



SM No. CBWO500151008

# PROPOSAL AND CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF  
(EXEMPT)

8  
Work necessary to install an emergency generator for District 5  
Headquarters, known as State Project No. BWO-5001-51(008) /  
501640301, in the County of Newton, State of Mississippi.  
Project Completion: September 30, 2007

## NOTICE

BIDDERS MUST PURCHASE A BOUND PROPOSAL  
FROM MDOT CONTRACT ADMINISTRATION DIVISION  
TO BID ON THIS PROJECT.

Electronic addendum updates will be posted on [www.goMDOT.com](http://www.goMDOT.com)

**SECTION 900**  
**OF THE CURRENT**  
**(2004) STANDARD SPECIFICATIONS**  
**FOR ROAD AND BRIDGE CONSTRUCTION**  
**MISSISSIPPI DEPARTMENT OF TRANSPORTATION**  
**JACKSON, MISSISSIPPI**

**MISSISSIPPI DEPARTMENT OF TRANSPORTATION**

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**SECTION 00 01 10**

**PROJECT: EMERGENCY GENERATOR FOR DISTRICT FIVE HEADQUARTERS AT NEWTON, NEWTON COUNTY, MISSISSIPPI**

**PROJECT NUMBER: BWO-5001-51(008) 501640**

**DATE: AUGUST 14, 2006**

**DESCRIPTION A:** The Department of Transportation shall clear and grub the site and have in place a generator pad of compact select material within one foot of finish slab elevation. This Emergency Generator is located on the map shown on the Cover Sheet of the Drawings in Newton County, Mississippi, at the existing District 5 Headquarters in Newton on Highway 80W. Work shall be done in accordance with these Specifications and conforming with the Drawings.

It is the intention of these Specifications to provide the necessary items and instructions to install the Emergency Generator including all code compliance. Omission of items or instruction necessary or considered standard good practice for the proper installation and construction of the building shall not relieve the Contractor of furnishing and installing such items and conforming to the building codes having jurisdiction.

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E1.0	3	SITE PLAN – ELECTRICAL
E2.0	4	ELECTRICAL DETAILS

END OF SECTION

**MISSISSIPPI DEPARTMENT OF TRANSPORTATION**

**ADVERTISEMENT FOR BIDS**

**SECTION 00 11 13**

Sealed bids will be received by the Mississippi Transportation Commission in the Office of the Contract Administration Engineer, Mississippi Department of Transportation Office Building, Jackson, Mississippi, until 9:30 o'clock A.M., Tuesday, November 28, 2006. Thereafter bids will be received in the First Floor Auditorium of the Mississippi Department of Transportation Office Building, Jackson, Mississippi, until 10:00 o'clock A.M., Tuesday, November 28, 2006, and shortly thereafter publicly opened for

Construction necessary to Install a new Emergency Generator for District Five Headquarters at Newton, Newton County, Mississippi, known as Project Number BWO-5001-51(001) 501640.

The attention of bidders is directed to the Contract Provisions governing selection and employment of labor. Minimum wage rates have been predetermined by the Secretary of Labor and are subject to Public Law 87-581, Work Hours Act of 1962, as set forth in the Contract Provisions.

The Mississippi Department of Transportation hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, religion or national origin in consideration for an award.

Drawings and Specifications are on file in the offices of the Mississippi Department of Transportation at Newton and Jackson.

Bid or specimen proposals must be acquired from the Contract Administration Engineer Division, First Floor of Mississippi Department of Transportation Office Building, Telephone (601) 359-7744. These proposals are available at a cost of Ten Dollars (\$10.00) per proposal.

Plans may be acquired on a cost per sheet basis from MDOT Plans Print Shop, Room 1100, Administration Building, 401 North West Street, Jackson, Mississippi 39201, Telephone (601) 359-7460, FAX (601) 359-7461, E-mail [plans@mdot.state.ms.us](mailto:plans@mdot.state.ms.us).

Bid Bond, signed or countersigned by a Mississippi Resident Agent, with Power of Attorney attached or on file with the Contract Administration Engineer of the Department, a Cashier's check or Certified Check for five (5%) percent of bid, payable to STATE OF MISSISSIPPI, must accompany each proposal.

The attention of bidders is directed to the provisions of Document 00200 - Instructions to Bidders pertaining to irregular proposals and rejection of bids.

LARRY L."BUTCH" BROWN  
EXECUTIVE DIRECTOR

(SPWP)

END OF SECTION  
00 11 13-1

MDOT – 5<sup>th</sup> District – Newton

Advertisement for Bids

**INSTRUCTIONS TO BIDDERS**  
**SECTION 00 21 13**

**Part 1 GENERAL**

- 1.01 **QUESTIONS:** General questions should be directed to the Project Engineer. Should a Bidder find Discrepancies in or omissions from the Drawings or Project Manual, or be in doubt as to their meaning, the Bidder should immediately notify the Project Engineer. The Contract Administration Engineer will send the Project Engineer's written instruction(s) or interpretation(s) to all known holders of the Documents. Neither the Owner, nor the Project Engineer, will be responsible for any oral instruction or interpretation.
- 1.02 **BIDDER'S QUALIFICATIONS:**
- A. **Certificate of Responsibility:** The Mississippi State Board of Contractors is responsible for Issuing Certificates of Responsibility to Contractors. To be awarded a Contract for public work, Sections 31-3-15 and 31-3-21 of the Mississippi Code 1972, Annotated requires a Contractor to have a current Certificate of Responsibility at bid time and during the entire length of the job. The Certificate of Responsibility number issued becomes a significant item in all public bidding.
  - B. **Bid Under \$50,000:** If a Bidder submits a bid not exceeding \$50,000, no Certificate of Responsibility number is required; however, a notation stating the bid does not exceed \$50,000 must appear on the face of the envelope, or a Certificate of Responsibility number.
  - C. **Bid Over \$50,000:** Each Bidder submitting a bid in excess of \$50,000 must show its Certificate of Responsibility number on the bid and on the face of the envelope containing the bid.
  - D. **Joint Venture Bid:** When multiple Contractors submit a joint venture bid in excess of \$50,000, a joint venture Certificate of Responsibility number must be shown on the bid and on the face of the envelope containing the bid. If the Multiple-Contractor joint venture has no joint venture Certificate of Responsibility number, each of the Contractors participating in the bid must indicate their individual Certificate of Responsibility numbers on the bid and on the face of the envelope.
- 1.03 **NON-RESIDENT BIDDER:** When a non-resident Bidder (a Contractor whose principal place of Business is outside the State of Mississippi) submits a bid for a Mississippi public works project, one of the following is required and shall be submitted with the Proposal Form:
- A. **Copy of Law:** If the non-resident Bidder's state has a resident Bidder preference law, a copy of that law shall be submitted with the Proposal Form.
  - B. **Statement:** If the state has no such law then a statement indicating the State of (Name of State) has no resident Contractor preference law shall be submitted with the Proposal Form.
- 1.04 **DISQUALIFICATION OF BIDDER:** A Bidder may be disqualified for having defaulted on a previous Contract.

- 1.05 **CONDITIONS OF WORK:** Each Bidder must fully inform himself of all conditions relating to the construction of the Project and employment of labor thereon. Failure to do so will not relieve a successful Bidder of obligations to furnish all material and labor necessary to carry out the provisions of the Contract. Insofar as possible, the Bidder must employ methods, or means, which will not cause interruption of, or interference with, the work of any other Bidder or Contractor.
- 1.06 **EXAMINATION OF SITE:** All Bidders, including the general Contractor and Subcontractors shall visit the building site, compare the Drawings and Project Manual with any work in place and informed of all conditions. Failure to visit the site will in no way relieve the successful Bidder from furnishing any materials or performing any work required to complete Work in accordance with Drawings and Project Manual (Proposal) without additional cost to the Owner.
- 1.07 **LAWS AND REGULATIONS:** The Bidder's attention is directed to the fact that all applicable Mississippi state laws, rules and regulations of all authorities having jurisdiction over construction of the Project apply to the Contract.
- 1.08 **OBLIGATION OF BIDDER:** At the bid opening, each Bidder will be presumed to have inspected the site, read and become thoroughly familiar with the Drawings and the Project Manual (Proposal) including all addenda.
- 1.09 **BID DOCUMENT:** The amount for Bid Document (Proposal) is indicated in the advertisement for Bids. Selected plan rooms will be issued one set of documents without charge.

## Part 2 PROPOSAL FORM

- 2.01 **METHOD OF BIDDING:** Lump sum, single bids received on a general contract will include general, mechanical and electrical construction and all work shown on Drawings or specified in the Project Manual (Proposal).
- 2.02 **PROPOSAL FORMS:** The Bidder shall make all proposals on forms provided and shall fill all applicable blank spaces without interlineation or alteration and must not contain recapitulation of the work to be done. No oral or telegraphic proposals will be considered.
- 2.03 **TIME OF COMPLETION:** The Bidder shall agree to commence work on, or before a date specified in a written **Notice to Proceed** and fully complete the Project within the calendar days indicated on the Proposal Form.
- 2.04 **SUBSTITUTIONS:** No substitutions, qualifications or redefining of the Specification requirements are allowed to be marked on the Proposal Form, unless specifically required by the Bid Documents. Refer to Section 01 62 15 entitled *Product Options and Substitution Procedures* which covers procedures after the award of Contract.
- 2.05 **ADDENDA:** Any addenda to the Drawings or Project Manual issued before or during the time of bidding shall be included in the proposal and become a part of the Contract. The Proposal Form will have ample space to indicate the receipt of addenda. When completing the Proposal Form. The Bidder shall list the Addendum number and the date received in spaces provided.

2.06 **BIDDER IDENTIFICATION**

- A. **Signature:** The Proposal Form shall be signed, by any individual authorized to enter into a binding agreement for the Business making the bid proposal.
- B. **Name of Business:** The name appearing on the Proposal Form should be the same as the name appearing in the current Mississippi State Board of Contractors Roster.
- C. **Legal Address:** The address appearing on the Proposal Form should be the same address appearing in the current Mississippi State Board of Contractors Roster.
- D. **Certificate of Responsibility Number(s):** The Certificate of Responsibility Number(s) appearing on the Proposal Form should be the same number appearing in the current Mississippi State Board of Contractors Roster.

2.07 **BID SECURITY:** The Bid Security shall be in the form of a Bid Bond, or a Certified Check:

- A. **Bid Bond:** The Bidder may submit a Bid Bond by a Surety licensed in Mississippi in the amount of five percent (5%) of the base bid. The Bidder, the Surety and a Mississippi resident agent shall duly execute the Bid Bond. (No standard form is required for the Bid Bond.)
- B. **Certified Check:** The Bidder may submit a certified check made out to the STATE OF MISSISSIPPI in the amount of five percent (5%) of the base bid. All checks received from Bidders will be returned upon request, unless a Bidder is one (1) of the three (3) apparent low Bidders. The three (3) apparent low Bidder's checks will be held for forty-five (45) days, unless a Contract is awarded and executed in less time.

2.08 **POWER OF ATTORNEY:** Each bid security must be accompanied by an appropriate Power of attorney.

**Part 3 SUBMITTING THE PROPOSAL FORM**

3.01 **SUBMITTAL:** This Proposal, which includes the Bid Forms and Specifications, must have all applicable parts completely filled out and delivered in its entirety to the address indicated on the Advertisement for Bids prior to the time and date stated.

- A. **DO NOT** remove any part of the Contract Documents (Exception – An addendum requires substitution of second sheet of Section 00 42 00 *Proposal Forms*).
- B. Failure to complete all of the applicable requirements may be cause for the Proposal to be considered irregular.
- C. **A stripped Proposal that is not re-assembled in its correct order is considered as an irregular bid and will be rejected.**
- D. The Proposal shall be submitted and sealed in the opaque envelope provided and mailed or hand-delivered.

If the Bid is mailed, the bid envelope shall be placed inside a second envelope to prevent inadvertent premature opening of the Proposal. The second mailing envelope shall have the notations "**SEALED BID ENCLOSED**" on the face thereof.



- 3.02 **MODIFICATION TO BID:** A Bidder may **not** modify the bid prior to the scheduled closing time indicated in the Advertisement for Bids in the following manner:
- A. **Notification on Envelope:** A modification may **not** be written on the outside of the sealed envelope containing the bid.
  - B. **Facsimile:** A facsimile (fax) will **not** be acceptable.
- 3.03 **WITHDRAWAL OF BID:** Any bid may be withdrawn prior to the scheduled time for opening of bids. However, bids may not be withdrawn until sixty (60) days after bid opening.

#### Part 4 BID OPENING AND AWARD OF CONTRACT

- 4.01 **OPENING OF BIDS:** Bids will be publicly opened shortly after the time stated in the advertisement for Bids. Bidder representatives are invited; however, attendance is not mandatory.
- 4.02 **IRREGULARITIES:** The omission of any information requested on the Proposal Form may be considered as an informality, or irregularity, by the awarding public body when in their opinion the omitted information does not alter the amounts contained in the submitted bid proposal, or place other Bidders at a disadvantage.
- 4.03 **PROTEST:** Any protest must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening.
- 4.04 **ERRORS:** Any claim of error and request for release from bid must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening. The Bidder shall provide sufficient documentation with the written request clearly proving an error was made.
- 4.05 **AWARD OF CONTRACT:** The Owner reserves the right to reject any, or all bids. A Contract will be awarded on the basis of the low base bid, or low combination of base bid and those alternates selected by the Owner in any order determined to be in the best interest of the Mississippi Transportation Commission and which produces a total within available funds.
- 4.06 **FAILURE TO ENTER INTO A CONTRACT:** The Bidder shall forfeit the Bid Security to the Owner as liquidated damages for failure, or refusal, to execute and deliver the Contract, Bond and Certificate of Insurance within the required ten (10) days after notice of the acceptance of the bid.
- 4.07 **SECURITY FOR FAITHFUL PERFORMANCE:** Simultaneously, with delivery of the executed Contract, the Contractor shall furnish a Surety Bond, or Bonds, as security for faithful performance, the payment of all persons performing labor on the project and furnishing materials in connection with this Contract. The Surety on such Bond or Bonds shall be a duly authorized surety company satisfactory to the Owner and meeting all of the following requirements:
- A. Licensed at the time of award by the State of Mississippi's Commissioner of Insurance for the purpose of providing surety.
  - B. Listed at the time of award in the Department of the Treasury's Federal Register as a company holding certificates of authority as acceptable sureties on Federal Bonds, commonly referred to as the Treasury List.

- C. All Bonds shall be executed on the form provided in the Project Manual under Section 00 61 00 entitled *Bond Forms*.
- D. A Mississippi resident agent with the name and address typed, or lettered legibly shall countersign all Bonds.
- E. All Bonds must be accompanied by an appropriate Power of Attorney.

**Part 5 BIDDER'S CHECKLIST**

**5.01 PROPOSAL FORM**

**Base Bid**

Write in the amount of the base bid in numbers.

**Alternates**

Write in each alternates amount in words and numbers.

**Addenda**

Acknowledge the receipt of each addendum by writing in the number of the addendum and the date received.

**Certification Form (SECTION 00 45 19 NON-COLLUSION AFFIDAVIT)**

Certification (regarding Non-Collusion, Debarment and Suspension, etc.) Form has been executed in duplicate.

**Acceptance**

Proposal is signed by authorized person.

Name of Business as it appears in the current Mississippi State Board of Contractors Roster.

Legal address of the business listed above.

Correct Certificate of Responsibility Number(s) as it appears in the current Mississippi State Board of Contractors Roster.

**Certificate of Responsibility Number(s)**

Base Bid is under \$50,000 and no number is required.

Base Bid is under \$50,000 and the statement "bid does not exceed \$50,000" is on the outside of the sealed envelope.

Base Bid is over \$50,000 and number is required.

Joint Venture and *joint venture* number is required.

Or

Joint Venture participants' numbers are required.

**5.02 BID SECURITY**

Included Bid Bond.

Or

Included Certified Check payable to the STATE OF MISSISSIPPI.

