as follows:

Environmental Services Corporation
Titan Mechanical
Harrington Engineering Company
Guardian Services
Connecticut Boiler Repair
Barry Associates, Inc.
Stewart Mechanical
J.H. LaPierre Junior and Son Electrical Contractor

3. Are there are bond requirements for this project ?

Yes, a bid bond is required to be provided with the proposal as described in section 4.1 of the request for proposal. Once the contract is awarded, the contractor must provide a performance bond as well as a labor and materials bond as specified in section 4.1 and 4.3.

Bid Bond: The proposer shall submit a bid bond in the amount of ten percent (10%) of the total proposed contract cost along with the proposal. Failure to furnish a bid bond in the proper form and amount with the proposal will be cause for rejection of the proposal. A bid bond shall be in the form of a firm commitment as follows: a bid bond on a surety company licensed in the State of Connecticut; a postal money order; certified check; or cashier's check. Checks shall be made payable to "The Joint Committee on Legislative Management." Bid guarantees other than bid bonds will be returned (a) to unsuccessful proposers as soon as practical after the opening of the proposal, and (b) to the successful proposer upon execution of such further contractual documents and bonds as may be required by the proposal. A letter of credit cannot be substituted for a bid bond.

Performance Bond: Once the contract is awarded, a performance bond for the total amount of the contract award must be provided by the selected vendor. The proposer to whom the award is made shall furnish a performance bond for the protection of the CGA in accordance with

Section 49-41(b) of the Connecticut General Statutes in an amount equal to the total proposal amount within fifteen (15) days of notification of award and prior to the execution of the contract;

Labor and Materials Bond. The proposer to whom the contract award is made shall furnish a labor and materials bond for the protection of the CGA in accordance with Section 49-41(a) of the Connecticut General Statutes in an amount equal to the total proposal amount within fifteen (15) days of notification of award and prior to the execution of the contract;

4. Is there a listing of what is to be submitted with the proposals?

Section two and four of the request for proposal includes a list of required elements that **shall be included** in all proposals. **Any proposal not including these elements is subject to disqualification.**

5. Are we to submit a principal's form with the proposal and by email?

Yes. Please note that proposals will not be considered without the principal's form submitted both in the proposal and by email.

6. Shall proposals include the gift affidavit and the campaign contribution form?

Yes. Please note that proposals will not be considered without a completed gift affidavit and the campaign contribution form.

7. Are there any specifications for the sand blasting, priming and painting of the steel located in the cooling tower bunker?

See attached Addendum #1 from Consulting Engineering Services.

8. Is the dry cooler mentioned in the technical specifications, page 15010-3 section 1.5, still required, and if so what should the capacity be?

The dry cooler noted in the specifications will not be required. At least one of the closed loop pumps is to remain in operation at all times. There is a bypass valve in the boiler room to allow the cooling towers to be disconnected from the loop for their replacement.

9. Is the completion date of December 31, 2006 flexible (date could be unrealistic due to equipment delivery)?

The completion date is to be December 31, 2006 or as soon after December 31, 2006 that equipment delivery and scheduling will allow.

10. Is there an estimated budget for this project?

There was a preliminary budget for the project, but it was an opinion only.

11. What type of epoxy paint is specified?

See attached Addendum #1 from Consulting Engineering Services.

12. What color is the steel being painted?

Prior to painting the steel, the awarded vendor must submit standard color selections to the Office of Legislative Management for approval.

13. Is there a thickness requirement for the epoxy paint on the steel?

See attached Addendum #1 from Consulting Engineering Services.

14. Is it the intent of this project that all steel to be sandblasted be removed from the site to avoid hazardous materials environmental issues?

This is a means and method issue; the contractor shall evaluate and provide the best process to complete the task.

15. Are the areas within the boiler room, building ceiling area, and cooling tower bunker asbestos-free?

The boiler room, building ceiling area, and cooling tower bunker are all believed to be asbestos-free. Upon request, the Office of legislative Management will test any suspect material found.

16. Is it the intent of the project to reuse the existing 2 ½" conduit already in place to feed one new pump and add one new 3" conduit for the second pump, although the drawings show two new 3" conduits? The drawing plan E-1 and the notes seem to contradict themselves.

Provide two new 3" conduits.

17. Will there be an interface with the Andover Control System in the State Capitol building?

Yes, the new cooling towers are to be connected to the existing Andover Control System.

18. Is it possible for vendors to come in after the pre-bid meeting and walk-through to re-visit the site?

Yes, contact information is in the Request for Proposal.

19. Please provide information as to how vendors should deal with going through three to four foot brick walls in the State Capitol basement. This is not shown on the drawings.

This is a means and method issue; the contractor shall evaluate and provide the best process to complete the task.

20. What access do vendors have to get materials into the State Capitol building?

Materials can be brought into the Legislative Office Building via the Loading Dock and then into the State Capitol through the underground connecting oncourse or directly into the State Capitol on the West side up the Handicap Ramp and then brought to the basement in one of the elevators.

21. Will the desk in the pump area in the basement remain?

The desk will be moved as required to allow for the installation of disconnect switches, etc.

22. Will vendors have access to the Capitol building and grounds after hours?

Yes, work can be completed during normal working hours or off hours and on weekends. Off hour and weekend work will need to be scheduled with the Office of Legislative Management and the State Capitol Police.

23. Can equipment be rolled through the first floor of the Capitol?

Yes, but the floors will need to be protected from damage.

24. Can work be done during normal building operating hours?

Yes (see question 22 above).

25. What is the size of the existing pump?

Existing condenser pumps are 25 HP.

26. What is the time frame during which the cooling towers are shut down and brought back up?

The cooling towers are normally shut down the end of October and restarted the beginning of April.

27. Please clarify whether the piping in the cooling towers is to be replaced or reinstalled? Should the heat trace be replaced? Should the insulation be replaced?

Bunker piping is to be replaced. Heat trace shall be reinstalled in working order. Insulation is to be removed and replaced with equal.

28. What purpose do the isolation valves serve?

The valves allow the lines to and from the cooling towers to be bypasses while still allowing the condenser water system to supply heating water to the Heat Pump system in the heating season.

29. Do ceiling tiles need to be replaced at the end of the day if work is still being conducted in the same space the following day?

Ceiling tiles do not need to be replaced each day in areas where work is still being conducted.

30. Can conduit work be conducted in the State Capitol basement during normal working hours?

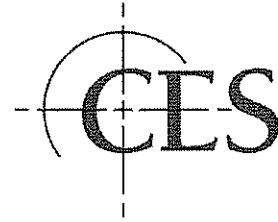
Yes, although the corridors need to remain passable.

31. What time can core drilling be done?

Core drilling should be scheduled for early in the morning 7:00 to 9:00 a.m., after normal working hours or on weekends.

32. Please confirm the size of the existing pump. Is the new pump the same size?

Existing Condenser pumps are 25HP; new Condenser pumps are 50HP; Sump pumps remain the same, 2HP.



Addendum

Addendum Number: Addendum No. 1
Addendum Date: October 11, 2006
Written To: Eric Connery – Connecticut General Assembly
Project Name: State Capital Cooling Tower Replacement
CES Project Number: 26035.05
Written By: Timothy A. McNeill

The work shall be carried out in accordance with the following supplemental instructions and in accordance with the Contract Documents.

Description:

Mechanical Specifications:

1. **ADD** attached specification section 09900, PAINTING AND PROTECTIVE COATINGS.
2. In specification Section 15640, PACKAGED COOLING TOWERS, **REPLACE** with attached section 15640, PACKAGED COOLING TOWERS.

Mechanical:

1. On drawing ME-1, COOLING TOWER AREA AND SITE PLAN, dated June 30, 2006, **REVISE** the drawing per the attached sketches SKM-1, SKM-2 & SKM-3.

Electrical:

1. On drawing E-1, BASEMENT ELECTRICAL PLANS, dated June 30, 2006, **REVISE** the drawing per the attached sketch SKE-1.
2. On drawing ME-2, MECHANICAL & ELECTRICAL PART PLAN, SCHEDULES, AND DETAILS, dated June 30, 2006, **REVISE** the drawing per attached sketch SKE-2.

Attachments: Specification section 00990 & 15640, SKM-1, SKM-2, SKM-3, SKE-1, SKE-2

End of Addendum No. 1

LMG/2006/26035.05/Addendums/Addendum.No1.doc

SECTION 15640

PACKAGED COOLING TOWERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Packaged cooling tower with structure, casing, fill and basin, Spray Pumps, heaters, fans, motors and drive equipment, and condensing water inlet and outlet with internal distribution
- B. Controls
- C. Ladder and handrails

1.2 RELATED SECTIONS

- A. Section 15050 - Basic Mechanical Materials and Methods.
- B. Section 15246 - Vibration Isolation and Seismic Restraints.
- C. Section 15410 - Plumbing Piping.
- D. Section 15510 - Hydronic Piping.
- E. Section 15540 - HVAC Pumps.
- F. Division 16 - Electrical: Execution requirements for electrical connections specified by this section.