**5.03 POWER OF ATTORNEY**

Included Power of Attorney

5.04 **NON-RESIDENT BIDDER**

- Attached a Copy of Non-Resident Bidder's Preference Law
- Or
- Attached a Statement

**Part 6 BIDDER'S CONTACT LIST**

6.01 **PROPOSAL AND CONTRACT DOCUMENTS:** If the Bidder has any questions pertaining to the following specific areas of the Documents, please direct them to the following individuals:

- A. Additional Proposals                      Emma Taylor – Contract Administration (601) 359-7744
- B. Additional Prints                              Clint Wells – MDOT Plans Print Shop      (601) 359-7460
- C. Bid Forms                                        B.B. House – Contract Admin. Engineer (601) 359-7730
- D. Specifications                                 Glenn Hall – Construction Engineer      (601) 359-7301
- E. Drawings                                        Glenn Hall – Construction Engineer      (601) 359-7301
- F. Bidder's List & Specimen Proposals are available online at:  
<http://www.gomdot.com/business/bids/adv/default.htm>

END OF SECTION

**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**  
**SECTION 00 22 13**

**Part 1 GENERAL**

1.01 **WORK IN PROXIMITY OF HIGH VOLTAGE POWER LINES:** Bidders are hereby advised of Section 45-15-1, et seq., Mississippi Code of 1972, regarding the performance of work in the proximity of high voltage overhead power lines. It is the Contractor's responsibility to comply with those statutory requirements.

1.02 **AGENCY, COMMISSION AND OFFICER NAME CHANGES**

- A. Whenever the term "Mississippi State Highway Department", the word "Department", or variations thereof meaning the Mississippi State Highway Department appears in the plans, proposal, contract documents, and specifications for highway construction projects, in accordance with the laws of the State of Mississippi, it shall mean the "Mississippi Department of Transportation.
- B. Whenever the term "Mississippi State Highway Commission", the word "Commission", or variations thereof meaning the Mississippi State Highway Commission appears in the plans, proposal, contract documents, and specifications for highway construction projects, in accordance with the laws of the State of Mississippi, it shall mean the "Mississippi Transportation Commission".
- C. Whenever the term "Director", or variations thereof meaning the Chief Administrative Officer of the State Highway Department appears in the plans, proposal, contract documents, and specifications for highway construction projects, in accordance with the laws of the State of Mississippi, it shall mean the "Executive Director of the Mississippi Department of Transportation."

1.03 **PLANT PEST QUARANTINES INFORMATION:** AT the request of the U. S. Department of Agriculture, Plant Pest Control Information Concerning Domestic Quarantines is cited as follows:

- A. The entire state of Mississippi has been quarantined for the Imported Fire Ants. Soil and soil-moving equipment operating in the state will be subject to plant quarantine regulations. In general, these regulations provide for cleaning soil from equipment before it is moved from the state. Complete information may be secured from the State of Mississippi Department of Agriculture and commerce, Bureau of Plant Industry, P.O. Box 5207, Mississippi State, Mississippi 39762-5207 – Telephone 325-3390.

IMPORTED FIRE AN QUARANTINES

THE FOLLOWING REGULATED ARTICLES REQUIRE A CERTIFICATE OR PERMIT FOR MOVEMENT:

- 1. Soil, separately or with other things, except soil samples shipped to approved laboratories\*. Potting soil is exempt, if commercially prepared, packaged and shipped in original containers.
- 2. Plants with roots with soil attached, except houseplants maintained indoors and not for sale.
- 3. Grass sod.
- 4. Baled hay and straw that have been stored in contact with the soil.
- 5. Used soil-moving equipment.

6. Any other products, articles, or means of conveyance of any character whatsoever not covered by the above, when it is determined by an inspector that they present a hazard of spread of the imported fire ant and the person in possession thereof has been so notified.

\* Information as to designated laboratories, facilities, gins, oil mills, and processing plants may be obtained from an inspector.

Consult your State or Federal plant protection Inspector or your county agent for assistance regarding exact areas under regulation and requirements for moving regulated articles. For detailed information see 7 CFR 301.81 for quarantine and regulations.

1.04 **FEDERAL BRIDGE FORMULA**

- A. Bidders are hereby advised that Federal Highway Administration Publication No. FHWA-MC-94-007, **BRIDGE FORMULA WEIGHTS**, dated January 1994, is made a part of this contract when applicable.

Prior to the preconstruction conference, the Contractor shall advise the Engineer, in writing, what materials, if any, will be delivered to the jobsite via Interstate route(s).

Copies of the **BRIDGE FORMULA WEIGHTS** publication may be obtained by contacting:

Federal Highway Administration  
400 7<sup>th</sup> Street, SW  
Washington, DC 20590  
(202) 366-2212  
or

<http://ops.fhwa.dot.gov/freight/regulate/sw/>

- 1.05 **FUEL TAX APPLICABILITY TO BIDDERS AND CONTRACTORS:** Bidders are hereby advised that the Mississippi Code of 1972, section 27-55-301 et seq. requires the use of taxed diesel fuel used in performing contracts for construction, reconstruction, maintenance, or repair where such contracts are entered into with the State of Mississippi, any agency, department, institution, or political subdivision thereof. Section 27-55-313 reads as follows:

- A. A tax at the rate of Eighteen Cents (18¢) per gallon until the date specified in Section 65-39-35, and Fourteen and Three-fourths Cents (14.75¢) per gallon thereafter, is levied upon any delivering other motor fuel to a retail dealer, user or any other person for use in propelling motor vehicles on the highways of this state and/or for the privilege of engaging in the business of selling and delivering other motor fuel to any other person who purchases or uses other motor fuel in performing contracts for construction, reconstruction, maintenance or repairs, where such contracts are entered into with the State of Mississippi, any political subdivision of the State of Mississippi, or any department, agency or institution of the State of Mississippi or any political subdivision thereof.
- B. A tax at the rate described in this section is hereby levied upon any person who purchases, receives or acquires any other motor fuel upon which the tax has not been paid when such other motor fuel is used for any taxable purpose as set forth in this article. A tax at the rate described in this section is hereby levied upon any retailer who purchases, receives, or acquires any other motor fuel upon which the tax has not been paid when such other motor fuel is sold for use or used for any taxable purpose as set forth in this article.

- C. The commission may adopt rules and regulations providing for the issuance of permits to persons performing contracts as hereinabove provided, allowing or requiring said persons to purchase other motor fuel for use in performing said contracts without the payment to the distributor of the tax imposed hereunder, and providing for such persons to report and pay such tax directly to the commission in instances where the commission determines that such payment will facilitate and expedite the collection of the tax which may be due on such purchases by the permittee. The distributor is relieved of collecting and remitting the taxes specified hereunder, when furnished with a copy of said permit, and the person holding the permit shall become liable for such taxes instead of the seller, and the full enforcement provisions of this article shall apply in the collection of the tax from the permittee. The commission may require said person to execute and file with the commission a good and valid bond in a surety company authorized to do business in this state, or with sufficient sureties to be approved by the commission, conditioned that all taxes which may accrue to the State of Mississippi under the provisions of this chapter will be paid when due. Provided further, the commission may accept a bond filed under the provision of Section 27-65-21, when such bond is conditioned upon the payment of taxes hereunder.
- D. Any person who shall, while not licensed as a distributor of other motor fuel or retail dealer, sell or deliver to other persons any other motor fuel upon which the tax levied by this article has not been paid shall be liable for the tax and penalties imposed by this article if the person selling or delivering such fuel knows or has reason to know that it will be used or sold for a taxable purpose.
- E. A retail dealer may, with the approval of the commission, sell or dispense tax free other motor fuel. Said retailer shall comply with all rules and regulations pertaining to retailers selling or dispensing tax free other motor fuel. The commission may require said retailer to execute and file with the commission a good and valid bond, in a surety company authorized to do business in the state, conditioned that all taxes which may accrue to the State of Mississippi under the provisions of this chapter will be paid when due. Storage tanks or pumps located at all such retail dealers' place of business which are used or to be used in storing and dispensing kerosene for lamps, stoves, heaters and domestic purposes shall bear the label "not for highway use" of letters of not less than four (4) inches in height.
- F. When other motor fuel on which the full tax under this section has been paid has been Delivered to a retail dealer for sale or to a consumer for use as motor fuel for operating a motor vehicle upon the highways of this state, the distributor of other motor fuel who made said tax payments and deliveries may pick up and return to his bulk storage facility any portion of such other motor fuel which may be unused and claim credit for the amount of tax paid on the quantity so returned. In order to claim credit for the tax on the quantity of other motor fuel to be so returned, such distributor shall notify the commission of his desire to so return it. Such transaction shall only be made under the supervision of the commission.
- G. When dyed diesel fuel and clear diesel fuel are accidentally mixed and the mixture is converted to nonhighway use diesel fuel, the distributor or other person owning such mixture may claim credit for the highway portion of the tax paid on such mixture. Proof satisfactory to the distributor or other person owning such mixture shall notify the commission immediately after gaining knowledge that such accidental mixture has occurred.

Bidders/Contractors are required to comply with the provisions of said section, and any revisions or amendments thereto, for all work performed under this contract; and be able to substantiate compliance when requested by the Mississippi Department of Transportation or the Mississippi State Tax Commission.

1.06 **PROMPT PAYMENT**

- A. Bidders are hereby advised that the Prime Contractor must pay their subcontractor(s) for satisfactory performance of their contracts no later than a specific number of days from receipt of payment from the Department. Therefore, Prime Contractors are hereby advised of the following:
  - 1. Within 15 calendar days after receiving payment from the Department for work satisfactorily performed, the Prime Contractor shall make prompt payment to all sub-contractors or material suppliers for all monies due.
  - 2. Within 15 calendar days after receiving payment from the Department for work satisfactorily completed, the Prime Contractor shall promptly return all retainage monies due to all sub-contractors or material suppliers.
  - 3. The Engineer will have the authority to suspend the Work wholly or in part and to withhold payments because of the Contractor's failure to make prompt payment within 15 calendar days as required above, or failure to submit the required OCR-484 Form, "Certification of Payments to Subcontractors", which is also designed to comply with prompt payment requirements.

1.07 **ALTERATIONS IN BIDDING PROCESS**

- A. Bidders are hereby advised that they may either use the traditional method of entering their Bid information by hand on *Proposal Forms* Section 00 42 00 (Section 905, dated 2/28/01, MDOT – Edited for Building Projects) or may insert printed information obtained from the available Electronic Bid System (EBS).
- B. It is the responsibility of every bidder to check for any addendum or modification to the contract document(s) for which they intend to submit a response. It shall be the bidder's responsibility to be sure they are in receipt of all addenda, pre-bid conference information, and/or questions and answers provided at, or subsequent to, the pre-bid conference, if any are issued.

**The Mississippi Transportation Commission assumes no responsibility for defects, irregularities or other problems caused by the use of electronic media. Operation of this electronic media is done at the sole risk of the user.**

1.08 **CONTRACT TIME**

- A. It is anticipated that the Notice to Award will be issued by not later than December 12, 2006, and the date for Notice to Proceed and Beginning of Contract Time will be January 11, 2007.
- B. The calendar date for completion of this Contract shall be September 30, 2007 which date or extended date as provided in Article 8 – TIME shall be the end of contract time.
- C. A Construction Schedule as described in Section 01 32 00-Construction Progress Documentation of these Specifications will be required.

1.09 **SUBCONTRACTING**

- A. The Bidder is specifically advised that any person, firm or other party to whom it proposes to award a subcontract must be acceptable to the Owner. The total allowable subcontract amount shall not exceed **sixty percent (60%) of the Contract Sum**, excluding the value of any "Specialty Items" listed below:

**Specialty Items**

None for this Project

These items are not to be confused with Division 10 – Specialties of the Specifications.

END OF SECTION





**PROPOSAL  
SECTION 00 42 00**

(Section 905, dated 2/28/01, MDOT – Edited for Building Projects)

Date \_\_\_\_\_

Mississippi Transportation Commission  
Jackson, Mississippi

Sirs: The following proposal is made on behalf of \_\_\_\_\_  
(Company Name)  
of \_\_\_\_\_  
(Company Street Address)  
\_\_\_\_\_  
(Company City, State, & Zip Code)

For constructing the following designated project(s) within the time(s) hereinafter specified.

The Contract Documents are composed of the Project Manual (Proposal) and the Drawings on file in the offices of the Mississippi Department of Transportation, Jackson, Mississippi.

I (We) certify that I (we) possess a copy of said Contract Documents.

Evidence of my (our) authority to submit the Proposal is hereby furnished. The proposal is made without collusion on the part of any person, firm or corporation. I (We) certify that I (we) have carefully examined the Contract Documents, including the Instructions and Notice(s) to Bidders, herein, and have personally examined the site of the work. On the basis of the Contract Documents, Instructions and Notice(s) to Bidders, I (we) propose to furnish all necessary machinery, tools, apparatus and other means of construction and do all the work and furnish all the materials in the manner specified.

Attached hereto is a certified check, cashier's check or Proposal Guaranty Bond in the amount as required in the Advertisement (or, by law).

I (We) further propose to perform all "force account or extra work" that may be required of me (us) on the basis provided in the Contract Documents and to give such work my (our) personal attention in order to see that it is economically performed.

I (We) further propose to execute the attached Contract Agreement (Section 00 52 00) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Contract Documents and Advertisement. I (We) also propose to execute the attached Contract Bond (Section 00 61 00) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) enclose a certified check, cashier's check, or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.



Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO. _____	DATED _____	ADDENDUM NO. _____	DATED _____
ADDENDUM NO. _____	DATED _____	ADDENDUM NO. _____	DATED _____
ADDENDUM NO. _____	DATED _____	ADDENDUM NO. _____	DATED _____

TOTAL ADDENDA: \_\_\_\_\_  
 (Must agree with total addenda issued prior to opening of bids)

Respectfully submitted, \_\_\_\_\_  
 (Contractor)

BY \_\_\_\_\_  
 (Signature)

TITLE \_\_\_\_\_

ADDRESS \_\_\_\_\_  
 (Street Address)

ADDRESS \_\_\_\_\_  
 (City, State & Zip Code)

Date \_\_\_\_\_, \_\_\_\_\_

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of \_\_\_\_\_ and the names, titles and business addresses of the executives are as follows:

\_\_\_\_\_  
 (President) (Address)

\_\_\_\_\_  
 (Secretary) (Address)

\_\_\_\_\_  
 (Treasurer) (Address)



The following is my (our) itemized proposal.

WORK NECESSARY FOR THE INSTALLATION OF AN EMERGENCY GENERATOR FOR DISTRICT FIVE HEADQUARTERS AT NEWTON, KNOWN AS STATE PROJECT BWO-5001-51(008) 501640, IN THE COUNTY OF NEWTON, STATE OF MISSISSIPPI.

I (We) agree to complete the entire Project within the specified Contract Time.

**\*\*\*SPECIAL NOTICE TO BIDDERS\*\*\***

**BIDS WILL NOT BE CONSIDERED UNLESS ITEM TOTALS ARE ENTERED AND THE BID CERTIFICATE (SECTION 00 45 47) LOCATED AT THE END OF THE BID SHEETS IS SIGNED**

REF. NO.	PAY ITEM NO.	UNIT with	DESCRIPTION	UNIT PRICE		ITEM TOTAL	
		Approx. Quantity		Dollar	Cents	Dollar	Cents

(10)	501640-A	lump sum	Installation of an Emergency Generator for District Five Headquarters at Newton, Newton County .....			\$	_____
------	----------	----------	--	--	--	----	-------

**TOTAL BID.....\$\_\_\_\_\_**

**\*\*\*SIGNATURE STATEMENT\*\*\***

**BIDDER ACKNOWLEDGES THAT HE / SHE HAS CHECKED ALL ITEMS IN THIS PROPOSAL FOR ACCURACY AND CERTIFIED THAT THE FIGURES SHOWN THEREIN CONSTITUTE THEIR OFFICIAL BID.**

\_\_\_\_\_  
**BIDDER'S SIGNATURE**

END OF SECTION



**NON-COLLUSION CERTIFICATION**

**SECTION 00 45 19**

(Non-Collusion Certification, dated 2/28/01, MDOT – Edited for Building Projects)

**(Execute in duplicate)**

State of Mississippi

County of \_\_\_\_\_

I, \_\_\_\_\_,  
(Name of person signing Certification)

individually, and in my capacity as \_\_\_\_\_  
(Title)

\_\_\_\_\_ do hereby certify under  
(Name of Company, Partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that

\_\_\_\_\_, Bidder  
(Name of Company, Partnership, or Corporation)

on Project No. BWO-5001-51(001) 501640, on Highway 80W in Newton, Newton County, Mississippi, has not either directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds are not currently under suspension, debarment, voluntary exclusion or determination of ineligibility; nor have a debarment pending; nor been suspended, debarred, voluntarily excluded or determined ineligible within the past three years by the Mississippi Transportation Commission, the State of Mississippi, any other State or a federal agency; nor been indicted, convicted or had a civil judgment rendered by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

Initial here “\_\_\_\_\_” if exceptions are attached and made a part thereof. Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

All of the foregoing and attachments (when indicated) is true and correct.