1.3 REFERENCES

- A. ABMA 9 (American Boiler Manufacturers Association) - Load Ratings and Fatigue Life for Ball Bearings.
- B. ABMA 11 (American Boiler Manufacturers Association) - Load Ratings and Fatigue Life for Roller Bearings.
- C. ASME PTC-23 (American Society of Mechanical Engineers) - Atmospheric Water Cooling Equipment.
- D. ASTM A90 - Standard Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
- E. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- F. CTI ATC-105 (Cooling Tower Institute) - Acceptance Test Code for Water Cooling Towers.
- G. CTI STD-201 (Cooling Tower Institute) - Certification Standard.

**State Capitol Building
Cooling Tower Replacement**

- H. NEMA 250 (National Electrical Manufacturers Association) - Enclosures for Electrical Equipment (1000 Volts Maximum)

1.4 SUBMITTALS

- A. Provide submittals in accordance with the requirements of Division 1 and Section 15010 - General Conditions for Mechanical Trades.
- B. Shop Drawings: Indicate require structural steel supports including dimensions, sizes, and locations for mounting-bolt holes.
- C. Product Data: Submit rated capacities, dimensions, weights and point loads, accessories, required clearances, electrical requirements and wiring diagrams, and location and size of field connections. Submit schematic indicating capacity controls.
- D. Field Test Reports: Indicate compliance with cooling tower institute (CTI) ATC 105
- E. Manufacturer's Certificate: Certify that cooling tower performance, based on CTI ATC-105meet or exceed specified requirements and submit performance curve plotting leaving water temperature against wet bulb temperature.
- F. Manufacturers Field Reports: Indicate compliance with field test if applicable.

1.5 CLOSEOUT SUBMITTALS

- A. Provide closeout submittals in accordance with the requirements of Division 1 and Section 15010 - General Conditions for Mechanical Trades.
- B. Operation and Maintenance Data: Submit start-up instructions, maintenance data, parts lists, controls, and accessories.

1.6 QUALITY ASSURANCE

- A. Perform work in accordance with CTI ATC-105.
- B. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.

1.8 PRE-INSTALLATION MEETING

- A. Convene minimum one week prior to commencing Work of this section.

**State Capitol Building
Cooling Tower Replacement**

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Provide storage and handling of products in accordance with the requirements of Division 1 and Section 15010 - General Conditions for Mechanical Trades.
- B. Follow manufacturer's installation instructions for rigging, unloading, and transporting units.

1.10 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.11 WARRANTY

- A. Provide product warranties in accordance with the requirements of Division 1 and Section 15010 - General Conditions for Mechanical Trades.
- B. Provide five year manufacturer warranty for cooling tower package fan drive labor and materials.

1.12 MAINTENANCE SERVICE

- A. Provide service and maintenance of cooling tower for one years from Date of Substantial Completion.

1.13 EXTRA MATERIALS

- A. Provide spare parts and maintenance products in accordance with the requirements of Division 1 and Section 15010 - General Conditions for Mechanical Trades, and as indicated below.
- B. Supply two sets of matched fan belts.
- C. Supply two spray nozzles for each cell.
- D. Supply two gaskets for each access door.
- E. Supply one valve seat for each make-up or control valve.

PART 2 PRODUCTS

2.1 COOLING TOWERS

- A. Manufacturers:
 - 1. Baltimore Aircoil Company
 - 2. EVAPCO, Inc.
 - 3. Marley Cooling Towers

**State Capitol Building
Cooling Tower Replacement**

- B. Product Description: factory assembled, sectional, blow through design, with fan and motor assemblies, built with pan, casing, fill and drift eliminators.

2.2 STEEL COOLING TOWERS

- A. Framing, Pan and Casing: Stainless steel, 14 gage for casing and 8 gage for reinforcing angles and channels with access doors at both ends of tower to air plenum, Stainless steel in all water-contact areas of the basin.
- B. Louvers: Formed galvanized steel, sight tight spaced to minimize air resistance and splash out.
- C. Blow Through Fans: Forward curved centrifugal type mounted on steel shaft, with belt drive, bearings with ABMA 9 or ABMA 11 L-10 life at 30,000 hours, with extended grease fittings.
 - 1. Motor: Single-speed mounted on adjustable steel base.
- D. Fan Cylinder: One piece, welded steel, hot dipped galvanized fan assembly.
- E. Fan Guard: Galvanized steel mesh and frame bolted to fan cowl.
- F. Distribution Section: PVC piping header and branches with spray nozzles. All spray branches shall be removable for cleaning. All spray nozzles shall be grommeted into the spray header to provide easy removal for maintenance.
- G. Distribution Basin: Open, gravity type distribution basin utilizing weirs and plastic metering orifices, with flow control valves.
- H. Fill material: Self-supporting, fluted, polyvinyl chloride with ASTM E84 flame spread rating of 5.
- I. Drift Eliminators: Two or three pass polyvinyl chloride (PVC), drift loss limited to 0.7 percent of total water circulated.
- J. Collection Basin: Stainless steel with depressed center section, designed to support tower, with cleanout and drain fitting, 8 gage, 1/4 inch mesh strainer, side outlet sump, overflow.
- K. Float Valves: Brass or bronze make-up valve with plastic or copper float electrically activating make-up water solenoid valve.
- L. Hardware: Stainless steel nuts, bolts, and washers, and nails.
- M. Finish of steel components: ASTM A90 G235 hot dipped galvanized steel with edges protected with zinc rich compound. Finish with zinc chromated aluminum paint.
- N. Water Recirculation Pump: The pump shall be a close-coupled, centrifugal type with a mechanical seal, installed vertically at the factory to allow free drainage on shut down. Motor shall be totally enclosed type, furnished suitable for outdoor service.

**State Capitol Building
Cooling Tower Replacement**

- O. Heat Transfer Coil: The coil(s) shall be all prime surface steel, encased in a steel framework and hot-dip galvanized after fabrication as a complete assembly. The tubes shall be arranged in a self-spacing, staggered pattern in the direction of airflow for maximum heat transfer efficiency and minimum pressure drop, without the use of additional spacers between the coil tubes. The coil(s) shall be designed with sloping tubes for free drainage of liquid and shall be pneumatically tested at 350 psig, under water.
- P. Provide **Alternate Bid#2** for Framing, Pan and Casing: G-235 Galvanized Steel

2.3 ACCESSORIES

- A. Electric Immersion Heaters: Maintains temperature of water in pan at 42 degrees F when outside temperature is 0 degrees F and wind velocity is 15 mph. Immersion thermostat and float control operates heaters on low temperature when the pan is filled.
- B. Electric Temperature Controller: In *pipng*; with sensor to cycle fans.
- C. Time Delay Relay: Limits fan motor starts to not more than six per hour.
- D. Capacity Control with Scroll Damper and Modulating Electronic Damper Motor: Controlled by temperature controller, sensor in *pipng*.

2.4 PERFORMANCE

- A. Capacity
 - 1. Water Flow: 693 gpm.
 - 2. Entering Water Temperature: 102 degrees F.
 - 3. Leaving Water Temperature: 90 degrees F.
 - 4. Entering Air WB Temperature: 76 degrees F.
- B. Electrical Characteristics and Components
 - 1. 25 hp.
 - 2. 208 volts, three phase, 60 Hz.
 - 3. 1.15 percent minimum power factor at rated load.
 - 4. Disconnect Switch.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install tower on *existing* concrete base in accordance with manufacturers requirement

**State Capitol Building
Cooling Tower Replacement**

- B. Seismically Restrain Cooling Tower in accordance with section 15246.
- C. Connect condenser water piping with *beveled, grooved or threaded* connections to tower. Pitch condenser water supply to tower and condenser water suction away from tower.
- D. Connect make-up water piping with flanged or union connections to tower. Pitch to tower.
- E. Connect overflow, bleed, and drain, to floor drain.

3.2 FIELD QUALITY CONTROL

- A. Provide Testing, adjusting, and balancing in accordance with the requirements of Division 1, Section 15010 - General Conditions for Mechanical Trades and Section 15990 - Testing, Adjusting and Balancing.
- B. Adjust bleed, control settings and airflow if testing demonstrates need.