Executed on \_\_\_\_\_ (Date) \_\_\_\_\_ (Signature)

END OF SECTION





**NON-COLLUSION CERTIFICATION**

**SECTION 00 45 19**

(Non-Collusion Certification, dated 2/28/01, MDOT – Edited for Building Projects)

**(Execute in duplicate)**

State of Mississippi

County of \_\_\_\_\_

I, \_\_\_\_\_,  
(Name of person signing Certification)

individually, and in my capacity as \_\_\_\_\_  
(Title)

\_\_\_\_\_ do hereby certify under  
(Name of Company, Partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that

\_\_\_\_\_, Bidder  
(Name of Company, Partnership, or Corporation)

on Project No. BWO-5001-51(001) 501640, on Highway 80W in Newton, Newton County, Mississippi, has not either directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds are not currently under suspension, debarment, voluntary exclusion or determination of ineligibility; nor have a debarment pending; nor been suspended, debarred, voluntarily excluded or determined ineligible within the past three years by the Mississippi Transportation Commission, the State of Mississippi, any other State or a federal agency; nor been indicted, convicted or had a civil judgment rendered by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

Initial here "\_\_\_\_\_" if exceptions are attached and made a part thereof. Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

All of the foregoing and attachments (when indicated) is true and correct.

Executed on \_\_\_\_\_  
(Date) (Signature)

END OF SECTION



TO: EXECUTIVE DIRECTOR, MISSISSIPPI DEPARTMENT OF TRANSPORTATION  
JACKSON, MISSISSIPPI

**CERTIFICATE  
SECTION 00 45 47**

(Certificate, dated 2/28/01, MDOT – Edited for Building Projects)

If awarded this Contract, I (we) contemplate that portions of the Contract will be sublet. I (we) certify that those subcontracts which are equal to or in excess of fifty thousand dollars (\$50,000.00) will be in accordance with regulations promulgated and adopted by the Mississippi State Board of Contractors on January 13, 1999.

I (We) agree that this notification of intent DOES NOT constitute APPROVAL of the subcontracts.

NOTE: Insert name and address of subcontractors. (Subcontracts equal to or in excess of fifty thousand dollars (\$50,000.00) ONLY.)

_____	_____
(Individual or Firm)	(Address)
_____	_____
(Individual or Firm)	(Address)
_____	_____
(Individual or Firm)	(Address)
_____	_____
(Individual or Firm)	(Address)

NOTE: Failure to complete the above DOES NOT preclude subsequent subcontracts. Subsequent subcontracts, if any, equal to or in excess of fifty thousand dollars (\$50,000.00) will be in accordance with regulations promulgated and adopted by the Mississippi State Board of Contractors on January 13, 1999.

Contractor \_\_\_\_\_  
(Name of Company, Partnership, or Corporation)

By \_\_\_\_\_  
(Signature)

Title \_\_\_\_\_

**CERTIFICATE MUST BE EXECUTED**

END OF SECTION



**HAUL PERMIT FOR BRIDGES  
WITH POSTED LOAD LIMITS**

**SECTION 00 45 48**

(Haul Permit for Bridges, dated 3/17/03, MDOT – Edited for Building Projects)

**DATE:** \_\_\_\_\_

**PROJECT:** BWO-5001-51(008) 501640

**COUNTY:** NEWTON

**LOCATION:** HIGHWAY 80W in NEWTON, MISSISSIPPI

A permit is issued to \_\_\_\_\_  
(Company Name & Address)

for transporting loads exceeding the posted limit for any such bridge located on State designated routes within the project termini provided that such transport vehicles comply with all other governing statutory load limits.

This permit is valid on all State designated routes from the point of origin to the point of delivery for materials and equipment utilized in construction of said project and also valid for sub-contractors and vendors upon written permission of the Contractor. The permit is non-transferable and no other haul permit for posted bridges will be issued to other individuals, vendors, or companies for construction of this project.

A copy of this signed permit shall be carried in all vehicles operating under the authority of this permit and also a copy of the Contractor's written permission when the vehicle is other than Contractor owned.

In accordance with State law, the above named Contractor will be liable for damages directly attributable to vehicles operating under this permit.

\_\_\_\_\_  
LARRY L."BUTCH" BROWN  
EXECUTIVE DIRECTOR

END OF SECTION



**AGREEMENT  
SECTION 00 52 00**

(Section 902, dated 2/28/01, MDOT – Edited for Building Projects)

CONTRACT FOR Project No. BWO-5001-51(008) 501640  
Emergency Generator for District Five  
Headquarters at Newton

LOCATED IN THE COUNTY OF NEWTON  
STATE OF MISSISSIPPI,  
COUNTY OF HINDS

This Contract entered into by and between the Mississippi Transportation Commission on one hand, and the undersigned Contractor, on the other witnesseth;

That, in consideration of the payment by the Mississippi Transportation Commission of the prices set out in the Proposal hereto attached, to the undersigned Contractor, such payment to be made in the manner and at the time of times specified in the Contract Documents, the undersigned Contractor hereby agrees to accept the prices stated in the Proposal in full compensation for the furnishing of all materials and equipment and the executing of all the Work contemplated in this Contract.

It is understood and agreed that the advertising according to law, the Contract Documents, are hereby made a part of this Contract by specific reference thereto and with like effect as if each and all of said instruments had been set out fully herein in words and figures.

It is further agreed that for the same consideration the undersigned Contractor shall be responsible for all loss or damage arising out of the nature of the Work aforesaid; or from the action of the elements and unforeseen obstructions or difficulties which may be encountered in the prosecution of the same and for all risks of every description connected with the Work, exceptions being those specifically set out in the Contract; and for faithfully completing the whole Work in good and workmanlike manner according to the approved Contract Documents and requirements of the Mississippi Department of Transportation.

It is further agreed that the Work shall be done under the direct supervision and to the complete satisfaction of the Executive Director of the Mississippi Department of Transportation, or his authorized representatives, and when Federal Funds are involved subject to inspection at all times and approval by the Federal Highway Administration, or its agents as the case may be, or the agents of any other Agency whose funds are involved in accordance with those Acts of the Legislature of the State of Mississippi approved by the Governor and such rules and regulations issued pursuant thereto by the Mississippi Transportation Commission and the authorized Federal Agencies.

It is agreed and understood that each and every provision of law and clause required by law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and this Contract shall be read and enforced as though it were included herein, and, if through mere mistake or otherwise any such provision is not inserted, then upon the application of either party hereto. The Contract shall forthwith be physically amended to make such insertion.

The Contractor agrees that he has read each and every clause of this Contract, and fully understands the meaning of same and that he will comply with all the terms, covenants and agreements therein set forth.





Witness our signatures this the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_  
Contractor(s) Company Name

By \_\_\_\_\_  
(Signature)

MISSISSIPPI TRANSPORTATION COMMISSION

Title \_\_\_\_\_  
Signed and sealed in the presence of:  
(Names and address of witnesses)

By \_\_\_\_\_  
Executive Director

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Secretary to the Commission

Award authorized by the Mississippi Transportation Commission in session on the \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ Minute Book No. \_\_\_\_\_, Page No. \_\_\_\_\_

END OF SECTION



**CONTRACT BOND**

**SECTION 00 61 00**

(Section 903, dated 2/28/01, MDOT – Edited for Building Projects)

CONTRACT BOND FOR: Project No. BWO-5001-51(008) 501640  
Emergency Generator for District Five  
Headquarters at Newton

LOCATED IN THE COUNTY OF: NEWTON

STATE OF MISSISSIPPI,  
COUNTY OF HINDS

Know all men by these presents: that we, \_\_\_\_\_

\_\_\_\_\_ Principal, a \_\_\_\_\_

residing at \_\_\_\_\_ in the State of \_\_\_\_\_

and \_\_\_\_\_

residing at \_\_\_\_\_ in the State of \_\_\_\_\_

authorized to do business in the State of Mississippi, under the laws thereof, as surety, are held  
and firmly bound unto the State of Mississippi in the sum of \_\_\_\_\_

(\$ \_\_\_\_\_) Dollars, lawful money of the United States of

America, to be paid to it for which payment well and truly to be made, we bind ourselves, our  
heirs, administrators, successors, or assigns jointly and severally by these presents.

Signed and sealed this the \_\_\_\_\_ day of \_\_\_\_\_ A.D. \_\_\_\_\_.

The conditions of this Bond are such, that whereas the said \_\_\_\_\_

principal, has (have) entered into a Contract with the Mississippi Transportation Commission,  
bearing the date of \_\_\_\_\_ day of \_\_\_\_\_ A.D. \_\_\_\_\_ hereto  
annexed, for the construction of certain Project(s) in the State of Mississippi as mentioned in said  
Contract in accordance with the Contract Documents therefor, on file in the offices of the  
Mississippi Department of Transportation, Jackson, Mississippi.

Now therefore, if the above bounden \_\_\_\_\_  
\_\_\_\_\_ in all things shall stand to and abide by and well and truly  
observe, do keep and perform all and singular the terms, covenants, conditions, guarantees and  
agreements in said Contract, contained on his (their) part to be observed, done, kept and  
performed and each of them, at the time and in the manner and form and furnish all of the  
material and equipment specified in said contract in strict accordance with the terms of said



Contract which said Drawings, Specifications and Special Provisions are included in and form a part of said Contract and shall maintain the said Work contemplated until its final completion and acceptance as specified in the approved Specifications, and save harmless said Mississippi Transportation Commission from any loss or damage arising out of or occasioned by the negligence, wrongful or criminal act, overcharge, fraud, or any other loss or damage whatsoever, on the part of said Principal(s), his (their) agents, servants, or employees in the performance of said Work or in any manner connected therewith, and shall be liable and responsible in a civil action instituted by the State at the instance of the Mississippi Transportation Commission or any officer of the State authorized in such cases, for double any amount in money or property, the State may lose or be overcharged or otherwise defrauded of, by reason of wrongful or criminal act, if any, of the Contractor(s), his (their) agents or employees, and shall promptly pay the said agents, servants and employees and all persons furnishing labor, material, equipment or supplies therefor, including premiums incurred, for Surety Bonds, Liability Insurance, and Workmen's Compensation Insurance; with the additional obligation that such Contractor shall promptly make payment of all taxes, licenses, assessments, contributions, damages, any liquidated damages which may arise prior to any termination of said Principal's Contract, any liquidated damages which may arise after termination of the said Principal's Contract due to default on the part of said Principal, penalties and interest thereon, when and as the same may be due this State, or any county, municipality, board, department, commission or political subdivision: in the course of the performance of said Work and in accordance with Sections 31-5-51 et seq. Mississippi Code of 1972, and other State statues applicable thereto, and shall carry out to the letter and to the satisfaction of the Executive Director of the Mississippi Department of Transportation, all, each and every one of the stipulations, obligations, conditions, covenants and agreements and terms of said Contract in accordance with the terms thereof and all of the expense and cost and attorney's fee that may be incurred in the enforcement of the performance of said Contract, or in the enforcement of the conditions and obligations of this bond, then this obligation shall be null and void, otherwise to be and remain in full force and virtue.

Witness our signatures and seals this the \_\_\_\_\_ day of \_\_\_\_\_ A.D. \_\_\_\_\_

\_\_\_\_\_  
(Contractors) Principal

\_\_\_\_\_  
(Surety)

By \_\_\_\_\_  
(Signature)

By \_\_\_\_\_  
(Signature) Attorney in Fact

Title \_\_\_\_\_  
(Contractor's Seal)

\_\_\_\_\_  
(Name and address of local (Mississippi) representative  
(Surety Seal)

END OF SECTION



**GENERAL CONDITIONS**  
**SECTION 00 72 00**

**Part 1 GENERAL**

**1.01 DESCRIPTION.**

- A. The American Institute of Architects **AIA DOCUMENT A201-1997**, "General Conditions of the Contract for Construction", 1997, Fifteenth Edition, Articles 1 through 14 inclusive, except as may be added to or modified herein, is hereby made a part of the Contract Documents. For brevity, **AIA DOCUMENT A201-1997** is also referred to in the Contract documents as the "General Conditions".
- B. All persons intending to provide goods or services in connection with this Work are required to read and understand the referenced document prior to proceeding.
- C. See Document 00800-*Supplementary Conditions*. In the event of a conflict between the **AIA DOCUMENT A201-1997**, "General Conditions of the Contract for Construction", 1997, Fifteenth Edition and Document 00800-*Supplementary Conditions*, Document 00800 shall control even if the conflicting provision in the **AIA DOCUMENT A201-1997** "General Conditions of the Contract for Construction" is not expressly deleted or revised by reference in Document 00800.



# **AIA**® Document A201™ – 1997

## **General Conditions of the Contract for Construction**

### **for the following PROJECT:**

*(Name and location or address):*

EMERGENCY GENERATOR FOR DISTRICT FIVE  
HEADQUARTERS AT NEWTON  
NEWTON COUNTY, MISSISSIPPI  
BWO-5001-51(008) 501640

### **THE OWNER:**

*(Name and address):*

### **THE ARCHITECT:**

*(Name and address):*

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### **ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document has been approved and endorsed by The Associated General Contractors of America

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## **ARTICLE 1 GENERAL PROVISIONS**

### **§ 1.1 BASIC DEFINITIONS**

#### **§ 1.1.1 THE CONTRACT DOCUMENTS**

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include other documents such as bidding requirements (advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or portions of Addenda relating to bidding requirements).

#### **§ 1.1.2 THE CONTRACT**

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and Contractor, (2) between the Owner and a Subcontractor or Sub-subcontractor, (3) between the Owner and Architect or (4) between any persons or entities other than the Owner and Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### **§ 1.1.3 THE WORK**

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### **§ 1.1.4 THE PROJECT**

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

#### **§ 1.1.5 THE DRAWINGS**

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

#### **§ 1.1.6 THE SPECIFICATIONS**

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### **§ 1.1.7 THE PROJECT MANUAL**

The Project Manual is a volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

### **§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS**

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### **§ 1.3 CAPITALIZATION**

**§ 1.3.1** Terms capitalized in these General Conditions include those which are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

### **§ 1.4 INTERPRETATION**

**§ 1.4.1** In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### **§ 1.5 EXECUTION OF CONTRACT DOCUMENTS**

**§ 1.5.1** The Contract Documents shall be signed by the Owner and Contractor. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Documents upon request.

**§ 1.5.2** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

### **§ 1.6 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE**

**§ 1.6.1** The Drawings, Specifications and other documents, including those in electronic form, prepared by the Architect and the Architect's consultants are Instruments of Service through which the Work to be executed by the Contractor is described. The Contractor may retain one record set. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect or the Architect's consultants, and unless otherwise indicated the Architect and the Architect's consultants shall be deemed the authors of them and will retain all common law, statutory and other reserved rights, in addition to the copyrights. All copies of Instruments of Service, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this authorization shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' copyrights or other reserved rights.

## **ARTICLE 2 OWNER**

### **§ 2.1 GENERAL**

**§ 2.1.1** The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

**§ 2.1.2** The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

### **§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

**§ 2.2.1** The Owner shall, at the written request of the Contractor, prior to commencement of the Work and thereafter, furnish to the Contractor reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Furnishing of such evidence shall be a condition precedent to commencement or

continuation of the Work. After such evidence has been furnished, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

**§ 2.2.2** Except for permits and fees, including those required under Section 3.7.1, which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

**§ 2.2.3** The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

**§ 2.2.4** Information or services required of the Owner by the Contract Documents shall be furnished by the Owner with reasonable promptness. Any other information or services relevant to the Contractor's performance of the Work under the Owner's control shall be furnished by the Owner after receipt from the Contractor of a written request for such information or services.

**§ 2.2.5** Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

### **§ 2.3 OWNER'S RIGHT TO STOP THE WORK**

**§ 2.3.1** If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

### **§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK**

**§ 2.4.1** If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-day period give the Contractor a second written notice to correct such deficiencies within a three-day period. If the Contractor within such three-day period after receipt of such second notice fails to commence and continue to correct any deficiencies, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

## **ARTICLE 3 CONTRACTOR**

### **§ 3.1 GENERAL**

**§ 3.1.1** The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative.

**§ 3.1.2** The Contractor shall perform the Work in accordance with the Contract Documents.

**§ 3.1.3** The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

### **§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

**§ 3.2.1** Since the Contract Documents are complementary, before starting each portion of the Work, the Contractor shall carefully study and compare the various Drawings and other Contract Documents relative to that portion of the

Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, any errors, inconsistencies or omissions discovered by the Contractor shall be reported promptly to the Architect as a request for information in such form as the Architect may require.