3.3 MANUFACTURER'S FIELD SERVICES

- A. Provide Manufacturers' field services in accordance with the requirements of Division 1, Section 15010 - General Conditions for Mechanical Trades and the following.
- B. Supervise rigging, hoisting, and installation; include 1 eight-hour days per tower.
- C. Inspect tower after installation and submit report prior to start-up, verifying installation is in accordance with specifications and manufacturers recommendations.
- D. Start-up tower in presence of and instruct Owners operating personnel.

END OF SECTION

SECTION 09900

PAINTING AND PROTECTIVE COATINGS

PART 1 GENERAL

1.1 SCOPE

Requirements of Conditions of Contract and Division 1 apply to this Section. Provide all labor, materials, apparatus, scaffolding, and all appurtenant work in connection with painting and protective coatings, complete as indicated, specified and required.

A. Work Included in This Section. Principal items include:

1. All exposed metal surfaces, grating and steel supports, except as hereinafter specifically excluded.
2. All structural and miscellaneous steel.
3. Exterior above-ground concrete as specified.
4. Equipment on which factory applied finishes have been marred, abraded, scratched, nicked, or otherwise damaged.
5. Exterior and interior concrete, concrete masonry unit, cement plaster, doors, frames, sheet metal surfaces and other architectural work as specified.
6. The Contractor shall furnish to the Owner, at no charge for use during this project, the necessary dry film thickness gages and electrical flaw or holiday detection equipment.
7. Recoating of existing interior and exterior painted surfaces from architectural break where damaged or altered in performance of work.

B. Related Work Not Included in This Section. The following surfaces, in general, shall not be painted:

1. Concrete surfaces subject to pedestrian or vehicular traffic except as herein specified.
2. Nonferrous metals and stainless steel unless otherwise noted or indicated. Galvanized metal shall not be coated unless specified otherwise.
3. Mechanical equipment with factory finish as specified herein.
4. Electrical and instrumentation equipment with approved factory finish as indicated herein.
5. Existing painted surfaces which are not within areas of alterations performed under this Contract unless such surfaces are damaged in performance of Work of this Contract.

**State Capitol Building
Cooling Tower Replacement**

- C. In no case shall any concrete, wood, metal, or any other surface requiring protection be left unpainted or uncoated even though not specifically defined herein.

1.2 GUARANTEE

- A. A three (3) year guarantee which commences on the date of acceptance against failure of all coatings shall be provided. Failure of any coating during the guarantee period shall be repaired by the Contractor who shall absorb all costs related to the repair of the coating.
- B. As part of this three year guarantee, the Contractor shall perform an inspection of all painted surfaces at eleven (11) months from date of acceptance with an Owner's representative. All coating failures shall be repaired. The costs of this inspection and any repair services shall be the Contractor's responsibility.

1.3 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Without limiting the generality of other requirements of these Specifications, all cleaning, surface preparation, and coating shall conform to the applicable requirements of the referenced portions of the standards specified herein to the extent that the requirements therein specified are not in conflict with the provisions of this Section.
- B. Unless otherwise specified, all work and materials for the preparation and coating of all metal surfaces shall conform to the applicable requirements specified in the Steel Structures Painting Manual, Volume 2, Systems and Specifications, latest edition, published by the Steel Structures Painting Council.
- C. The following referenced surface preparation specifications of the Steel Structures Painting Council shall form a part of this Section.
 - 1. Commercial Blast (SSPC-SP6-63). Blast cleaning until at least 67 percent of each element of surface area is free of all visible residues.
- D. Quality Assurance. Evaluation of surface preparation for ferrous metals will be based upon SSPC-Vis 1 ASTM Designation D220 and "Standard Methods of Evaluating Degree of Rusting on Painted Steel Surfaces", SSPC-Vis 2 ASTM Designation D 610.
 - 1. To facilitate inspection, the Contractor shall, on the first day of sandblasting operations, sandblast metal panels to the degree called for in the Specification and as noted above. After mutually agreeing that a specific panel meets the requirements of the Specification, the panel shall be initialed by the Contractor and Inspector and then be coated with a clear, non-yellowing finish. Panels shall be prepared for each type sandblasting specified and shall be maintained and utilized by the Inspector throughout the duration of sandblasting operations.

1.4 COMPLIANCE WITH ENVIRONMENTAL REGULATORY REQUIREMENTS

- A. Contractor shall comply with all current federal, state, and local environmental laws and regulations, including, but not limited to the laws and regulations of the U.S. Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and the South Coast Air Quality Management District (SCAQMD).

**State Capitol Building
Cooling Tower Replacement**

1.5 SUBMITTALS

A. Samples

1. For compliance with these Specifications, the Contractor shall prepare and submit three (3) paint and protective coating samples of each finish, including all coats thereof, to the Owner for review, as specified in "Submittals" guidelines. The samples shall be clearly marked with the manufacturer's name and product identification, and shall be submitted in sufficient time to allow for review, and, if necessary, resubmittal without causing any delay of the Project.
2. The Contractor, at the beginning of the Project, shall furnish one sq. ft. steel panels to be sandblasted in accordance with the sandblasting specifications and to be coated with a non-yellowing shellac, to be used as the standard for preparation of steel surfaces for the duration of this Project.

B. Coating Materials List

1. The Contractor shall provide eight (8) copies of a paint and coating materials list which indicates the manufacturer and paint number, keyed to the coating schedule herein, for approval of the Owner prior to, or at the time of, submittal of samples required herein.
2. The Contractor shall include with his submittal his protective coating schedule for shop and field coatings of items to receive protection. The schedule shall conform to the specified requirements for surface preparation, priming, and coating for items covered, and shall follow the same requirements for similar work where such work has not been specifically called-out. No bare ferrous nonworking surfaces shall be omitted from the schedule. Particular care shall be taken to cover in sufficient detail the coating of mechanical joints and other mechanical devices, which shall conform to the recommended practice of the manufacturer of the joint or other mechanical devices.
3. Submittals shall be sufficiently early to permit Owner's review and then Contractor's coordination with affected material and equipment suppliers to assure their use of reviewed shop coats of same manufacture as field coats and compatibility with field applied coats for respective coating system.
4. Coatings to be used on plastic and fiberglass materials shall be certified as acceptable by all plastic and fiberglass manufacturers whose products are to be coated. Certification copies shall be submitted to the Owner. The Contractor shall be certified in writing by the painting and coating material manufacturers as qualified applicators of their products, and copies of the certification submitted to the Owner.

C. Product Data Sheets and Material Safety Data Sheets. Contractor shall submit paint and coatings material manufacturers' printed technical data sheets for products intended for use in each of various paint and coating systems. Data sheets shall fully describe material as to its intended use, make-up, recommended surface preparation and application conditions, primers, material mixing and application (including recommended dry mil thickness), precautions, safety and maintenance cleaning directions.

**State Capitol Building
Cooling Tower Replacement**

1.6 PROTECTION OF WORK

- A. The Contractor shall be responsible for any and all damage to his Work or the work of others during the time his Work is in progress.

1.7 RIGHT OF REJECTION

- A. The Owner shall have the right to reject all material or Work that is unsatisfactory, and require the replacement of either or both at the expense of the Contractor.

1.8 JOB CONFERENCE

- A. Prior to commencing Work, a pre-job conference shall be held for the purpose of reviewing and clarifying the painting and coating requirements of the Project.
- B. The Owner, Contractor, Applicator, Coatings and Paint Manufacturers, and the Inspector shall be present. A schedule of work to be accomplished will be established.

PART 2 PRODUCTS

2.1 GENERAL

- A. Surfaces to receive paint protective coating materials as herein specified in this Section shall be coated in conformance with the applicable coating systems specified herein. All materials specified by name and/or manufacturer or selected for use under these Specifications, shall be delivered unopened at the job site in their original containers and shall not be opened until inspected by the Owner. Whenever a manufacturer's brand name is specified, it is intended to define the general type and quality of paint or coating desired. Other coatings or paints of equal quality may be used. Coating materials shall be as specified herein or approved equal. Architectural paint finishes are specified hereinafter. All paint and coatings shall be produced and applied as herein called for, or, if not specifically called for, it shall be applied in accordance with the manufacturer's printed recommendations as reviewed by Owner. So far as possible, all paint and coating materials shall be provided by a single source supplier.

2.2 PAINT AND COATING MATERIALS

- A. Definitions. The term "coating materials", as used herein, shall include enamels, paints, sealers, epoxy resins, stains, and all other paints and protective coatings, excepting galvanizing, whether used as a pretreatment, primer, intermediate coat, or finish coat.
- B. General
 - 1. Paint and protective coating materials shall be sealed in containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacture, manufacturer's directions, and name of manufacturer, all of which shall be plainly legible at the time of use. Pigmented paints shall be furnished in containers not larger than five (5) gallons. Materials shall conform to the specifications shown herein and to the requirements hereinafter specified.

**State Capitol Building
Cooling Tower Replacement**

2. Products shall be standard for recognized manufacturer engaged in production of such materials for essentially identical or similar applications in the water and wastewater treatment industry and industrial plants.
- C. Compatibility. Only compatible materials shall be used in the Work. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, subject to review of the Owner, a compatible barrier coat shall be applied between all existing prime coats and subsequent field coats to ensure compatibility.
- D. Colors. All colors and shades of colors of all coats of paints and protective coating material shall be as selected by the Owner. Each coat shall be of a slightly different shade, as directed by the Owner, to facilitate inspection of surface coverage of each coat.

2.3 SERVICE CONDITION A

Ferrous metals, other than stainless steel, and all steel angles in contact with concrete shall be prepared and coated in accordance with the following requirements.

- A. Surface Preparation. All metal surfaces shall be field sandblasted in accordance with Steel Structures Painting Council Specification SSPC-SP10 (Near White Blast Cleaning). An anchor profile of not less than 2 mils, as determined by a profile comparator, shall be attained. Weld surface, edges, and sharp corners shall be ground to a curve and all weld splatter removed, and all welds neutralized with thinner.
- B. Application. Application shall be in strict conformance with the manufacturer's printed recommendations. All sharp edges, nuts, bolts, or other items difficult to coat shall receive a brush-applied coat of the specified coating prior to application of each coat.
- C. Coating System A. Except as otherwise noted, the prime coat shall have minimum dry film thickness of 10 mils; and the final coat, 10 mils. The total system shall have a minimum dry film thickness of 20 mils.

**State Capitol Building
Cooling Tower Replacement**

Carboline System:	Primer - Carboguard 891 Final - Carboguard 891
Engard System:	Primer - 480 H.S. Epoxy Final - 480 H.S. Epoxy
Tnemec System:	Primer - 69 Hi-Build Epoxoline II Final - 69 Hi-Build Epoxoline II

2.4 SERVICE CONDITION B

Ferrous metals, other than stainless steel, not subject to chemical attack, normal indoor or outdoor exposure, shall be prepared and coated in accordance with the following requirements.

- A. Surface Preparation. All surfaces shall be free of dirt, dust, grease, or other foreign matter before coating. Surfaces, except galvanized, shall be cleaned in accordance with the Steel Structures Painting Council Specification SSPC-SP7 (Brush-Off Blast Cleaning). Weld surfaces, edges, and sharp corners shall be ground to a curve and all weld flux and splatter removed, and all welds neutralized with thinners prior to coating application.
- B. Application. Application shall be in strict conformance with the manufacturer's printed recommendations. All sharp edges, nuts, bolts, or other items difficult to coat shall receive a brush-applied coat of the specified coating prior to application of each coat.
- C. Coating System B. Except as specified below, the prime coat shall have a minimum thickness of 1.5 mils and two or more finish coats minimum total dry film thickness of 4.5 mils. The total system shall have a minimum of 6.0 mils.

Carboline System:	Primer - Carbocoat 150 2 Finish Coats - Carbocoat 139
Engard System:	Primer - 126 2 Finish Coats - 222
Tnemec System:	Primer - 4-55 2 Finish Coats - Tnemec - Series 2H, HiBuild

2.5 SERVICE CONDITION C (GALVANIZED DECK ABOVE COOLING TOWER)

Ferrous metals, other than stainless steel, subject to a corrosive atmosphere and condensation shall be prepared and coated in accordance with the following requirements.

- A. Surface Preparation. All metal surfaces shall be sandblasted in accordance with Steel Structures Painting Council Specification SSPC-SP10 (Near White Metal Blast Cleaning). An anchor profile of not less than 2 mils as determined by a profile comparator shall be attained. Weld surface, edges and sharp corners shall be ground to a curve and all weld splatter removed.

**State Capitol Building
Cooling Tower Replacement**

- B. Application. Application shall be in strict conformance with the manufacturer's recommendations. A minimum of 12 hours time is required before additional coats may be applied to the prime coat, two hours for the intermediate coat, and two hours for the finish coat.
- C. Coating Systems C. Except as hereinafter specified, the prime coat shall have a minimum dry film thickness of 3.0 mils; the intermediate coat, 4 mils; and the final coat, 2 mils. The total system shall have a minimum dry film thickness of 9.0 mils.

Carboline System: Primer - Carbozinc 11HS
 Intermediate - Carboguard 891
 Finish - Carbothane 133HB Satin

Engard System: Primer - 519 Inorganic Zinc
 Intermediate - 460 H.S. Epoxy
 Finish - 428 Urethane Semi Gloss

Tnemec System: Primer - 69-1211
 Intermediate - 69 Hi-Build Expoxoline II
 Finish - 75 Polyurethane, Semi-Gloss

2.6 ARCHITECTURAL PAINT FINISHES

- A. Manufacturer. Unless otherwise noted, products listed below are the products of the Dunn-Edwards Corporation and Sinclair Paints. Reviewed equivalent products of Ameritone Co. will be acceptable.
 - 1. System P-1 - Enamel On Structural Steel Members
 - a. Dunn Edward's System:
 - 1) First Coat - "Bloc-Rust", rust inhibitive red primer 43-4 (delete on factory primed materials)
 - 2) Second Coat - "Lockote" 42-33
 - 3) Third Coat - "Endurasheen" semigloss enamel 39 series
 - 4) Fourth Coat - "Endurasheen" semigloss enamel 39 series
 - b. Sinclair's System:
 - 1) First Coat - Red Oxide Primer No. 15
 - 2) Second Coat - CorroPrime No. 14
 - 3) Third Coat - Sash and Trim Enamel GX22
 - 4) Fourth Coat - Sash and Trim Enamel GX22

**State Capitol Building
Cooling Tower Replacement**

2. System P-4 - Enamel on Galvanized Metal (On Doors, Frames, and Sheet Metal)
 - a. Dunn-Edwards System:
 - 1) Pretreatment - Vinyl wash pretreatment, 42-36
 - 2) First Coat - "Galvaprime", zinc dust primer 43-3
 - 3) Second Coat - "Loc Kote" synthetic body coat 42-23
 - 4) Third Coat - "Endurasheen" semi-gloss enamel 39 series
 - b. Sinclair's System:
 - 1) Pretreatment - Vinyl wash pretreatment, 7113
 - 2) First Coat - Corro Prime 14
 - 3) Second Coat - Sash & Trim Primer GX22
 - 4) Third Coat - Sash & Trim Enamel GX2
3. System P-5 - Enamel on Primed Metal
 - a. Dunn-Edwards System:
 - 1) First Coat - (over prime) - "Loc Kote" synthetic body coat 42-33
 - 2) Second Coat - "Endurasheen" semi-gloss enamel 39 Series
 - b. Sinclair's System:
 - 1) First Coat - Corro Prime 14
 - 2) Second Coat - Sash and Trim Enamel GX22
 - 3) Third Coat - Sash and Trim Enamel GX22

2.7 PATCH COAT FOR GALVANIZED SURFACES

- A. All galvanized surfaces which are scratched, marred, or otherwise damaged shall be patched with Carboline's Carbo Zinc II, "Drygalv" by American Solder and Flux Co., Engard 515 Zinc Rich Primer, or approved equal.

PART 3 EXECUTION

3.1 MANUFACTURER'S RECOMMENDATIONS

- A. Unless otherwise specified herein, the paint and coating manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protection of his coating materials; for preparation of surfaces for coating; and for all

**State Capitol Building
Cooling Tower Replacement**

other procedures relative to coating shall be strictly observed. No substitutions or other deviations shall be permitted without written permission of the Owner.

3.2 DELIVERY AND STORAGE

- A. Materials shall be delivered in manufacturer's original, sealed containers, with labels and tags intact. Coating materials and equipment shall be stored in designated areas. Coating containers shall be opened only when required for use. Coatings shall be mixed only in designated rooms or spaces in the presence of the Owner's Representative. Coating shall be thoroughly stirred or agitated to uniformly smooth consistency and prepared and handled in a manner to prevent deterioration and inclusion of foreign matter. Unless otherwise specified or reviewed, no materials shall be reduced, changed, or used except in accordance with the manufacturer's label or tag on container.

3.3 SAFETY REQUIREMENTS

In accordance with the requirements of the latest revision of the City, State and Federal Regulations and applicable OSHA Regulations for Construction, the Contractor shall provide and require the use of personal protective lifesaving equipment for all persons working in or about the Project site.