**§ 3.2.2** Any design errors or omissions noted by the Contractor during this review shall be reported promptly to the Architect, but it is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents. The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations, but any nonconformity discovered by or made known to the Contractor shall be reported promptly to the Architect.

**§ 3.2.3** If the Contractor believes that additional cost or time is involved because of clarifications or instructions issued by the Architect in response to the Contractor's notices or requests for information pursuant to Sections 3.2.1 and 3.2.2, the Contractor shall make Claims as provided in Sections 4.3.6 and 4.3.7. If the Contractor fails to perform the obligations of Sections 3.2.1 and 3.2.2, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. The Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents or for differences between field measurements or conditions and the Contract Documents unless the Contractor recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Architect.

### **§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES**

**§ 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any resulting loss or damage.

**§ 3.3.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

**§ 3.3.3** The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

### **§ 3.4 LABOR AND MATERIALS**

**§ 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**§ 3.4.2** The Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order.

**§ 3.4.3** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

### **§ 3.5 WARRANTY**

**§ 3.5.1** The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

### **§ 3.6 TAXES**

**§ 3.6.1** The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### **§ 3.7 PERMITS, FEES AND NOTICES**

**§ 3.7.1** Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded.

**§ 3.7.2** The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work.

**§ 3.7.3** It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

**§ 3.7.4** If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### **§ 3.8 ALLOWANCES**

**§ 3.8.1** The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

**§ 3.8.2** Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances;
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

**§ 3.8.3** Materials and equipment under an allowance shall be selected by the Owner in sufficient time to avoid delay in the Work.

### **§ 3.9 SUPERINTENDENT**

**§ 3.9.1** The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important

communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

### **§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES**

**§ 3.10.1** The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

**§ 3.10.2** The Contractor shall prepare and keep current, for the Architect's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Architect reasonable time to review submittals.

**§ 3.10.3** The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

### **§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE**

**§ 3.11.1** The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record field changes and selections made during construction, and one record copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work.

### **§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

**§ 3.12.1** Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

**§ 3.12.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

**§ 3.12.3** Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

**§ 3.12.4** Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect without action.

**§ 3.12.5** The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action.

**§ 3.12.6** By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

**§ 3.12.7** The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

**§ 3.12.8** The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

**§ 3.12.9** The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice the Architect's approval of a resubmission shall not apply to such revisions.

**§ 3.12.10** The Contractor shall not be required to provide professional services which constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

### **§ 3.13 USE OF SITE**

**§ 3.13.1** The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### **§ 3.14 CUTTING AND PATCHING**

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

### **§ 3.15 CLEANING UP**

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.



**§ 3.16 ACCESS TO WORK**

**§ 3.16.1** The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

**§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS**

**§ 3.17.1** The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

**§ 3.18 INDEMNIFICATION**

**§ 3.18.1** To the fullest extent permitted by law and to the extent claims, damages, losses or expenses are not covered by Project Management Protective Liability insurance purchased by the Contractor in accordance with Section 11.3, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.18.

**§ 3.18.2** In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

**ARTICLE 4 ADMINISTRATION OF THE CONTRACT**

**§ 4.1 ARCHITECT**

**§ 4.1.1** The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Architect" means the Architect or the Architect's authorized representative.

**§ 4.1.2** Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

**§ 4.1.3** If the employment of the Architect is terminated, the Owner shall employ a new Architect against whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the former Architect.

**§ 4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT**

**§ 4.2.1** The Architect will provide administration of the Contract as described in the Contract Documents, and will be an Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the one-year period for correction of Work described in Section 12.2. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

**§ 4.2.2** The Architect, as a representative of the Owner, will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and

deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

**§ 4.2.3** The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

**§ 4.2.4** Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

**§ 4.2.5** Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**§ 4.2.6** The Architect will have authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

**§ 4.2.7** The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.8** The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4.

**§ 4.2.9** The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents.

**§ 4.2.10** If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

**§ 4.2.11** The Architect will interpret and decide matters concerning performance under and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretations required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretations until 15 days after written request is made for them.

**§ 4.2.12** Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and initial decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

**§ 4.2.13** The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

### **§ 4.3 CLAIMS AND DISPUTES**

**§ 4.3.1** Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be initiated by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

**§ 4.3.2** Time Limits on Claims. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Architect and the other party.

**§ 4.3.3** Continuing Contract Performance. Pending final resolution of a Claim except as otherwise agreed in writing or as provided in Section 9.7.1 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

**§ 4.3.4** Claims for Concealed or Unknown Conditions. If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within 21 days after the Architect has given notice of the decision. If the conditions encountered are materially different, the Contract Sum and Contract Time shall be equitably adjusted, but if the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Architect for initial determination, subject to further proceedings pursuant to Section 4.4.

**§ 4.3.5** Claims for Additional Cost. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.6.

**§ 4.3.6** If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Architect, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Architect, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds, Claim shall be filed in accordance with this Section 4.3.

**§ 4.3.7 Claims for Additional Time**

**§ 4.3.7.1** If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

**§ 4.3.7.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

**§ 4.3.8 Injury or Damage to Person or Property.** If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

**§ 4.3.9** If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

**§ 4.3.10 Claims for Consequential Damages.** The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 4.3.10 shall be deemed to preclude an award of liquidated direct damages, when applicable, in accordance with the requirements of the Contract Documents.

**§ 4.4 RESOLUTION OF CLAIMS AND DISPUTES**

**§ 4.4.1 Decision of Architect.** Claims, including those alleging an error or omission by the Architect but excluding those arising under Sections 10.3 through 10.5, shall be referred initially to the Architect for decision. An initial decision by the Architect shall be required as a condition precedent to mediation, arbitration or litigation of all Claims between the Contractor and Owner arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Architect with no decision having been rendered by the Architect. The Architect will not decide disputes between the Contractor and persons or entities other than the Owner.

**§ 4.4.2** The Architect will review Claims and within ten days of the receipt of the Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Architect is unable to resolve the Claim if the Architect lacks sufficient information to evaluate the merits of the Claim or if the Architect concludes that, in the Architect's sole discretion, it would be inappropriate for the Architect to resolve the Claim.

**§ 4.4.3** In evaluating Claims, the Architect may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Architect in rendering a decision. The Architect may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 4.4.4** If the Architect requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either provide a response on the requested supporting data, advise the Architect when the response or supporting data will be furnished or advise the Architect that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Architect will either reject or approve the Claim in whole or in part.

§ 4.4.5 The Architect will approve or reject Claims by written decision, which shall state the reasons therefor and which shall notify the parties of any change in the Contract Sum or Contract Time or both. The approval or rejection of a Claim by the Architect shall be final and binding on the parties but subject to mediation and arbitration.

§ 4.4.6 When a written decision of the Architect states that (1) the decision is final but subject to mediation and arbitration and (2) a demand for arbitration of a Claim covered by such decision must be made within 30 days after the date on which the party making the demand receives the final written decision, then failure to demand arbitration within said 30 days' period shall result in the Architect's decision becoming final and binding upon the Owner and Contractor. If the Architect renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence, but shall not supersede arbitration proceedings unless the decision is acceptable to all parties concerned.

§ 4.4.7 Upon receipt of a Claim against the Contractor or at any time thereafter, the Architect or the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Architect or the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 4.4.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to resolution of the Claim by the Architect, by mediation or by arbitration.

#### § 4.5 MEDIATION

§ 4.5.1 Any Claim arising out of or related to the Contract, except Claims relating to aesthetic effect and except those waived as provided for in Sections 4.3.10, 9.10.4 and 9.10.5 shall, after initial decision by the Architect or 30 days after submission of the Claim to the Architect, be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party.

§ 4.5.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect. Request for mediation shall be filed in writing with the other party to the Contract and with the American Arbitration Association. The request may be made concurrently with the filing of a demand for arbitration but, in such event, mediation shall proceed in advance of arbitration or legal or equitable proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

§ 4.5.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

#### § 4.6 ARBITRATION

§ 4.6.1 Any Claim arising out of or related to the Contract, except Claims relating to aesthetic effect and except those waived as provided for in Sections 4.3.10, 9.10.4 and 9.10.5, shall, after decision by the Architect or 30 days after submission of the Claim to the Architect, be subject to arbitration. Prior to arbitration, the parties shall endeavor to resolve disputes by mediation in accordance with the provisions of Section 4.5.

§ 4.6.2 Claims not resolved by mediation shall be decided by arbitration which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect. The demand for arbitration shall be filed in writing with the other party to the Contract and with the American Arbitration Association, and a copy shall be filed with the Architect.

§ 4.6.3 A demand for arbitration shall be made within the time limits specified in Sections 4.4.6 and 4.6.1 as applicable, and in other cases within a reasonable time after the Claim has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations as determined pursuant to Section 13.7.

**§ 4.6.4** Limitation on Consolidation or Joinder. No arbitration arising out of or relating to the Contract shall include, by consolidation or joinder or in any other manner, the Architect, the Architect's employees or consultants, except by written consent containing specific reference to the Agreement and signed by the Architect, Owner, Contractor and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the Owner, Contractor, a separate contractor as described in Article 6 and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the Owner, Contractor or a separate contractor as described in Article 6 shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described therein or with a person or entity not named or described therein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

**§ 4.6.5** Claims and Timely Assertion of Claims. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

**§ 4.6.6** Judgment on Final Award. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

## **ARTICLE 5 SUBCONTRACTORS**

### **§ 5.1 DEFINITIONS**

**§ 5.1.1** A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

**§ 5.1.2** A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### **§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK**

**§ 5.2.1** Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Architect to reply promptly shall constitute notice of no reasonable objection.

**§ 5.2.2** The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

**§ 5.2.3** If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

**§ 5.2.4** The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitute.

### **§ 5.3 SUBCONTRACTUAL RELATIONS**

**§ 5.3.1** By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

### **§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS**

**§ 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

**§ 5.4.2** Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

## **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

**§ 6.1.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Section 4.3.

**§ 6.1.2** When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

**§ 6.1.3** The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

**§ 6.1.4** Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

### **§ 6.2 MUTUAL RESPONSIBILITY**

**§ 6.2.1** The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work or defective construction of a separate contractor.

§ 6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 OWNER'S RIGHT TO CLEAN UP

§ 6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

### § 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect, stating their agreement upon all of the following:

- .1 change in the Work;
- .2 the amount of the adjustment, if any, in the Contract Sum; and
- .3 the extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Section 7.3.3.

### § 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.



**§ 7.3.3** If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 as provided in Section 7.3.6.

**§ 7.3.4** Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

**§ 7.3.5** A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

**§ 7.3.6** If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.6 shall be limited to the following:

- .1 costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 additional costs of supervision and field office personnel directly attributable to the change.

**§ 7.3.7** The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

**§ 7.3.8** Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Architect will make an interim determination for purposes of monthly certification for payment for those costs. That determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a claim in accordance with Article 4.

**§ 7.3.9** When the Owner and Contractor agree with the determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

#### **§ 7.4 MINOR CHANGES IN THE WORK**

**§ 7.4.1** The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

## **ARTICLE 8 TIME**

### **§ 8.1 DEFINITIONS**

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

### **§ 8.2 PROGRESS AND COMPLETION**

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by the Contract Documents or a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### **§ 8.3 DELAYS AND EXTENSIONS OF TIME**

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending mediation and arbitration, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Section 4.3.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## **ARTICLE 9 PAYMENTS AND COMPLETION**

### **§ 9.1 CONTRACT SUM**

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

### **§ 9.2 SCHEDULE OF VALUES**

§ 9.2.1 Before the first Application for Payment, the Contractor shall submit to the Architect a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

### **§ 9.3 APPLICATIONS FOR PAYMENT**

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to

payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.8, such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Such applications may not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

#### § 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Architect's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

#### § 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of:

- .1 defective Work not remedied;

- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 persistent failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

### § 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.5 Payment to material suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

### § 9.7 FAILURE OF PAYMENT

§ 9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by arbitration, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

## **§ 9.8 SUBSTANTIAL COMPLETION**

**§ 9.8.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

**§ 9.8.2** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**§ 9.8.3** Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

**§ 9.8.4** When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

**§ 9.8.5** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

## **§ 9.9 PARTIAL OCCUPANCY OR USE**

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.4.1.5 and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

## **§ 9.10 FINAL COMPLETION AND FINAL PAYMENT**

**§ 9.10.1** Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in

the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS**

**§ 10.1.1** The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

### **§ 10.2 SAFETY OF PERSONS AND PROPERTY**

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

**§ 10.2.2** The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

### § 10.3 HAZARDOUS MATERIALS

§ 10.3.1 If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 The Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. The Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up, which adjustments shall be accomplished as provided in Article 7.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) and provided that such damage, loss or expense is not due to the sole negligence of a party seeking indemnity.

§ 10.4 The Owner shall not be responsible under Section 10.3 for materials and substances brought to the site by the Contractor unless such materials or substances were required by the Contract Documents.

§ 10.5 If, without negligence on the part of the Contractor, the Contractor is held liable for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

#### § 10.6 EMERGENCIES

§ 10.6.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Section 4.3 and Article 7.

### ARTICLE 11 INSURANCE AND BONDS

#### § 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- .2 claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 claims for damages insured by usual personal injury liability coverage;
- .5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 claims for bodily injury or property damage arising out of completed operations; and
- .8 claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Section 9.10.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

#### § 11.2 OWNER'S LIABILITY INSURANCE

§ 11.2.1 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

#### § 11.3 PROJECT MANAGEMENT PROTECTIVE LIABILITY INSURANCE

§ 11.3.1 Optionally, the Owner may require the Contractor to purchase and maintain Project Management Protective Liability insurance from the Contractor's usual sources as primary coverage for the Owner's, Contractor's and Architect's vicarious liability for construction operations under the Contract. Unless otherwise required by the Contract Documents, the Owner shall reimburse the Contractor by increasing the Contract Sum to pay the cost of purchasing and maintaining such optional insurance coverage, and the Contractor shall not be responsible for purchasing any other liability insurance on behalf of the Owner. The minimum limits of liability purchased with such coverage shall be equal to the aggregate of the limits required for Contractor's Liability Insurance under Sections 11.1.1.2 through 11.1.1.5.



§ 11.3.2 To the extent damages are covered by Project Management Protective Liability insurance, the Owner, Contractor and Architect waive all rights against each other for damages, except such rights as they may have to the proceeds of such insurance. The policy shall provide for such waivers of subrogation by endorsement or otherwise.

§ 11.3.3 The Owner shall not require the Contractor to include the Owner, Architect or other persons or entities as additional insureds on the Contractor's Liability Insurance coverage under Section 11.1.

#### § 11.4 PROPERTY INSURANCE

§ 11.4.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.4 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.4.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.4.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.4.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.4.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.4.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.4.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.4.3 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.4.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.4.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.4.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.4.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.4. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.4.7 Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.4 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.4.8 A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.4.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.4.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or in accordance with an arbitration award in which case the procedure shall be as provided in Section 4.6. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.4.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved as provided in Sections 4.5 and 4.6. The Owner as fiduciary shall, in the case of arbitration, make settlement with insurers in accordance with directions of the arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

#### § 11.5 PERFORMANCE BOND AND PAYMENT BOND

§ 11.5.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.5.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

## **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

### **§ 12.1 UNCOVERING OF WORK**

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered which the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

### **§ 12.2 CORRECTION OF WORK**

#### **§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION**

§ 12.2.1.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

#### **§ 12.2.2 AFTER SUBSTANTIAL COMPLETION**

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract

Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

#### **§ 12.3 ACCEPTANCE OF NONCONFORMING WORK**

**§ 12.3.1** If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

### **ARTICLE 13 MISCELLANEOUS PROVISIONS**

#### **§ 13.1 GOVERNING LAW**

**§ 13.1.1** The Contract shall be governed by the law of the place where the Project is located.

#### **§ 13.2 SUCCESSORS AND ASSIGNS**

**§ 13.2.1** The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

**§ 13.2.2** The Owner may, without consent of the Contractor, assign the Contract to an institutional lender providing construction financing for the Project. In such event, the lender shall assume the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

#### **§ 13.3 WRITTEN NOTICE**

**§ 13.3.1** Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

#### **§ 13.4 RIGHTS AND REMEDIES**

**§ 13.4.1** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

**§ 13.4.2** No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

#### **§ 13.5 TESTS AND INSPECTIONS**

**§ 13.5.1** Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

**§ 13.5.2** If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### § 13.6 INTEREST

§ 13.6.1 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

### § 13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

§ 13.7.1 As between the Owner and Contractor:

- .1 Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;
- .2 Between Substantial Completion and Final Certificate for Payment. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the final Certificate for Payment; and
- .3 After Final Certificate for Payment. As to acts or failures to act occurring after the relevant date of issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any Warranty provided under Section 3.5, the date of any correction of the Work or failure to correct the Work by the Contractor under Section 12.2, or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 issuance of an order of a court or other public authority having jurisdiction which requires all Work to be stopped;
- .2 an act of government, such as a declaration of national emergency which requires all Work to be stopped;
- .3 because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 the Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work

by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

**§ 14.1.3** If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages.

**§ 14.1.4** If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

#### **§ 14.2 TERMINATION BY THE OWNER FOR CAUSE**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor:

- .1 persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

**§ 14.2.2** When any of the above reasons exist, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 accept assignment of subcontracts pursuant to Section 5.4; and
- .3 finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

#### **§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE**

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

**§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE**

**§ 14.4.1** The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

**§ 14.4.2** Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work;  
and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**§ 14.4.3** In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

## **Additions and Deletions Report for AIA<sup>®</sup> Document A201<sup>™</sup> – 1997**

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 14:52:59 on 10/10/2006.