- A. Protective Equipment. Respirators shall be worn by all persons engaged in, and assisting in, spray painting. In addition, workers engaged in or near the Work during sandblasting shall wear eye and face protection devices meeting the requirements of ANSI Z87.1 latest revision, and approved OSHA Regulations for sandblasting operations and approved air-purifying, half-mask or mouthpiece respirator with appropriate filter.
- B. Ventilation. Where ventilation is used to control potential exposure to workers as set forth in Section 1910.94 of the OSHA Regulations for Construction, ventilation shall be adequate to reduce the concentration of the air contaminant to the degree that a hazard to the worker does not exist. Methods of ventilation shall meet the requirements set forth in ANSI Z9.2, latest revision.
- C. Sound Levels. Whenever the occupational noise exposure exceeds the maximum allowable sound levels as set forth in Table D-2, Permissible Noise Exposures, in Section 1926.52, of the OSHA Regulations for Construction, ear protective devices shall be furnished and used. Ear protective devices inserted in the ear shall be fitted or determined individually, by competent persons. Plain cotton is not an acceptable protective device.
- D. Storage and mixing of coating materials shall be performed only in those areas designated by the Owner.
- E. Cloths and cotton waste that might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each work day.

3.4 STORAGE, MIXING, AND THINNING

- A. Paint and coating materials shall be protected from exposure to cold weather, and shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Materials of different manufacturers shall not be mixed together. Packaged materials may be thinned immediately prior to application in accordance with the manufacturer's directions.

**State Capitol Building
Cooling Tower Replacement**

3.5 WORKMANSHIP

- A. Skilled craftsmen and experienced supervision shall be used on all Work.
- B. All paint and coatings shall be applied in a workmanlike manner so as to produce an even film of specified uniform thickness. Edges, corners, crevices, and joints shall receive special attention to ensure that they have been thoroughly cleaned and that they receive an adequate thickness of paint. The finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks, and variations in color, texture, and finish. The hiding shall be so complete that the addition of another coat of paint would not increase the hiding. All coats shall be applied so as to produce a film of uniform thickness. Special attention shall be given to ensure that edges, corners, crevices, welds, and similar areas receive a film thickness equivalent to adjacent areas, and installations shall be protected by the use of drop cloths or other approved precautionary measures. Rough exterior cement plaster shall be spray painted.

3.6 PREPARATION FOR PAINTING AND PROTECTIVE COATING

- A. All surfaces to receive paint and protective coatings shall be cleaned as specified herein prior to application of coating materials. The Contractor shall examine all surfaces to be coated, and shall correct all surface defects before application of any coating material. Beginning the Work of this Section without reporting unsuitable conditions to the Owner constitutes acceptance of conditions by the Contractor. Any required removal, repair, or replacement of the Work caused by unsuitable conditions shall be done at no additional cost to the Owner. All marred or abraded spots on shop-primed and factory-finished surfaces shall receive touch-up restoration prior to any other coating application.

3.7 ITEMS NOT TO BE COATED

- A. Hardware, hardware accessories, nameplate data tags, machined surfaces and similar items in contact with coated surfaces not to be coated shall be removed or masked prior to surface preparation and painting operations. Following completion of coating of each piece, removed items shall be reinstalled. Such removal and installation shall be done by workmen skilled in the trades involved.

3.8 SANDBLASTING

- A. All sandblasting shall be done in strict accordance with the referenced specifications of the Steel Structures Painting Council.
- B. When items are to be shop primed or shop primed and finish coated in the shop, surface preparation shall be as specified in this Section. The Owner shall have the right to witness, inspect, and reject any sandblasting done in the shop.
- C. When sandblasting is done in the field, care shall be taken to prevent damage to structures and equipment. Pumps, motors, and other equipment shall be shielded, covered, or otherwise protected to prevent the entrance of sand. No sandblasting may begin before the Owner inspects and reviews the protective measures.
- D. After sandblasting, dust and spent sand shall be removed from the surfaces by brushing or vacuum cleaning.

**State Capitol Building
Cooling Tower Replacement**

3.9 APPLICATION OF ARCHITECTURAL PAINT FINISHES

Perform surface preparation, material mixing and application (including dry-mil thicknesses) for each "Architectural Paint Finish System" in strict conformance with submitted and approved material manufacturers' printed recommendations.

A. Surface Preparation

1. General.

- a. Before priming, correct all finish surfaces which are not properly prepared, sandpapered and cleaned or which are not in proper condition to receive finish specified. Do no priming until surfaces are approved.
- b. Prior to surface preparation and painting operations, remove or protect all hardware, hardware accessories, plates, lighting fixtures and similar items in contact with painted surfaces and not to be painted.
- c. Program cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

2. Clean concrete and masonry surfaces of all dirt, encrustations, efflorescence and other foreign matter. Roughen glazed surfaces on concrete.

3. Clean ferrous metal not provided with a shop prime of rust, mill scale, oil, grease and foreign matter by wire brushing, scraping or sandblasting as necessary. Clean ferrous metal provided with shop prime of oil, grease and foreign matter. Prime scratched and abraded areas with No. 15 Chrome Oxide Primer.

4. Clean galvanized metal with mineral spirits and pretreat with Sinclair's No. 7113 Vinyl Wash Primer. Prime cleaned and pretreated galvanized metal with Sinclair's No. 25 Zinc Dust Primer the same day that cleaning has been performed.

B. Application

1. Apply material evenly, free from sags, runs, crawls, holidays or defects. Mix to proper consistency, brush out smooth leaving minimum of brush marks, enamel, and varnish uniformly flowed on.

- a. Sand and dust between each coat to remove defects visible from a distance of five feet.
- b. Finish coats shall be smooth, free of brush marks, streaks, laps or pile up of paints, and skipped or missed areas. Finished metal surfaces shall be free of skips, voids or pinholes in any coat when tested with a low voltage detector.
- c. Do not apply initial coating until moisture content of surface is within limitations recommended by paint manufacturer.

**State Capitol Building
Cooling Tower Replacement**

- d. Rate of application shall not exceed that as recommended by paint manufacturer for the surface involved less ten percent allowance for losses.
 - e. Keep brushes and spraying equipment clean, dry, free from contaminants and suitable for the finish required.
2. Apply paint by brushes, roller or spray.
 3. Tint all pigmented undercoats to approximately same shade as final coat. Perceptibly increase the depth of shade in successive coats.
 4. Allow each coat to dry thoroughly before succeeding coat application. For oil paints, allow at least 48 hours between coats of exterior work, except where otherwise recommended by the manufacturer.
 5. Finish all four edges of doors with the same number and kind of coatings as specified for their main surfaces. Where openings into rooms having different finishes, finish door edges as directed.
 6. Do not paint factory finished items unless specifically directed.
 7. Apply two finish coats of paint to shop primed metal surface of all mechanical and electrical equipment, to match adjoining wall or ceiling surfaces. In addition to above, prime coat all unprimed surfaces. Principal items of this Work include, electric panels, conduit, pull boxes, ducts and pipes.
 8. Miscellaneous Painting: Paint surfaces to be painted and not specifically described herein, with a product specifically manufactured or prepared for the material and surface; prime coat and two finish coats.
 9. Upon completion, remove all rubbish caused by this trade. Remove spots from floors, glass and other surfaces. Leave in a clean and orderly condition.
 10. At the completion of other trades, touch up damaged surfaces as required.

3.10 APPLICATION OF PROTECTIVE COATINGS

- A. Shop Coating. Fabricated metalwork and equipment which requires coating may be shop primed before fabrication with specified primer. Any such work delivered to the job site with any other shop coat shall have this coating removed and the specified coating applied in the field. Manufactured equipment with approved corrosion resistant factory finishes and galvanized finishes shall be exempt from this requirement.
- B. Application of Field Coatings
 1. Except where in conflict with the manufacturer's printed instructions, or where otherwise specified herein, the Contractor may use brush, roller, air spray, or so-called airless spray application; however, any spray painting must first have the approval of the Owner. Rollers for applying enamel shall have a short nap. Areas inaccessible to spray coating or rolling shall be coated by brushing or other suitable means.

**State Capitol Building
Cooling Tower Replacement**

2. The Contractor shall give special attention to the Work to ensure that edges, corners, crevices, welds, bolts, and other areas, as determined by the Owner, receive a film thickness at least equivalent to that of adjacent coated surfaces.
3. All protective coating materials shall be applied in strict accordance with the manufacturer's printed instructions.
4. Prime coat shall be applied to all clean surfaces within a four hour period of the cleaning, and prior to deterioration or oxidation of the surface, and in accordance with the manufacturer's recommendations. Drift from sandblasting procedures shall not be allowed to settle on freshly painted surfaces.
5. All coatings shall be applied in dry and dust-free environment, and unless otherwise directed by the Owner, shall not be applied when the air temperature or the temperature of the surface to be painted is outside the range of the coatings manufacturer's recommendations.
6. Each coat shall be applied evenly, at the proper consistency, and free of brush marks, sags, runs, and other evidence of poor workmanship. Care shall be exercised to avoid lapping paint on glass or hardware. Coatings shall be sharply cut to lines. Finished coated surfaces shall be free from defects or blemishes. Protective coverings shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent paint from being pattered onto surfaces from which such paint cannot be removed satisfactorily. Surfaces from which paint cannot be removed satisfactorily shall be painted or repainted as required to produce a finish satisfactory to the Owner. Whenever two (2) coats of a dark colored paint are specified, the first coat shall contain sufficient powdered aluminum to act as an indicator of proper coverage, or the two (2) coatings shall be of a contrasting color.
7. Interior surfaces of supports, and all contact surfaces inaccessible after assembly, shall be coated before erection; however, no structural friction connections shall be painted before erection. Areas damaged during erection shall be hand or power-tool cleaned and recoated with prime coat.
8. Touch-up of all surfaces shall be performed after installation.
9. All surfaces to be coated shall be clean and dry at the time of application.

C. Time of Coating

1. Sufficient time shall be allowed to elapse between successive coats to permit satisfactory recoating, but, once commenced, the entire coating operation shall be completed without delay. No additional coating of any structure, equipment, or other item designated to be painted shall be undertaken without specific permission of the Owner until the previous coating has been completed for the entire structure, piece of equipment, or other item.

3.11 TESTING AND INSPECTION

- A. Inspection Devices. The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and

**State Capitol Building
Cooling Tower Replacement**

measurement of dry-film thickness of coatings and paints. The Contractor shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test the accuracy of dry-film thickness gauge and certified instrumentation to test accuracy. Dry-film thickness gauges shall be made available for the Inspector's use at all times until final acceptance of application. Holiday detection devices shall be operated in the presence of the Inspector. Inspection devices shall be operated in accordance with the manufacturer's instructions at the direction of the Owner or the Owner's Representative.

- B. The Contractor shall conduct film thickness measurements and electrical inspection of the coated surfaces with equipment furnished by him and shall recoat and repair as necessary for compliance with the Specifications.
- C. After repaired and recoated ferrous metals areas have cured, final inspection tests will be conducted by the Owner or the Owner's Representative. Coating thicknesses specified in mils on ferrous substrates will be measured with a nondestructive magnetic type dry-film thickness gauge such as the Elcometer, manufactured by Gardner Laboratories, Inc. Discontinuities, voids and pinholes in the coatings will be determined with a nondestructive type electrical holiday detector. Epoxy coatings and other thin film coatings will be checked for discontinuities and voids with a low voltage detector of the wet-sponge type, such as Model MI as manufactured by Tinker and Rasor. Use a non-sudsing type wetting agent, such as Kodak Photo-Flo, which shall be added to the water prior to wetting the sponge. A high voltage, low current, spark type detector such as Model EP, manufactured by Tinker and Rasor, will be used for electrical inspection of only coat tar enamel. Tape type coatings will be inspected for holidays using a device designed for use in detecting such flaws. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities will be permitted. Wide film thickness discrepancies shall be measured and verified with a micrometer or other approved measuring instrument. Coatings not in compliance with the Specifications will not be acceptable and shall be replaced and reinspected at Contractor's expense until the Specifications are met.
- D. On non-ferrous surfaces, dry film thickness readings shall be taken at random locations with a Tooke Gauge at the rate of approximately five readings per 100 square feet of surface. Groove cut into coating shall be repaired by application of all coats of paint or coating film being tested. The average of all readings for a given area or surface shall be within required dry film thickness range and no individual reading shall be more than 20 percent below the recommended dry film thickness. Any areas that are found to be below standard shall be marked and recoated to obtain proper film thickness.
- E. Warranty Inspection. Warranty inspection shall be conducted during the eleventh month following completion of all coating and painting Work. All personnel present at the Pre-Job Conference shall attend this inspection. All defective Work shall be repaired in accordance with this Specification and to the satisfaction of the Owner or his appointed representative.

3.12 CLEAN UP

- A. Upon completion of the Work, staging, scaffolding, and containers shall be removed from the site or destroyed in an approved manner. Paint spots, oil, or stains upon adjacent surfaces shall be removed.

**State Capitol Building
Cooling Tower Replacement**

- B. The Contractor shall clean the site in accordance with the requirements for "Cleaning Up" in the General Conditions.

3.13 PAINT AND COATING SCHEDULE

ARCHITECTURAL SYSTEM	DESCRIPTIVE COLOR CODE	MANUFACTURERS' PAINT DESIGNATION
PLANT BUILDINGS:		
General Surface	To be determined by Owner	Rustoleum #865 (Dunes Tan)
Trim & Doors	To be determined by Owner	Rustoleum #977 (Chestnut Brown)
Walls (metal)	To be determined by Owner	Dunn-Edwards #CH-60B (Parchment)

Both the direction of fluid flow, and the name of the fluid in the pipe shall be stenciled on all pipe at least once every twenty-five (25) feet and at every change of direction. Color bands shall be spaced at fifteen (15) foot intervals and every change in direction. The size of the letters and color bands shall be as specified in the table below:

OUTSIDE DIAMETER PIPE OR COVERING	WIDTH OF COLOR BAND	HEIGHT OF LEGEND LETTERS
1/4 to 1-1/4	1	1/2
1-1/2 to 2	1	3/4
2-1/2 to 6	6	2
8 to 10	6	2-1/2
Over 10	6	3-1/2

All dimensions are given in inches.

The stenciled labels shall be abbreviated and conform to the piping abbreviations shown on Color Code Schedule. The labels shall be safety yellow, matching OSHA Safety Yellow. Engines and herein listed electrical items shall be color coded as follows:

White: Sherwin Williams F65W1
Electrical (Excluding panels)

**State Capitol Building
Cooling Tower Replacement**

Gray: ANSI 61
Electrical panels

Light Yellow: (EMWD)
Engines


- A. Process Valve Identification. After the painting of process piping is complete, the Contractor shall stencil the tag numbers, as supplied by the Owner, of all valves on the pipe adjacent to the valve for pipe 2 inches and over. Characters shall be one inch high minimum and shall be oriented to be visible from the valve operating position. When the valve has extended operator shaft or chain operator, the number shall be placed both at the operating position and at the valve if practicable. The latter requirement does not apply if the valve is buried or in a pit. Valves in pipes under 2 inches shall have characters as large as the pipe will permit or at the Owner's option, on an adjacent surface. Characters shall be preferably white; however, if this would not provide sufficient contrast to the pipe, the Owner may select another color. Paint used shall be of the same type and quality as used for painting the pipe.

END OF SECTION

GENERAL NOTES - POWER

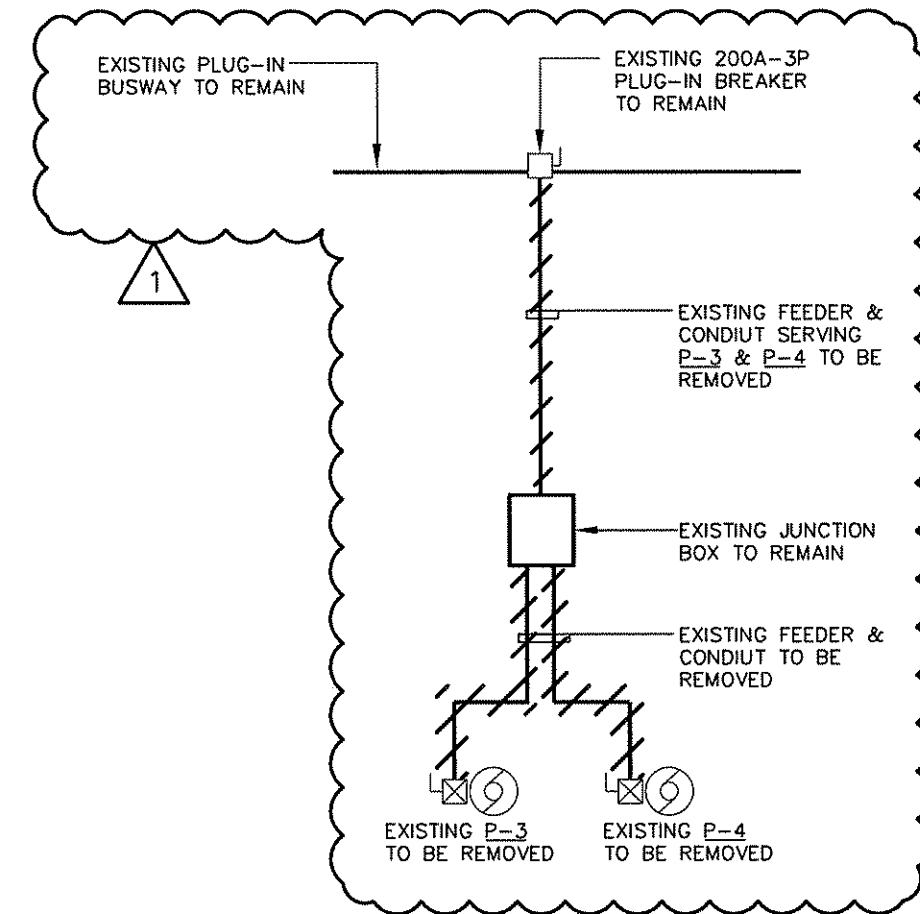
1. PANELS PCT-1 AND PCT-2 IS SUPPLIED BY DIVISION 15, INSTALLED AND WIRED BY DIVISION 16.
2. PANEL PCT-1 SHALL BE FED FROM EXISTING 200A-3P CIRCUIT BREAKER MADE AVAILABLE DURING DEMOLITON PHASE IN PANEL GEN-PP VIA 4#3/0, #6G, 2-1/2"C.
3. PANEL PCT-2 SHALL BE FED FROM EXISTING 200A-3P CIRCUIT BREAKER MADE AVAILABLE DURING DEMOLITON PHASE IN PANEL GEN-PP VIA 4#3/0, #6G, 2-1/2"C.
4. ALL CIRCUITS SHALL BE 2#12,#12G.,3/4"C., TO NEW 20A-1P CIRCUIT BREAKER IN PANEL INDICATED UNLESS NOTED OTHERWISE.
5. ALL BRANCH CIRCUITS EXCEEDING 150' IN LENGTH SHALL BE 2#10,#10G., 3/4"C. UNLESS NOTED OTHERWISE.
6. ALL DEVICES SHALL BE LABELED WITH SOURCE PANEL AND CIRCUIT NUMBER(S).
7. REFER TO MOTOR CIRCUIT SCHEDULE FOR EQUIPMENT CIRCUIT REQUIREMENTS, SEE DRAWING ME-2
8. REFER DRAWING ME-2 FOR SYMBOL LIST.