**PAGE 1**

EMERGENCY GENERATOR FOR DISTRICT FIVE  
HEADQUARTERS AT NEWTON  
NEWTON COUNTY, MISSISSIPPI  
BWO-5001-51(008) 501640

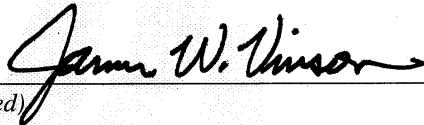
**PAGE 39**



## **Certification of Document's Authenticity**

**AIA® Document D401™ – 2003**

I, James W. Vinson, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 16:18:29 on 10/10/2006 under Order No. 1000237945\_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 1997 - General Conditions of the Contract for Construction, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.



(Signed)



(Title)



(Dated)

**SUPPLEMENTARY CONDITIONS**  
**SECTION 00 73 00**

**SUMMARY**

**1.01 DESCRIPTION**

- A. **Owner:** These supplements are necessary because the Owner is an agency, or political subdivision, of the State of Mississippi and occupies a different position from that of the usual Owner.
- B. **Document:** The following supplements modify, change, delete from, or add to the **AIA DOCUMENT A201-1997**, "General Conditions of the Contract for Construction", 1997, Fifteenth Edition. When any Article of the General Conditions is modified, or deleted, by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause will remain in effect. The "General Conditions of the Contract for Construction" may also be supplemented or amplified elsewhere in the Contract Documents by provisions located in, but not necessarily limited to, Division 1 of the Specifications.

**1.02 Verification Of Dimensions:** Before ordering any materials or doing any work, the Contractor shall verify the dimensions and shall be responsible for the accuracy of such dimensions as they affect the Work. No extra compensation will be allowed on account of differences between the dimensions shown on the Drawings and actual dimensions.

**1.03 Plans And Specifications:** The Specifications and the Drawings are intended to be in agreement with each other, and to be mutually explanatory. They are also intended to be complementary and any Work or material called for by either shall be provided as if called for by both.

**1.04 Execution Of The Work:** Sections of Division 1 General Requirements govern the execution of the Work of all Sections 2-16 of the Specifications.

**1.05 Workmanship:** All Work as described or required shall be executed in a neat, skillful manner, in accordance with the best-recognized trade practice. Only competent workmen (including the superintendent), who work and perform their duties satisfactorily shall be employed on the Project. When requested by the Project Engineer, the Contractor shall discharge and shall not re-employ on the Project, any person who commits trespass or who is, in the opinion of the Project Engineer, dangerous, disorderly, insubordinate, incompetent, or otherwise objectionable.

**1.06 Use Of Site And Facilities:** Contractor shall not allow tradesman, technicians and laborers to enter other portions of existing facilities except as predetermined and approved by the Project Engineer. Existing utilities shall not be interrupted unless pre-approved by the Project Engineer. Parking for construction vehicles shall be in areas designated by the Owner at the Pre-construction Conference.

**1.07 Utilities:** The Owner will furnish utilities for construction (electricity and water). Contractor must use "as- is" or pay for any necessary modifications.

- 1.08 Inspection Of Work:** All materials and each part or detail of the Work are subject to inspection by the Project Engineer. Work performed or materials used by the Contractor without supervision, inspection, or written approval by an authorized Department representative may be ordered removed and replaced, at Contractor's expense, if found to be defective or noncompliant with the Contract Documents. No Work shall be performed on Legal Holidays, Sundays or after 5:00 P.M. on week days without prior written approval from the Project Engineer.

## **Article 1 GENERAL PROVISIONS**

### **1.1 BASIC DEFINITIONS**

- 1.1.1 The Contract Documents:** Delete the last sentence of this Subparagraph and substitute following sentence:

The Contract Documents include the Advertisement for Bids, Instructions to Bidders, Notice to Bidders, Proposal Form, sample forms and all portions of addenda issued prior to execution of the Contract.

### **1.6 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATION AND OTHER INSTRUMENTS OF SERVICE**

- 1.6.1** Add a new sentence at the end of this Subparagraph:

This Paragraph in no way supersedes the Owner's document rights set forth in the "Engineering Services Contract" Agreement Between the Owner and the Professional.

## **Article 2 OWNER**

### **2.1 GENERAL**

- 2.1.1** Change this Subparagraph to read as follows:

The Owner, as used in these Documents, refers to the Mississippi Transportation Commission, a body Corporate of the State of Mississippi, acting by and through the duly authorized Executive Director of the Mississippi Department of Transportation for the benefit of the Department for which the Work under this Contract is being performed. The Owner is the entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner's representative, who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization, is the individual who signed the Construction Contract for the Owner. The term "Owner" means the Owner or the Owner's authorized representative.

- 2.2.5** Change this Subparagraph to read as follows:

After the Contract is executed by the Executive Director, the Contractor will receive free of charge two bound copies of the Project Manual (Proposal and Contract Documents) (one executed and one blank), and five full-scale copies of the Drawings and two half-scale copies. The Contractor shall have available on the Project Site at all times one copy each of the Contract Drawings and the Project Manual (Proposal).

**Article 3 CONTRACTOR**

**3.3 SUPERVISION AND CONSTRUCTION PROCEDURES**

3.3.1 Change the last sentence to read as follows:

If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner and Professional shall be responsible for any resulting loss or damage.

**3.18 INDEMNIFICATION**

3.18.3 Add a new Subparagraph as follows:

The Contractor agrees to defend, hold harmless and indemnify the Owner against all claims or demands caused by the Contractor's acts or omissions.

**Article 4 ADMINISTRATION OF THE CONTRACT**

**4.1 ARCHITECT**

4.1.4 Add a new Subparagraph as follows:

The term "Architect," "Engineer," "Professional", or "Consultant" as used in these Documents refers to the Professional firm who has been directed by the Owner to design and inspect construction of this Project.

4.1.5 Add a new Subparagraph as follows:

The term "Project Engineer" as used in these Documents refers to the Mississippi Department of Transportation Executive Director's authorized representative. The term "MDOT Architect" is the representative for the MDOT Architectural Services Unit and is an advisor to the Project Engineer.

**4.5 MEDIATION**

4.5.1 Delete this Subparagraph in its entirety.

4.5.2 Delete this Subparagraph in its entirety.

4.5.3 Delete this Subparagraph in its entirety.

**4.6 ARBITRATION**

4.6.1 Delete this Subparagraph in its entirety.

4.6.2 Delete this Subparagraph in its entirety.

4.6.3 Delete this Subparagraph in its entirety.

4.6.4 Delete this Subparagraph in its entirety.

4.6.5 Delete this Subparagraph in its entirety.

4.6.6 Delete this Subparagraph in its entirety.

- 4.7 Add a new Paragraph as follows:

**ARBITRATION PROCEDURES FOR THE MISSISSIPPI TRANSPORTATION COMMISSION**

All matters of dispute arising out of any agreement with the Mississippi Transportation Commission for planning, design, engineering, construction, erection, repair, or alteration of any building, structure, fixture, road, highway, utility or any part thereof, or any agreement with the Mississippi Transportation Commission for architectural, engineering, surveying, planning, and related professional services which provides for mediation or arbitration, shall comply with the following course for resolution. No arbitration hearing shall be granted on any claim in excess of One Hundred Thousand Dollars (\$100,000.00).

- 4.7.1 Add a new Subparagraph as follows:

**CONDITIONS PRECEDENT TO ARBITRATION**

- .1 The aggrieved party must first notify opposing party in writing in detail of the matter(s) in dispute, the amount involved and the remedy sought. Such writing shall include copies of any documents, writings, plans, or other matter pertinent to the resolution of the dispute. The Chief Engineer of the Mississippi Department of Transportation, or his authorized representative, and a principal of the opposing party shall be the proper parties for such notice and shall be active parties in any subsequent dispute resolution.
- .2 If the dispute cannot be satisfactorily resolved, within thirty (30) days of the complaint being rejected in writing by either party, notice by certified mail shall be given to the Project Engineer. A copy of the notice shall be sent by certified mail to the opposing party. Such notice shall be in writing setting forth in detail the matter(s) in dispute, the amount involved, the remedy sought and state that informal resolution between the parties cannot be reached. Such writing shall include copies of any documents, writings, plans, or other matter pertinent to the resolution of the dispute. Opposing party shall have the opportunity to set forth in writing a rebuttal with pertinent documents attached. At the sole discretion of the Project Engineer, oral testimony may be had on the matter.

- 4.7.2 Add a new Subparagraph as follows:

**REQUESTS FOR ARBITRATION:** Within thirty (30) days of a claim being rejected in writing by the Project Engineer, either party may request arbitration. Notices for requests for arbitration shall be made in writing to the Chief Engineer of the Mississippi Department of Transportation, P. O. Box 1850, Jackson, Mississippi 39215-1850. Such notice shall set forth in detail the matter(s) in dispute, the amount involved, and the remedy sought. A copy of the request shall be mailed to the opposite party. The party requesting arbitration must deposit the sum of two hundred dollars (\$200.00) with its request as a deposit against costs incurred by the arbitrators. Each party will be notified in writing in any manner provided by law of certified mail not less than twenty (20) days before the hearing of the date, time and place for the hearing. Appearance at the hearing waives a party's right to notice.

- 4.7.3 Add a new Subparagraph as follows:

**SELECTION OF ARBITRATORS:** Upon request for arbitration, a panel of three (3) arbitrators shall be chosen. The Chief Engineer of the Mississippi Department of Transportation shall appoint one (1) member. One (1) member shall be appointed by the Executive Director of a professional or trade association that represents interests similar to that of the non-state party. The first two shall appoint the third member.

4.7.4 Add a new Subparagraph as follows:

**HEARINGS:** All hearings shall be open to the public. All hearings will be held in Jackson, Mississippi, unless the parties mutually agree to another location. The hearings shall be conducted as prescribed by **Mississippi Code 1972, Annotated**, Sections 11-15-113, 11-15-115, and 11-15-117. A full and complete record of all proceedings shall be taken by a certified court reporter. The scheduling and cost of retaining the court reporter shall be the responsibility of the party requesting arbitration. The costs of transcription of the record shall be the responsibility of the party requesting such transcript. No arbitration hearing shall be held without a certified court reporter. Deliberations of the arbitrators shall not be part of the record.

4.7.5 Add a new Subparagraph as follows:

**AWARDS:** Awards shall be made in writing and signed by the arbitrators joining in the award. A copy of the award shall be delivered to the parties by certified mail.

4.7.6 Add a new Subparagraph as follows:

**FEES AND EXPENSES:** Reasonable fees and expenses, excluding counsel fees, incurred in the conduct of the arbitration shall be at the discretion of the Arbitrator except each party shall bear its own attorney's fees and costs of expert witnesses.

4.7.7 Add a new Subparagraph as follows:

**MODIFICATIONS, CONFIRMATIONS, AND APPEALS:** All modifications, confirmations and appeals shall be as prescribed by **Mississippi Code 1972, Annotated**, Section 11-15-123 et seq. All awards shall be reduced to judgment and satisfied in the same manner other judgments against the State are satisfied.

4.7.8 Add a new Subparagraph as follows:

**SECRETARY FOR THE ARBITRATORS:** All notices, requests, or other correspondence intended for the arbitrators shall be sent to the Chief Engineer, Mississippi Department of Transportation, P. O. Box 1850, Jackson, Mississippi 39215-1850.

**Article 5 SUBCONTRACTORS**

No supplementary conditions.

**Article 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

No supplementary conditions.

**Article 7 CHANGES IN THE WORK**

**7.1 GENERAL**

7.1.1 Replace the words "Change Order" with the words "Supplemental Agreement".

## **7.2 CHANGE ORDERS**

### **7.2.3 Add a new Subparagraph as follows:**

The maximum cost included in a Change Order (Supplemental Agreement) for profit and overhead is limited to twelve percent (12%) of the total of the actual cost for materials, labor and subcontracts. Profit and overhead include: all taxes, fees, permits, insurance, bond, job superintendent, job and home office expense. All Subcontractors shall acquiesce to the same requirements when participating in a Change Order (Supplemental Agreement).

## **Article 8 TIME**

### **8.1 DEFINITIONS**

#### **8.1.1 Change this Subparagraph to read as follows:**

Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Completion of the Work.

#### **8.1.3 Change this Subparagraph to read as follows:**

The date of Completion is the date certified by the Project Engineer and approved by the Owner in accordance with Paragraph 9.8 entitled "Substantial Completion."

### **8.3 DELAYS AND EXTENSIONS OF TIME**

#### **8.3.1 Change this Subparagraph to read as follows:**

If the Contractor is delayed at any time in the commencement or progress of the Work by any act of neglect of the Owner or Project Engineer, or by any employee or either, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or any causes beyond the Contractor's control, or by any other causes which the Project Engineer determines may justify the delay, then the Contract time may be extended by Change Order for such reasonable time as the Engineer may determine, subject to the Owner's approval. Any claim for loss or any delay occasioned by any separate Contractor, or Subcontractor, shall be settled between the Contractor and such other separate Contractor, or Subcontractors.

## **Article 9 PAYMENTS AND COMPLETION**

### **9.3 APPLICATIONS FOR PAYMENT**

#### **9.3.1 Add a new sentence to the end of this Subparagraph:**

The form of Application for Payment will be AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet, or a computer generated form containing similar data.

#### **9.3.1.3 Add a new Clause to Subparagraph 9.3.1 as follows:**

The Owner will retain five percent (5%) until the Work is at least fifty percent (50%) complete, on schedule, and satisfactory in the Project Engineer's opinion, at which time fifty percent (50%) of the retainage held to date shall be returned to the Contractor for distribution to the appropriate Sub-Contractors and Suppliers. Future retainage shall be withheld at the rate of two and one half percent (2 1/2%) of the amount due the Contractor on account of progress payments.

9.3.1.4 Add a new Clause to Subparagraph 9.3.1 as follows:

The Contractor must submit each month with this Application for Payment a separate letter stating that he is requesting an extension of time or that he had no need for an extension for that period of time. No payment on a monthly application will be made until the letter is received. Complete justification such as weather reports or other pertinent correspondence must be included for each day's request for extension. A Contractor's letter, or statement, will not be considered as adequate justification. The receipt of this request and data by the Owner will not be considered as Owner approval in any way.

9.3.2.1 Add a new Clause to Subparagraph 9.3.2 as follows:

Payment on materials stored at some location other than the building site, may be approved by the Project Engineer and the Owner after the Contractor has submitted the following items:

- .1 An acceptable Lease Agreement between the General Contractor and the owner of the land, or building, where the materials are located.
- .2 Consent of Surety, or other acceptable Bond, to cover the materials stored off-site.
- .3 All Perils Insurance coverage for the full value of the materials stored off-site.
- .4 A Bill of Sale from the Manufacturer to the General Contractor for the stored materials.
- .5 A complete list and inventory of materials manufactured, stored and delivered to the storage site and of materials removed from the storage site and delivered to the job site.
- .6 A review by the Project Engineer of the materials stored off-site prior to release of payment.
- .7 Guarantee no storage costs, additional delivery fees, or subsequent costs to the Owner.
- .8 List of stored items shall be sent to the Chief Engineer for his approval prior to payment of stored materials.