1

 Consulting Engineering Services, Inc. 1811 Middle Street Middletown, CT 06457 Tel. (860) 632-1682 Fax. (860) 632-1768	PROJECT TITLE: STATE CAPITAL COOLING TOWER REPLACEMENT	DRAWING TITLE: MECHANICAL & ELECTRICAL PART PLAN, SHCEDULES AND DETAILS	DWG. NO: SKE-2
	REVISIONS TO: ME-2 REMARKS: ADDENDUM #1	DATE: 10/11/06 PROJECT NO: 26035.05	SCALE: AS NOTED

ELECTRICAL DEMOLITION NOTES


1. REMOVE EXISTING 100A-3P STARTERS & DISCONNECTS AND ASSOCIATED FEEDERS & CONDUIT BACK TO EXISTING 200A-3P PLUG-IN BREAKER LOCATED IN THE STORAGE ROOM.
2. ALL DEVICES INDICATED SHALL BE REMOVED UNLESS NOTED OTHERWISE. REMOVAL SHALL BE COMPLETE INCLUDING BOXES, BRACKETS, HANGERS AND BRANCH CIRCUIT WIRING BACK TO SOURCE PANELBOARD OR LAST ACTIVE DEVICE TO REMAIN (EXCEPT WHERE NOTED).
3. CONTRACTOR SHALL MODIFY EXISTING CIRCUITS, WHEN EXISTING DEVICES ARE REMOVED, AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.
4. THIS PLAN IS DIAGRAMMATIC AND NOT INTENDED TO DEPICT THE ENTIRE SCOPE OF ELECTRICAL DEMOLITION. ADDITIONAL DEMOLITION AND MODIFICATION WORK NOT SHOWN SHOULD BE ANTICIPATED.
5. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
6. REFER TO DRAWING ME-2 FOR SYMBOL LIST.

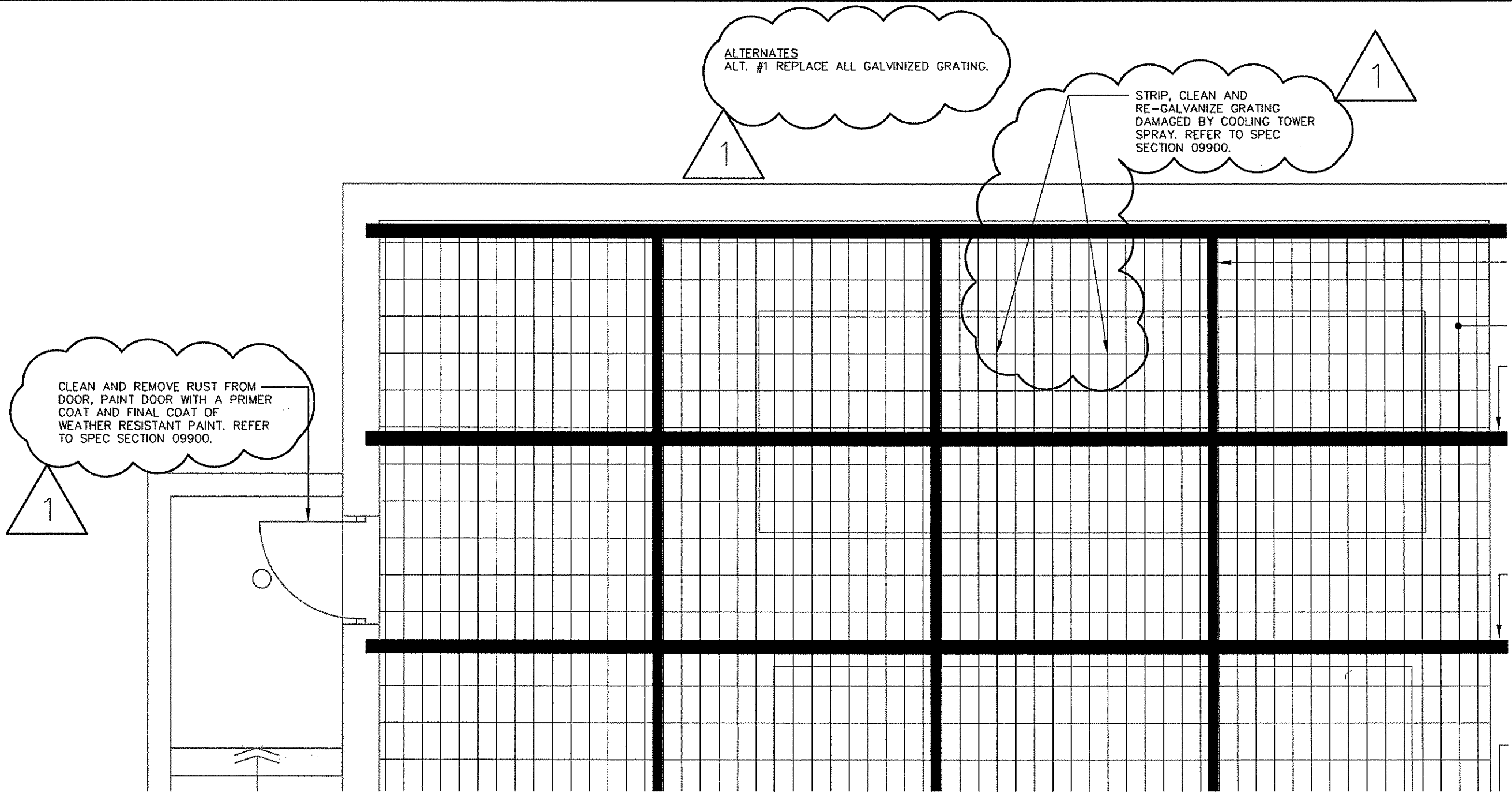


2


PARTIAL EXISTING POWER RISER DIAGRAM

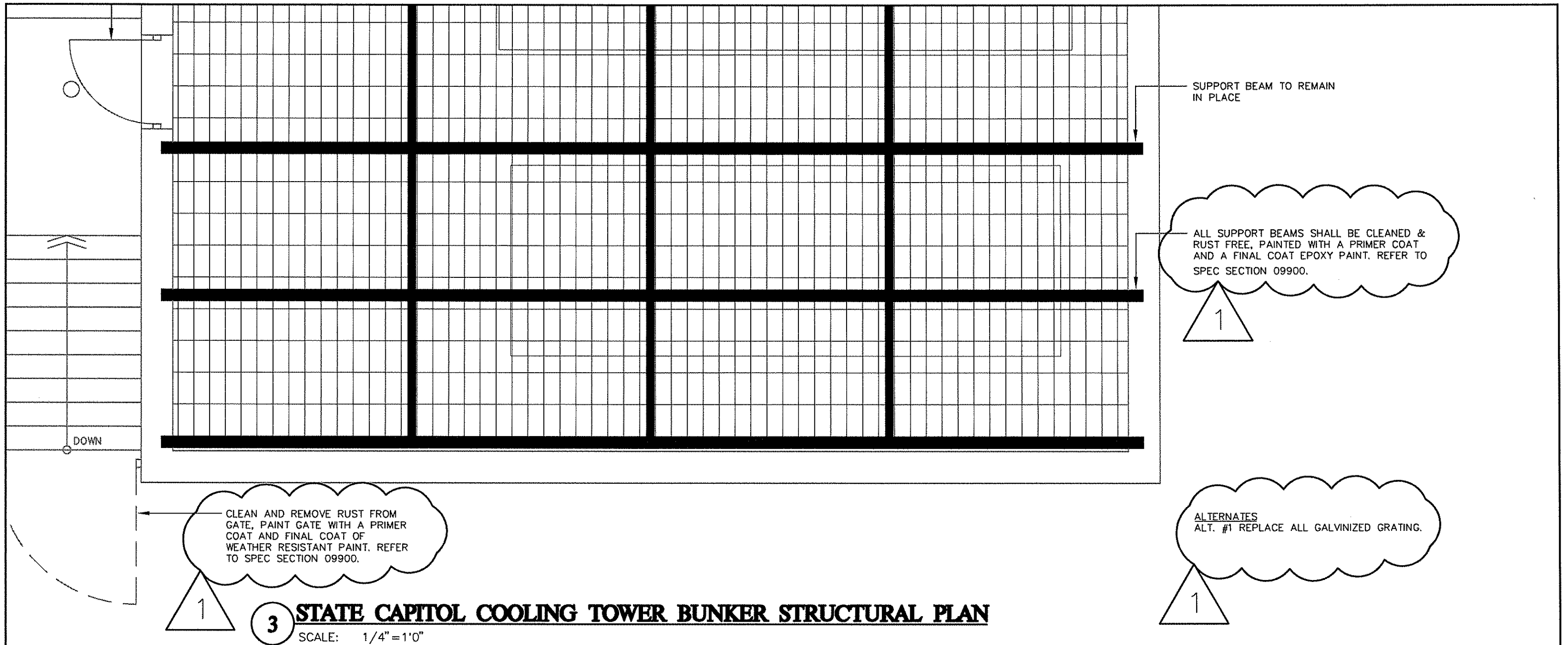
SCALE: N.T.S

 <p style="font-size: small;">1811 Middle Street Middletown, CT 06457 Tel. (860) 632-1682 Fax. (860) 632-1768</p>	PROJECT TITLE:	DRAWING TITLE:	DWG. NO:
	STATE CAPITAL COOLING TOWER REPLACEMENT	BASEMENT ELECTRICAL PLANS	SKE-1
REVISIONS TO: E-1	DATE: 10/11/06	SCALE: AS NOTED	
REMARKS: REFER TO ADDENDUM #1		PROJECT NO: 26035.05	



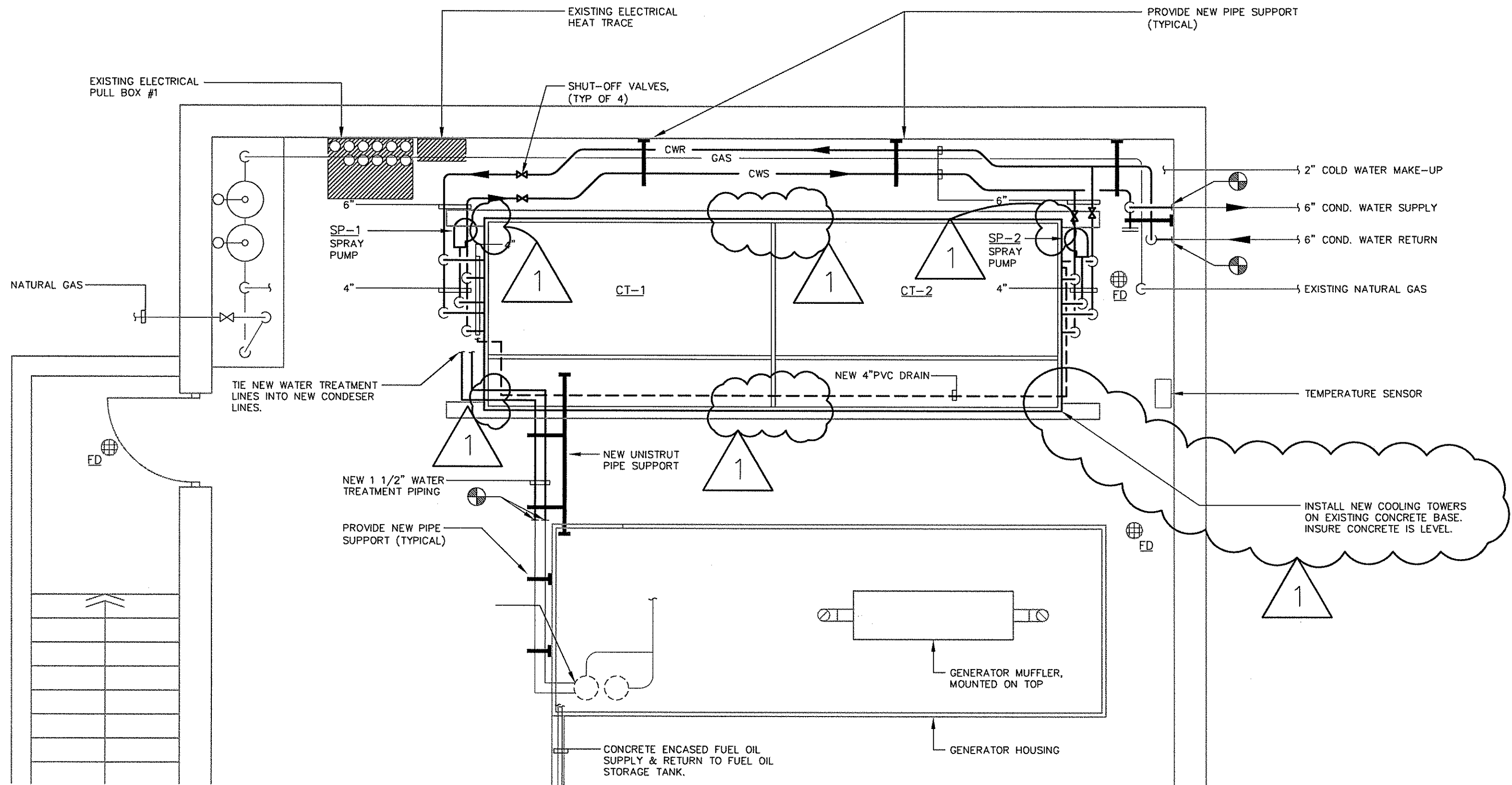
3 STATE CAPITOL COOLING TOWER BUNKER STRUCTURAL PLAN
 SCALE: 1/4" = 1'0"

 1811 Middle Street Middletown, CT 06457 Tel. (860) 632-1682 Fax. (860) 632-1768	PROJECT TITLE: STATE CAPITAL COOLING TOWER REPLACEMENT	DRAWING TITLE: COOLING TOWER AREA AND SITE PLAN	DWG. NO: SKM-1
	REVISIONS TO: ME-1 REMARKS: REFER TO ADDENDUM #1	DATE: 10/11/06 PROJECT NO: 26035.05	SCALE: AS NOTED



3 STATE CAPITOL COOLING TOWER BUNKER STRUCTURAL PLAN
 SCALE: 1/4" = 1'0"

 1811 Middle Street Middletown, CT 06457 Tel. (860) 632-1682 Fax. (860) 632-1768	PROJECT TITLE: STATE CAPITAL COOLING TOWER REPLACEMENT	DRAWING TITLE: COOLING TOWER AREA AND SITE PLAN	DWG. NO: SKM-2
	REVISIONS TO: ME-1 REMARKS: REFER TO ADDENDUM #1	DATE: 10/11/06 PROJECT NO: 26035.05	SCALE: AS NOTED



2 STATE CAPITOL COOLING TOWER BUNKER PLAN
 SCALE: 1/4" = 1'0"

 1811 Middle Street Middletown, CT 06457 Tel. (860) 632-1682 Fax. (860) 632-1768	PROJECT TITLE: STATE CAPITAL COOLING TOWER REPLACEMENT	DRAWING TITLE: COOLING TOWER AREA AND SITE PLAN	DWG. NO: SKM-3
	REVISIONS TO: ME-1 REMARKS: REFER TO ADDENDUM #1	DATE: 10/11/06 PROJECT NO: 26035.05	SCALE: AS NOTED