9.3.2.2 Add a new Clause to Subparagraph 9.3.2 as follows:

Payment for materials stored at the building site, may be approved by the Project Engineer and the Owner after the Contractor has submitted the following items:

- .1 A Bill of Sale from the Manufacturer to the General Contractor for the stored materials.
- .2 List of stored items shall be sent to the Chief Engineer for his approval prior to payment of stored materials.
- .3 List of stored items shall be sent to the Chief Engineer for his approval prior to payment of stored materials.

**9.6 PROGRESS PAYMENTS**

9.6.8 Add a new Subparagraph as follows:

The amount retained by the Contractor from each payment to each Subcontractor and material supplier will not exceed the percentage retained by the Owner from the Contractor.



**9.7 FAILURE OF PAYMENT**

9.7.1 Change this Subparagraph to read as follows:

The Contractor and the Owner shall be subject to the remedies as prescribed in Section 31-5-25 of the **Mississippi Code 1972, Annotated**.

**9.8 SUBSTANTIAL COMPLETION**

9.8.4 Add a new sentence at the end of this Subparagraph:

Substantial Completion shall not be recognized under this Contract. The Project Engineer shall determine when the building is complete to the point it can be used for its intended purpose and occupied.

**9.11 LIQUIDATED DAMAGES**

9.11.1 Add a new Paragraph as follows:

Time being of the essence and a matter of material consideration thereof, a reasonable estimate in advance is established to cover losses incurred by the Owner if the project is not substantially complete on the date set forth in the Contract Documents. The Contractor and his Surety will be liable for and will pay the Owner liquidated damages for each calendar day of delay until the work is substantially complete as follows:

For More Than	To and Including	Per Calendar Day
\$ 0	\$ 100,000	\$ 140
100,000	500,000	200
500,000	1,000,000	300
1,000,000	2,000,000	400
2,000,000	5,000,000	650
5,000,000	10,000,000	750
10,000,000	-----	1,400

**Article 10 PROTECTION OF PERSONS AND PROPERTY**

**10.2 SAFETY OF PERSONS AND PROPERTY**

10.2.5 Change this Subparagraph to read as follows:

The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Clause 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible for Clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Project Engineer and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Paragraph 3.18.

**10.3 HAZARDOUS MATERIALS**

10.3.2 Delete this Subparagraph in its entirety.

10.3.3 Delete this Subparagraph in its entirety.

10.4 Delete this Subparagraph in its entirety.

10.5 Delete this Subparagraph in its entirety.

**Article 11 INSURANCE AND BONDS**

**11.1 CONTRACTOR’S LIABILITY INSURANCE**

11.1.4 Add a new Subparagraph as follows:

The Contractor’s limits of liability shall be written for not less than the following:

**.1 GENERAL LIABILITY:**

Commercial General Liability  
(Including XCU)

General Aggregate.....	\$ 1,000,000.00	Aggregate
Products & Completed Operations.....	\$ 1,000,000.00	Aggregate
Personal & Advertising Injury.....	\$ 500,000.00	Per Occurrence
Bodily Injury & Property Damage.....	\$ 500,000.00	Per Occurrence
Fire Damage Liability.....	\$ 50,000.00	Per Occurrence
Medical Expense.....	\$ 5,000.00	Per Person

**.2 OWNERS & CONTRACTORS PROTECTIVE LIABILITY:**

Bodily Injury & Property Damage.....	\$ 1,000,000.00	Aggregate
Bodily Injury & Property Damage.....	\$ 500,000.00	Per Occurrence

**.3 AUTOMOBILE LIABILITY:**

(Owned, Non-owned & Hired Vehicle  
Contractor Insurance Option Number 1:

Bodily Injury & Property Damage.....	\$ 500,000.00	Per Occurrence
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(Combined Single Limit)

Contractor Insurance Option Number 2:

Bodily Injury.....	\$ 250,000.00	Per Person
Bodily Injury.....	\$ 500,000.00	Per Accident
Property Damage.....	\$ 100,000.00	Per Occurrence

**.4 EXCESS LIABILITY:**

(Umbrella on projects over \$500,000)

Bodily Injury & Property Damage .....	\$ 1,000,000.00	Aggregate
---------------------------------------	-----------------	-----------

(Combined Single Limit)

**.5 WORKERS’ COMPENSATION:**

(As required by Statute)

**EMPLOYERS’ LIABILITY:**

Accident .....	\$ 100,000.00	Per Occurrence
Disease .....	\$ 500,000.00	Policy Limit
Disease .....	\$ 100,000.00	Per Employee

**.6 PROPERTY INSURANCE:**

Builder’s Risk.....	\$	Equal to Value of Work
Or		
Installation Floater.....	\$	Equal to Value of Work

11.1.5 Add a new Subparagraph as follows:

Furnish one (1) copy of the Standard Construction Contract Certificate of Insurance Form for each copy of the Standard Form of Agreement Between Owner and Contractor specifically setting forth evidence of all coverage required by Subparagraphs 11.1.1, 11.1.2 and 11.1.3. Furnish to the Owner copies of any endorsements that are subsequently issued amending limits of coverage.

11.1.6 Add a new Subparagraph as follows:

If the coverages are provided on a claims-made basis, the policy date or retroactive date shall predate the Contract: the termination date, or the policy, or applicable extended reporting period shall be no earlier than the termination date of coverages required to be maintained after final payment.

**11.2 OWNER'S LIABILITY INSURANCE**

11.2.1 Delete this Subparagraph in its entirety and substitute the following:

The Contractor shall purchase and maintain such insurance as will protect the Owner from his contingent liability to others for damages because of bodily injury, including death, and property damage, which may arise from operations under this Contract and other liability for damages which the Contractor is required to insure under any provision of this Contract. Certificate of this insurance will be filed with the Owner and will be the same limits set forth in 11.1.4.

**11.3 PROJECT MANAGEMENT PROTECTIVE LIABILITY INSURANCE**

Delete this Paragraph in its entirety.

**11.4 PROPERTY INSURANCE (BUILDER'S RISK OR INSTALLATION FLOATER)**

11.4.1 Change the first line in this Subparagraph to read as follows:

The Contractor shall purchase...

11.4.1.2 Delete this Clause under Subparagraph 11.4.1 in its entirety.

11.4.1.3 Change the following Clause in Subparagraph 11.4.1.3 to read as follows:

If the property insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles.

11.4.2 Delete this Subparagraph in its entirety.

11.4.3 Delete this Subparagraph in its entirety.

11.4.4 Delete this Subparagraph in its entirety.

11.4.5 Delete this Subparagraph in its entirety.

11.4.6 Delete this Subparagraph in its entirety.

11.4.10 Change this Subparagraph to read as follows:

The Owner as fiduciary shall have power to adjust and settle a loss with Insurers unless one of the parties in interest shall object in writing within five (5) days after occurrence of loss.

**Article 12 UNCOVERING AND CORRECTION OF WORK**

No supplementary conditions.

**Article 13 MISCELLANEOUS PROVISIONS**

No supplementary conditions.

**Article 14 TERMINATION OR SUSPENSION OF THE CONTRACT**

No supplementary conditions.

END OF DOCUMENT

## SECTION 01 10 00

## SUMMARY

## PART 1 GENERAL

## 1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work covered by the Contract Documents shall be provided by one (1) General Contractor as one (1) Contract to improve the Mississippi Department of Transportation site to install the Emergency Generator for District 5 Headquarters at Newton, Newton County, Mississippi.
- B. Time of Completion: The completion of this Work is to be on or before the time indicated on the Owner and Contractor Agreement.
- C. Contractor's Duties:
1. Except as specifically noted, provide and pay for:
    - a. Labor, materials, equipment.
    - b. Tools, construction equipment, and machinery.
    - c. Other facilities and services necessary for proper execution and completion of the Work.
  2. Pay legally required sales, consumer, use, payroll, privilege and other taxes.
  3. Secure and pay for, as necessary for proper execution and completion of Work, and as applicable at time of receipt of bids:
    - a. Permits
    - b. Government Fees
    - c. Licenses
  4. Give required notices.
  5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities that bear on performance of Work.
  6. Promptly submit written notice to Project Engineer of observed variance of Contract Documents from legal requirements. Appropriate modifications to Contract Documents will adjust necessary changes. Assume responsibility for Work known to be contrary to such requirements, without notice.
  7. Enforce strict discipline and good order among employees. Do not employ on Work, unfit persons or persons not skilled in assigned task.
  8. Schedule of Values: Submit 6 copies to the MDOT Architectural Services Unit a Schedule of Values as described in Section 01 29 73 of these Specifications. This submittal will be recorded as submittal number one for this Project. When this submittal is approved, a copy will be transmitted to Construction Administration to be used to review and compare to amounts submitted on the CAD-720 form. Other copies will be kept by Architectural Services Unit and distributed to Project Engineer, MDOT Consultants, and Contractor.
  9. Sub-Contractors List: Submit 8 copies of a list, acceptable to the MDOT, of all subcontractors to be used on the Project within seven (7) days after written notice of Contract award by the MDOT. The list shall include the Firm's name, contact person, street address, e-mail address, telephone and fax numbers. Submit original to Contract Administration Division and one copy to the Project Engineer and to the MDOT Architect CAD-720 form - REQUEST FOR PERMISSION TO SUBCONTRACT for each subcontractor before they are allowed to perform any Work.

10. Coordination: The Contractor is responsible for the coordination of the total Project. All subcontractors will cooperate with the Contractor so as to facilitate the general progress of the Work. Each trade shall afford all other trades every reasonable opportunity for the installation of their Work. Refer to Section 01 31 00 "Project Management & Coordination".

#### 1.02 CONTRACTOR'S USE OF PREMISES

- A. Confine operations at the site to areas permitted by:
  1. Law
  2. Ordinances
  3. Permits
  4. Contract Documents
  5. Owner
- B. Do not unreasonably encumber site with materials or equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Move any stored products which interfere with operations of MDOT or other Contractors.
- F. Obtain and pay for use of additional storage of work areas needed for operations.
- G. Limit use of site for work and storage to the area indicated on the Drawings.

#### 1.03 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
  1. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION

## SECTION 01 26 00

## CONTRACT MODIFICATION PROCEDURES

## PART 1 GENERAL

- 1.01 SCOPE: This Section describes the procedures for processing Change Orders (Supplemental Agreements) by the Project Engineer and the Contractor.
- 1.02 CHANGE ORDER PROCEDURES
- A. Change Proposed by the Project Engineer: The Project Engineer may issue a Proposal Request to the Contractor which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications and a change in Contract Time for executing the change. The Contractor shall prepare and submit an estimate within 10 days.
- B. Change Proposed by the Contractor: The Contractor may propose a change by submitting a request for change to the Project Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other Contractors. Document any requested substitutions in accordance with Section 01630 - Product Options and Substitution Procedures.
- C. Contractor's Documentation:
1. Maintain detailed records of Work completed on a time and material basis. Provide full information required for evaluation of proposed changes, and substantiate costs of changes in the Work.
  2. Document each quotation for a change in cost or time with sufficient data allowing evaluation of the quotation.
  3. On request, provide additional data to support computations:
    - a. Quantities of products, labor, and equipment.
    - b. Taxes, insurance and bonds.
    - c. Overhead and profit.
    - d. Justification for any change in Contract Time.
    - e. Credit for deletions from Contract, similarly documented.
  4. Support each claim for additional costs, and for work completed on a time and material basis, with additional information:
    - a. Origin and date of claim.
    - b. Dates and time work was performed and by whom.
    - c. Time records and wage rates paid.
    - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
- D. Construction Change Directive: The Project Engineer may issue a document, approved by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order (Supplemental Agreement). The document will describe changes in the Work, and will designate method of determining any change in the Contract Sum or Contract Time. The change in Work will be promptly executed.
- E. Format: The Project Engineer will prepare 5 originals of the Change Order (Supplemental Agreement) using the Mississippi Department of Transportation's Change Order (Supplemental Agreement) Form.
- F. Types of Change Orders (Supplemental Agreements):
1. Stipulated Sum Change Orders: Based on Proposal Request and Contractor's fixed price quotation, or Contractor's request for a Change Order (Supplemental Agreement) as approved by the Project Engineer and the MDOT Architect.

2. Unit Price Change Order: For pre-determined unit prices and quantities, the Change Order (Supplemental Agreement) will be executed on a fixed unit price basis. For unit costs or quantities of units of work, which are not pre-determined, execute Work under a Construction Change Directive. Changes in Contract Sum or Contract Time will be computed as specified for Time and Material Change Order (Supplemental Agreement).
  3. Time and Material Change Order (Supplemental Agreement): Submit itemized account and supporting data after completion of change, within time limits indicated in the Standard Form of Agreement Between the Owner and the Contractor. The Project Engineer will determine the change allowable in Contract Sum and Contract Time as provided in the Contract Documents. The Contractor shall maintain detailed records of Work accomplished on Time and Material basis and shall provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- G. Execution of Change Order (Supplemental Agreement): The Project Engineer will issue Change Orders (Supplemental Agreements) for signatures of parties as provided in the Standard Form of Agreement Between the Owner and the Contractor. Final execution of all Change Orders (Supplemental Agreements) requires approval by the Owner.
- H. Correlation of Contractor Submittals: The Contractor shall promptly revise Schedule of Values and the Application for Payment forms to record each authorized Change Order (Supplemental Agreement) as a separate line item and adjust the Contract Sum. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of Work affected by the change and resubmit. Promptly enter changes in Project Record Documents.

PART 2 PRODUCTS  
Not Used

PART 3 EXECUTION  
Not Used

END OF SECTION



SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 GENERAL

1.01 METHOD OF MEASUREMENT: The method of measurement and payment shall conform to the applicable provisions of Article 9 of the AIA Document A201-1997 General Conditions of the Contract for Construction.

1.02 APPLICATION FOR PAYMENT

A. Format:

1. Applications for Payments will be prepared on AIA forms G702-Application and Certificate for payment and G703-Continuation Sheet; or, a computer generated form containing similar data may be used.

B. Preparation of Application:

1. Present required information in type written form.
2. Execute certification by signature of authorized officer.
3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of Work performed and for stored products.
4. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original Item of Work.
5. Prepare Application for Final Payment as specified in Section 01 77 00-Closeout Procedures.

C. Submittal Procedures:

1. Submit 3 copies of each Application for Payment to the Project Engineer and one copy to the MDOT Architect.
2. Submit an updated construction schedule with each Application for Payment as described in Section 01 32 00-Construction Progress Documentation.
3. Submit request for payment at intervals agreed upon by the Project Engineer, Owner, and Contractor.
4. Submit requests to the Project Engineer at agreed upon times, or as may be directed otherwise.

D. Substantiating Data:

1. Submit data justifying dollar amounts in question when such information is needed.
2. Provide one copy of the data with a cover letter for each submittal.
3. Indicate the Application number, date and line item number and description.

1.03 STATEMENTS AND PAYROLLS

A. The submission by the Contractor of the actual weekly payrolls showing all employees, hours worked, hourly rates, overtime hours, etc., or copies thereof, is not required to be turned in. However, each Contractor and Subcontractor shall preserve weekly payroll records for a period of three years from the date of Contract completion. All Contractor personnel working at the project site will be paid unconditionally and not less often than once a week without subsequent deduction or rebate on any account, except such payroll deductions as are permitted by regulations, the full amounts of wages and bona fide fringe benefits due at time of payment.

- B. The payroll records shall contain the name, address, social security number, classification, rate of pay, daily and weekly number of hours worked, itemized deductions and actual wages paid to each employee.
- C. Upon request, the Contractor will make payroll records available at the project site for inspection by the Department Compliance Officer or authorized representative and will permit such officer or representative to interview employees on the job during working hours.
- D. The Contractor and Subcontractors shall submit Form CAD-880, "Weekly Summary of Wage Rates", each week to the Project Engineer. The forms may be obtained from the Contract Compliance Officer, Contract Administration Division, Mississippi Department of Transportation, Jackson, Mississippi. Custom forms, approved by Contract Administration Division, may be used in lieu of CAD forms.
- E. The Contractor shall make all efforts necessary to submit this information to the Project Engineer in a timely manner. The Engineer will have the authority to suspend the work wholly or in part and to withhold payments because of the Contractor's failure to submit the required information. Submission of forms and payrolls shall be current through the first week of the estimate period in order for the Project Engineer to process an estimate.

1.04 BASIS OF PAYMENT

- A. This Work will be paid for by Contract Sum for the installation of the Emergency Generator for District 5 Headquarters at Newton, Newton County, Mississippi. The Contract Sum shall be full compensation for all site work, for furnishing all materials, and all other Work and effort of whatever nature in the installation of the Emergency Generator, installation of underground and other equipment, and final clean-up of the area. It shall also be complete compensation for all equipment, tools, labor, and incidentals necessary to complete the Work.
- B. Payment will be made under:

MDOT Project Number BWO-5001-51(008) 501640	Lump Sum
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<b>TOTAL PROJECT CONTRACT SUM</b>	<b>LUMP SUM</b>
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PART 2 PRODUCTS  
Not Used

PART 3 EXECUTION  
Not Used

END OF SECTION

## SECTION 01 29 73

## SCHEDULE OF VALUES

## PART 1 GENERAL

## 1.01 DESCRIPTION

- A. Scope: Submit 6 copies of the Schedule of Values to the MDOT Architect, with a copy of the Transmittal Letter to the Project Engineer, at least 10 days prior to submitting first Application for Payment. Upon Project Engineer's request, support the values given with data substantiating their correctness. Payment for materials stored on site will be limited to those listed in Schedule of Unit Material Values (refer to Article 9 of the Supplementary Conditions for requirements). Use Schedule of Values only as basis for contractor's Application for Payment.
- B. The 6 copies of the Schedule of Values will be reviewed as Submittal #1. A copy of this submittal will be reviewed by the MDOT Architect and Mechanical / Electrical Consultants. One copy will be retained by MDOT Architectural Services Unit, one by Mechanical / Electrical Consultants, one sent to Contract Administration for use in reviewing requests for Permission to Sub-Contract, one sent to the Project Engineer, and two returned to the Contractor. If any extra copies are needed for the Contractor, adjust number submitted.
- C. Form of Submittal: Submit typewritten Schedule of Values on AIA Document G703-1992, using Table of Contents of this Specification as basis for format for listing costs of Work for Sections under Divisions 03- 32. Identify each line item with number and title as listed in Table of Contents of this Specification.
- D. Preparing Schedule of Values:
1. Itemize separate line item costs for each of the following general cost items: Performance and Payment Bonds, field supervision and layout, Contingency Allowance, temporary facilities and controls, and closeout documents.
  2. Itemize separate line item cost for Work required by each Section of this specification. Breakdown installed cost with overhead and profit.
  3. For each line item, which has installed value of more than \$20,000, break down costs to list major products for operations under each item; rounding figures to nearest dollar. Make sum of total costs of all items listed in schedule equal to total Contract Sum.
- E. Preparing Schedule of Unit Material Values:
1. Submit separate schedule of unit prices for materials to be stored on which progress payments will be made. Make form of submittal parallel to Schedule of Values with each line item identified same as line item in Schedule of Values. Include in unit prices only: Cost of material, delivery and unloading site, and sales tax.
  2. Make sure unit prices (if required) multiplied by quantities equal material cost of that item in Schedule of Values.
- F. Review and Re-submittal: After Project Engineer's review, revise and resubmit schedule in same manner if requested.

## PART 2 PRODUCTS (Not Used)

## PART 3 EXECUTION (Not Used)

END OF SECTION

## SECTION 01 31 00

## PROJECT MANAGEMENT AND COORDINATION

## PART 1 GENERAL

## 1.01 SECTION INCLUDES

- A. Scope: To set forth procedures, conditions and responsibility for coordination of the total project.
- B. Project Coordinator: The General Contractor shall designate one individual as Project Coordinator (Superintendent), as referred to in the General Conditions. Prior to beginning Work his name, qualifications and address shall be submitted, in writing, to the MDOT Executive Director with copies to the Construction Engineer, Contract Administration Engineer, District Engineer, Project Engineer and Architectural Services Unit Director. Upon approval, he will remain until the Project is completed and cannot be removed during construction without the written consent of the Project Engineer.

## 1.02 DUTIES OF PROJECT COORDINATOR (SUPERINTENDENT)

- A. General:
  1. Coordination: Coordinate the work of all subcontractors and material suppliers.
  2. Supervision: Supervise the activities of every phase of Work taking place on the project.
  3. Contractor's Daily Job Diary: Submit copy of daily job diary to the Project Engineer and the Architectural Services Unit Director each Monday for the previous week.
  4. Electrical: Take special care to coordinate and supervise the Work of the electrical and other subcontractors.
  5. Communication: Establish lines of authority and communication at the job site.
  6. Location: The Project Coordinator (Superintendent) must be present on the job sites at all times while work is in progress.
  7. Permits: Assist in obtaining building and special permits required for construction.
- B. Interpretations of Contract Documents
  1. Consultation: Consult with Project Engineer to obtain interpretations.
  2. Assistance: Assist in resolution of any questions.
  3. Transmission: Transmit written interpretations to concerned parties.
- C. Cessation of Work: Stop all Work not in accordance with the requirements of the Contract Documents.
- D. Division One: Coordinate and assist in the preparation of all requirements of Division One and specifically as follows:
  1. Enforce all safety requirements.
  2. Schedule of Values: Assist in preparation and be knowledgeable of each entry in the Schedule of Values.
  3. Cutting and Patching: Supervise and control all cutting and patching of other trades work.
  4. Project Meetings: Schedule with Project Engineer's approval and attend all project meetings.
  5. Construction Schedules: Prepare and submit all construction schedules. Supervise Work to monitor compliance with schedules.
  6. Shop Drawings, Product Data and Samples: Administer the processing of all submittals required by the Project Manual.

7. Testing: Coordinate all required testing.
  8. Temporary Facilities and Controls: Allocate, maintain and monitor all temporary facilities.
  9. Substitutions and Product Options: Administer the processing of all substitutions.
  10. Cleaning: Direct and execute a continuing (daily) cleaning program throughout construction, requiring each trade to dispose of their debris.
  11. Project Closeout: Collect and present all closeout documents to the Project Engineer for transmittal to the MDOT Architect
  12. Project Record Documents: Maintain up-to-date Project Record Documents.
- E. Changes: Recommend and assist in the preparation of requests to the Project Engineer for any changes in the Contract.
- F. Application for Payment: Assist in the preparation and be knowledgeable of each entry in the Application and Certificate for Payment.

#### 1.03 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements, supports, and installation of Mechanical and Electrical Work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy, if required.
- E. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

#### 1.04 SUBCONTRACTOR'S DUTIES

- A. The Subcontractor is responsible to coordinate and supervise his employees in the Work accomplished under his part of the Contract.
- B. Schedules: Conduct Work to assure compliance with construction schedules.
- C. Suppliers: Transmit all instructions to his material suppliers.
- D. Cooperation: Cooperate with the Project Coordinator and other subcontractors.

PART 2 PRODUCTS & PART 3 EXECUTION (Not Used)

END OF SECTION

## SECTION 01 31 19

## PROJECT MEETINGS

## PART 1 GENERAL

## 1.01 SECTION INCLUDES

- A. Provisions for and procedures related to the required Project Meetings which include, but not limited to, the following for each Project Phase:
1. Pre-Construction Meeting.
  2. Periodic Progress Meetings.

## 1.02 MEETINGS

- A. Purpose of Meetings: Project Meetings shall be held for the following reasons:
1. To establish an understanding of what is expected from everyone involved.
  2. To enable an orderly Project review during the progress of the Work.
  3. To provide for systematic discussion of problems and effect remedies and clarifications.
  4. To coordinate the Work.
  5. To review installation procedures and schedules.

## 1.03 SCHEDULING AND ADMINISTRATION

- A. The Project Engineer shall schedule and preside over all meetings throughout the progress of the Work. Duties include the following:
1. Review, modify / approve minutes of the previous meeting.
  2. Discuss items that have been done the previous month and anticipated work to be done within the next month.
  3. Review Contractor's Pay Request and resolve questions or conflicts with Construction Documents.
- B. The Contractor shall attend and administer all meetings throughout the progress of the Work. Duties include the following:
1. Preparation of agenda for meetings
  2. Distribution of agenda and written notice 7 days in advance of date for each regularly scheduled meeting.
  3. Make physical arrangements for meetings.
  4. Record the minutes which shall include list of all participants and all significant proceedings and, in particular, all decisions, agreements, clarifications, and other data related to Project cost, time, and modifications.
  5. Distribute copies of minutes within 7 calendar days to all parties affected by decisions made at the meeting.
  6. Follow-up unresolved matters discussed at meetings and promptly effect final resolution, especially for work in progress. Advise all effected parties of result and include report of activities in next scheduled meeting.
- C. Representatives of Contractor's, Subcontractor's, and Supplier's attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.
- D. Consultants may attend meetings to ascertain work is expedited consistent with Contract Documents and construction schedules.

1.04 PRE-CONSTRUCTION MEETING

- A. Schedule: Schedule Pre-Construction Meeting within 10 days after Notice to Proceed.
- B. Location: A central site, convenient for all parties, designated by the Contractor and approved by the Project Engineer and the MDOT Architect.
- C. Attendance: Attending shall be the Project Engineer and MDOT representatives associated with the Project, the MDOT Architect (if requested by the District), his Consultants, the General Contractor, all major Subcontractors, and any representatives of governmental or other regulatory agencies as required.
- D. Minimum Agenda:
  - 1. Distribute and discuss construction schedule prepared by Contractor.
  - 2. Review critical Work sequencing.
  - 3. Designate responsibilities.
  - 4. State procedures for submittals.
  - 5. State procedures for maintaining record documents.
  - 6. State procedures for change orders.
  - 7. State procedures for application of payment.
  - 8. Coordinate use of premises, including office and storage areas.
  - 9. List Owner's requirements.
  - 10. Show clear understanding of Security.
  - 11. Show clear understanding of Housekeeping procedures.

1.05 PROGRESS MEETINGS

- A. Schedule: Progress Meetings will be scheduled monthly. The Project Engineer will cancel the meeting with at least 48 hours notice if a meeting is not necessary for any particular month.
- B. Place of Project Meetings: Contractor's Field Office except as otherwise agreed.
- C. Attendance: Attending shall be the Project Engineer or his representative and MDOT representatives associated with the Project, the MDOT Architect or his representative (if requested by the District) and his Consultants, the General Contractor, and all Subcontractors as pertinent to the agenda.
- D. Minimum Agenda:
  - 1. Review, modify / approve minutes of the previous meeting.
  - 2. Review work progress since last meeting.
  - 3. Note field observations, problems and decisions.
  - 4. Identify problems that impede planned progress.
  - 5. Review off-site fabrication problems.
  - 6. Revise construction schedule as indicated.
  - 7. Plan progress during the next work period.
  - 8. Review submittal schedules; expedite and modify as required.
  - 9. Review proposed changes,
  - 10. Review Request for Payment.
  - 11. Complete other current business.

PART 2 PRODUCTS & PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Scope: Provide projected Construction Schedules for entire Work and revise monthly to show progress through the pay period. The following is a minimum requirement and other type schedules are acceptable with Owner's approval.
- B. Form of Schedules: Prepare in form of horizontal bar chart.
  - 1. Provide separate horizontal bar column for each trade or operation.
  - 2. Order: Table of Contents of Specifications.
  - 3. Identify each column by major Specification section number.
  - 4. Horizontal Time Scale: Identify first work day of each week.
  - 5. Scale and Spacing: To allow space for updating.
- C. Content of Schedules:
  - 1. Provide complete sequence of construction by activity.
  - 2. Indicate dates for beginning and completion of each stage of construction.
  - 3. Identify Work of logically grouped activities.
  - 4. Show projected percentage of completion for each item of Work as of first day of each month.
- D. Updating:
  - 1. Show all changes occurring since previous submission of updated schedule.
  - 2. Indicate progress of each activity and completion dates.
- E. Submittals:
  - 1. Submit initial schedules to the Project Engineer / MDOT Architect within 15 days after date of Notice to Proceed.
  - 2. Submit to the Project Engineer / MDOT Architect, periodically updated schedules accurately depicting progress to first day of each month.
  - 3. Submit 2 copies, one to be retained by the Project Engineer and the other forwarded to the MDOT Architect.
- F. If the Contractor is required to produce two revised construction schedules because of lack of progress in the Work, the Owner will notify the Contractor's surety.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION



## SECTION 01 33 00

## SUBMITTAL PROCEDURES

## PART 1 GENERAL

## 1.01 SUMMARY

- A. Scope: Submit to the MDOT Architectural Services Unit shop drawings, product data, and samples required by Specification Sections. Faxed submittals will **Not** be accepted. Do **Not** submit Material Safety Data Sheets for approval. Refer to Section 01 62 15 – Product Options and Substitution Procedures, for requirements concerning products that will be acceptable on this Project.
- B. Shop Drawings: Original (**legible**) drawings prepared by Contractor, subcontractor, supplier or distributor which illustrate actual portions of the Work; showing fabrication, layout, setting or erection details. Reproductions of the Contract Drawings will **not** be acceptable. Minimum requirements for shop drawings shall include the following:
1. Prepared by a qualified detailer.
  2. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
  3. Minimum sheet size: 8-1/2 inches by 11 inches.
  4. Reproductions for submittals: 9 Prints.
  5. Shop drawings shall be stamped and signed by the Contractor certifying accuracy, completeness and compliance with Contract requirements prior to submitting to the MDOT Architectural Services Unit.
- C. Product Data: Provide 9 copies each. Minimum information submitted shall include the following:
1. Manufacturer's standard schematic drawings: Modify drawings to delete information that is not applicable to the Project. Supplement standard information to provide additional information applicable to Project.
  2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data: **Clearly mark** each copy to identify pertinent materials, products or models. Show dimensions and clearances required. Show performance characteristics and capacities, wiring diagrams and controls.
  3. Product Data shall be stamped and signed by the Contractor certifying accuracy, completeness and compliance with contract requirements prior to submitting to the MDOT Architectural Services Unit.
- D. Samples: Provide physical examples to illustrate materials, equipment or workmanship and to establish standards by which completed Work is judged.
1. Provide one copy each of sufficient size and quantity to clearly illustrate functional characteristics of products or material with integrally related parts and attachment devices and full range of color samples.
  2. Samples remain the property of the Architectural Services Unit until completion of construction of the Project.
  3. Samples (except for color samples) will not be required when specified product is submitted.
  4. If a specified product color is discontinued, Contractor shall notify Project Engineer promptly to determine if it affects other color selections.

- E. Field Samples and Mock-Ups: Erect on Project Site at location acceptable to Project Engineer.
1. Construct each sample or mock-up complete, including Work of all trades required in the finished Work. Field Samples are used to determine standards in materials, color, texture, workmanship, and overall appearance.
  2. Work shall not be allowed using these materials until the mock-up is approved.
  3. The mock-up shall not be destroyed, until after the Work it represents is finished, without permission of the Project Engineer. This mock-up shall be used as a standard to compare to the Work it represents for color, craftsmanship, overall appearance, and how the different materials make up the whole system.
- F. Contractor Responsibilities:
1. Review shop drawings, product data, and samples prior to submission.
  2. Verify field measurements, construction criteria, catalog numbers and other data.
  3. Coordinate each submittal with requirements of Work and Contract Documents.
  4. Contractor's responsibility for errors and omissions in submittals is not relieved by MDOT Architect's / Consultant's review of submittals.
  5. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by review of submittals unless written acceptance of specific deviations is given.
  6. Notify the Project Engineer in writing at the time of submission, of deviations in submittals from requirements of Contract Documents.
  7. Order no materials or begin no Work requiring submittals until the return of submittals bearing MDOT Architect / Consultant's stamp and initials indicating review.
  8. After MDOT Architect / Consultant's review, distribute copies.
- G. Submission Requirements:
1. Schedule submission with ample time given to review submittals prior to being needed.
  2. Submit 9 copies of shop drawings and product data with additional number of copies, if required, by Contractor for distribution.
  3. Submit number of samples specified in each Specification Section.
  4. Accompany submittals with transmittal letter, in duplicate, containing data, project title and number; Contractor's name and address; the number of each Shop Drawings, product data and samples submitted; notification of deviations from Contract Documents; and other pertinent data.
  5. Each copy of submittals shall include the following:
    - a. Date and revision dates.
    - b. Project title and number.
    - c. The names of Project Engineer, Contractor, Supplier, Manufacturer, and separate detailer, when pertinent.
    - d. Identification of product or material.
    - e. Relation to adjacent structure or materials.
    - f. Field dimensions, clearly identified as such.
    - g. **Specification Section Number.**
    - h. Applicable standards such as ASTM Number or Federal Specification.
    - i. A blank space, 2 inches by 3 inches for the Reviewer's stamp.
    - j. Identification to deviations from Contract Documents.
    - k. Contractor's stamp, initialed or signed, certifying the review of submittal, verification of field measurements, and compliance with Contract Documents.

- H. Resubmission Requirements:
  - 1. Shop Drawings: Revise initial Drawings as required and resubmit as specified for initial submittal. Indicate on Drawings, any changes that have been made other than those required by the Reviewer.
  - 2. Product Data and Samples: Submit new data and samples as required for initial submittal.
  
- I. Distribution of Submittals after Review:
  - 1. Distribute copies of Shop Drawings and product data which carry MDOT Architect's / Consultant's stamp to: Project Engineer's File, Architectural Services Unit File, Architect's File(as required) / Electrical / Mechanical / Structural Engineer's File (as required), Materials' File (if concrete), Contractor's File, Job Site File, and Subcontractor, Supplier and/or Fabricator as necessary.
  - 2. Distribute samples as directed. The Project Engineer, MDOT Architect and Consultant (as required) shall retain one of each.
  
- J. MDOT Architect / Consultants' Duties:
  - 1. Review submittals with reasonable promptness.
  - 2. Review for design concept of Project and information given in Contract Documents.
  - 3. Review of separate item does not constitute review of an assembly in which item functions.
  - 4. Affix stamp and initial, or signature, certifying the review of submittal.
  - 5. Return submittals to the Architectural Services Unit, which will forward one copy to the Project Engineer, one copy to the Materials Engineer (if concrete), and the remainder to the Contractor.
  - 6. Retain one copy of reviewed submittals.
  
- K. Delays attributable to untimely submittals, submittals not approved, or time taken to resubmit will not serve as a basis for a Contract Time extension.
  
- L. Acceptance of submittal items will not preclude rejection of these items upon discovery of defects in them prior to final acceptance of completed Work.
  
- M. After an item has been accepted, no change in brand, make, manufacturer's catalog number, or characteristics will be considered unless:
  - 1. Satisfactory written evidence is presented to and approved by the Project Engineer, that manufacturer cannot make scheduled delivery of accepted item, or;
  - 2. Item delivered has been rejected and substitution of a suitable item is an urgent necessity, or;
  - 3. Other conditions became apparent which indicates acceptance of such substitute item to be in the best interest of the Owner.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 42 19

REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Identification and purpose of Reference Documents.
- B. Administrative procedures and responsibility for the use of Reference Documents.

1.02 IDENTIFICATION AND PURPOSE

- A. Identification: Throughout the Contract Documents are references to nationally known and recognized Codes, Reference Standards, Reference Specifications, and similar documents that are published by Regulatory Agencies, Trade and Manufacturing Associations and Societies, Testing Agencies and others. References also include certain Project Documents or designated portions.
- B. Purpose: All named and otherwise identified "Reference Documents" are "by reference" hereby incorporated into these Specifications as though fully written and hereby serve to establish specific requirements and pertinent characteristics for materials and workmanship as well as methods for testing / reporting on compliance thereto.

1.03 PROCEDURES AND RESPONSIBILITIES

- A. Compliance with Laws and Codes of governmental agencies having jurisdiction shall be mandatory and take precedence over the requirements of all other Reference Documents. For products or workmanship specified by Associations, Trade, or Federal Standards, comply with the requirements of the standard, except when supplemented instructions indicate a more rigid standard and / or define more precise requirements. Should specified reference standards conflict with regulatory requirements or the Contract Documents, request MDOT Architect's clarification before proceeding.
- B. The Contractor (including any and all Parties furnishing and / or installing any portion of The Work) shall be familiar with the indicated codes and standards. It shall be the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify (and provide written certification, when required) that the items procured for use in this Work (and their installation, as applicable) meet or exceed the specified requirements.
- C. When date of Reference Document is not specified, conform to latest edition of said Document except when earlier editions are specifically required by Codes.
- D. The contractual relationship of the Parties to the Contract shall not be altered from the requirements of the Contract Documents by mention or inference otherwise in any reference document.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

## SECTION 01 43 00

## QUALITY ASSURANCE

## PART 1 GENERAL

## 1.01 WORK QUALITY

- A. Shop and field work shall be performed by mechanics, craftspersons, artisans, and workers skilled and experienced in the fabrication and installation/application of the work involved. The Work of this Project shall be performed in accordance with the Drawings, reviewed and approved shop drawings, and these Specifications. Quality of work shall conform to the highest established standards and practices of the various trades involved.
- B. All work shall be erected and installed plumb, level, square, and true, or true to indicated angle, and in proper alignment and relationship to the work of other trades. Finished work shall be free from defects and damage.
- C. Nothing specified in these Specifications shall be construed as relieving the Contractor of any responsibility for the quality of the finished work. Surfaces on which specified finishes are to be applied shall be in proper condition in every respect for superior finished work and long life without defects.
- D. The Contractor's performance of the work hereunder shall be to the satisfaction of the Project Engineer. The Project Engineer reserves the right to reject materials and work qualities which are not considered to be up to the accepted high standards of the various trades involved. Such inferior material or work quality shall be repaired or replaced, as directed by the Project Engineer, at no additional cost to the Owner.

## 1.02 MANUFACTURERS' SPECIFICATIONS AND INSTRUCTIONS

- A. Unless otherwise indicated or specified, manufactured materials, products, processes, equipment, systems, assemblies, and the like shall be erected, installed, or applied in accordance with the manufacturers' instructions, directions, or specifications. Said erection, installation, or application shall be in accordance with printed instructions furnished by the manufacturer of the material or equipment concerned for use under conditions similar to those at the jobsite. Six copies of such instructions shall be furnished to the MDOT Architect, and the MDOT Architect's acceptance therefore shall be obtained before work is begun.
- B. Any deviation from the manufacturers' printed recommendations shall be explained and acknowledged as correct and appropriate for the circumstances, in writing, by the particular manufacturer. Any deviations must be reviewed by the MDOT Architect prior to any action by the Contractor. The Contractor will be held responsible for installations contrary to the respective manufacturers' recommendations.

## 1.03 SPECIALIST APPLICATOR/INSTALLER

- A. Materials, equipment, systems, and assemblies requiring special knowledge and skill for the application or installation of such materials, equipment, systems, or assemblies shall be applied or installed by the specified product manufacturer or its authorized representative or by a skilled and experienced subcontractor qualified and specializing in the application or installation of the specified product with at least five years of successful experience in the type of work indicated and specified.

- B. The installation subcontractor shall be approved by the product manufacturer, as applicable, and copies of the installer's approval letter from the manufacturer shall be submitted to the MDOT Architect.

#### 1.04 MANUFACTURER'S FIELD SERVICES

- A. The manufacturer of a product, system, or assembly which requires special knowledge and skill for the proper application or installation of such product, system, or assembly shall provide appropriate field or job service at no additional cost to the Contractor or Owner. The manufacturer shall inspect and approve the application or installation work.
- B. The Contractor shall make all necessary arrangements with the manufacturer of the products to be installed to provide onsite consultation and inspection services to assure the correct application or installation of the product, system, or assembly.
- C. The manufacturer's authorized representative shall be present at the time any phase of this work is started.
- D. The manufacturer shall inspect and approve all surfaces over which, or upon which the manufacturer's product will be applied or installed.
- E. The manufacturer's representative shall make periodic visits to the site as the work proceeds as necessary for consultation and for expediting the work in the most practical manner.

#### 1.05 TOLERANCES

- A. Concrete floors: Tolerances for concrete floors and pavement are specified in Division 3.

#### 1.06 GROUT FILL

- A. In applications where the grout installation may be subjected to moisture, the manufacturer shall submit a letter stating that the entire grout matrix does not contain any of the following:
  - 1. Added gypsum.
  - 2. Plaster-of-paris.
  - 3. Sulfur trioxide levels in a portland cement component exceeding ASTM C 150's published limits.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 45 29

TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 SUMMARY

- A. Scope: The Contractor shall use testing laboratory services of the Mississippi Department of Transportation for all testing required in this Section. These services will be provided to the Contractor by the MDOT at no charge. Use of said services shall in no way relieve the Contractor of his obligation to perform Work in accordance with the Contract.
- B. Inspection, Sampling and Testing are required for:
  - 1. Section 31 23 12, Excavation, Fill and Grading.
  - 2. Section 03 20 00, Concrete Reinforcing.
  - 3. Section 03 30 00, Cast-In-Place Concrete.

1.02 LABORATORY'S DUTIES

- A. Materials will be inspected and sampled in accordance with current Mississippi Department of Transportation SOP pertaining to inspecting and sampling.
- B. Prepare reports of inspections and tests including:
  - 1. Date issued.
  - 2. Project title and number.
  - 3. Testing laboratory, name and address.
  - 4. Name and signature of inspector.
  - 5. Date of inspection or sampling.
  - 6. Record of temperature and weather.
  - 7. Date of test.
  - 8. Identification of product and Specification Section.
  - 9. Location of Project.
  - 10. Type of inspection or test.
  - 11. Observations regarding compliance with Contract Documents requirements.
- C. Distribute copies of reports of inspections and tests to Project Engineer and one copy to the MDOT Architect.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel to provide to laboratory in required quantities preliminary representative samples of materials to be tested.
- B. When required, furnish copies of mill test reports. Furnish to laboratory, casual labor to obtain and handle samples at the site and to facilitate inspections and tests.
- C. Provide facilities for laboratory's exclusive use for storage and curing of test samples.
- D. Notify laboratory in advance of operations to allow for assignment of personnel and scheduling of tests.

1.04 MATERIAL CERTIFICATIONS AND CERTIFIED TEST REPORTS

- A. All certifications shall meet the following requirements:
  - 1. Have letterhead of the manufacturer, producer, supplier, or fabricator.
  - 2. Include the project number.
  - 3. Itemized list of materials covered by the certification.
  - 4. Contain a material conformance statement, which certifies that the materials conform to the specific specification requirements.
  - 5. Certification for all steel and steel wire products must also include a certified statement by the manufacturer that all of the manufacturing processes are of domestic origin.
  - 6. Signature of a responsible company official.
  
- B. All certified test reports shall meet the following requirements:
  - 1. Have letterhead of the manufacturer, producer, supplier, fabricator, or laboratory.
  - 2. Include name and description of material, lot, batch, or heat number, etc., as applicable.
  - 3. Show results of each required test, and state that the test was run according to the test method specified.
  - 4. Test reports for all steel and steel wire products must also include a certified statement by the manufacturer that all of the manufacturing processes are of domestic origin.
  - 5. Signature of a responsible laboratory official.

PART 2 PRODUCTS  
Not Used

PART 3 EXECUTION  
Not Used

END OF SECTION



## SECTION 01 50 00

## TEMPORARY FACILITIES AND CONTROLS

## PART 1 GENERAL

- 1.01 GENERAL: Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the Work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.
- 1.02 FIELD OFFICE AND STORAGE FACILITIES
- A. The Contractor shall not be responsible for construction of a field office. The Contractor shall provide, maintain, and remove when directed, suitable substantial and watertight temporary field office and storage shed(s), in locations on the site as directed by the Project Engineer, or his authorized representative and best suited for their respective uses, as follows:
1. Field Office: The Contractor is not required to furnish a field office, but shall provide at the job site duplicates of all correspondence, shop drawings, plans, specifications, samples, etc. required to administer the Project. These duplicates will be permanently kept as reference and shall not be used in the field. Contractor shall provide the Project Engineer and the MDOT Architect with job site and emergency telephone numbers.
  2. Storage Facilities: It shall be the Contractor's option to provide watertight storage facilities for storage of cement, lime, and / or other materials subject to water damage. If storage facilities are used, it shall be of sufficient size to hold all materials required for logically grouped activities on the site at one time, and shall have floors raised at least 6 inches above the ground on heavy joists or sleepers. Fully enclosed trailer is allowed, but location must be coordinated with Project Engineer.
- 1.03 FURNISHING AND MAINTENANCE OF EQUIPMENT: Furnish and maintain all equipment such as temporary stairs, ladders, ramps, scaffolds, hoists, runways, derricks, chutes, elevators, etc. as required for proper execution of the Work of all trades. All such apparatus, equipment and construction shall meet all the requirements of the Labor Law and other applicable State or local laws
- 1.04 ELECTRIC LIGHTS AND POWER: Supply lights and power when necessary for the progress of the Work. The operating costs shall be borne by the Owner. Temporary wiring, where required, shall be run in conduits.
- 1.05 WATER: Supply water service. The operating costs shall be borne by the Owner.
- 1.06 ROADS AND ACCESS: The drive is to remain open at all times. A flagman will be required to control traffic when construction vehicles are present.
- 1.07 TOILETS FOR WORKMEN: Provide and maintain all necessary toilets for workmen. Toilets are to be maintained in strict accordance with the regulations of the State Board of Health. The toilets are to be located on the site as directed by the Project Engineer or his authorized representative.

1.08 SECURITY / PROTECTION PROVISIONS

- A. The types of temporary security and protection provisions required include, but are not limited to, fire protection, barricades, warning signs / lights, personnel security program (theft prevention), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at Project Site(s).
  - B. Barricades and Construction Fence: Provide and erect all necessary barricades and any other protection required. Provide all necessary warning and danger lights from twilight to sunrise.
  - C. Fire Extinguishers: Provide types, sizes, numbers and locations as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide Type A extinguishers at locations of low potential for either electrical or grease/oil flammable liquid fires: provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10. Post warning and quick-instructions at each extinguisher location, and instruct personnel at Project Site, at time of their first arrival, on proper use of extinguishers and other available facilities at Project Site. Post local fire department call number on each telephone instrument at Project Site.
  - D. Environmental Protection Procedures: Designate one person, the Construction Superintendent or other, to enforce strict discipline on activities related to generation of wastes, pollution of air/water/soil, generation of noise, and similar harmful or deleterious effects which might violate regulations or reasonably irritate persons at or in vicinity of Project Site.
  - E. Water Control: Provide pumps as required to keep the excavation free from standing water and shall slope the excavation to prevent water from running toward existing buildings at all times.
- 1.09 BURNING OF TRASH: No burning of trash or debris shall be done on Owner's property. All such materials shall be removed from the site and disposed of in accordance with local laws and ordinances.
- 1.10 POWDER ACTUATED TOOLS: The use of powder actuated tools shall be prohibited from use during all phases of the construction, unless explicitly approved in writing, prior to construction, by the Project Engineer.
- 1.11 FIRE HAZARDS: Special precautions shall be taken to reduce fire hazards where electrical or gas welding or cutting Work is done and suitable fire extinguishing equipment shall be maintained near such operations.
- 1.12 CONDUCT OF WORKERS: Workmen, who, because of improper conduct or persistent violation of Owner's requirements, become objectionable, shall be removed at the Owner's request. Inform all workmen of Owner's requirements.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

## SECTION 01 61 15

## BASIC PRODUCT REQUIREMENT

## PART 1 GENERAL

1.01 SECTION INCLUDES: The products of The Work and the requirements for their quality, delivery, handling, storage, protection and installation.

## 1.02 DEFINITIONS

A. "Products". Defined as: The materials, machinery, equipment, components, and systems, in whole or in part, incorporated into The Work. "Products" does not include materials, tools, devices, machinery, equipment and systems used for the preparation, manufacture, fabrication, conveying and installation of The Work.

B. "Level of Excellence". Defined as: The degree of quality for the Products and Workmanship of this Project. The required "degree of quality" shall be established on the basis of one or more of the following criteria which shall become the minimum acceptable "level of excellence" for the Work of this Project:

1. Products selected by Architect / Engineer.
2. Architect's / Engineer's Specifications.
3. Reference Standards.
4. Manufacturer's Instructions.
5. Industry Standards.

a. In the absence of all the criteria from the Specifications Section, the normal local Industry Standard shall prevail. The Party or Parties responsible for the required work shall be experienced in the work to be provided; shall have knowledge as to what, in the local area, constitutes "good and acceptable practice" in producing the completed Work of this Section, and will be expected to provide nothing less.

- 1) Example: Masonry and Drywall Contractors are expected to know that Industry Standards, "good practice", and "common sense" dictate, to prevent cracks in the completed work, control joints must be installed at minimum distances or should be placed in certain locations where movement or other stress conditions are likely to occur. When such items are not specified or shown on the Drawings, the Contractor will be expected to request the MDOT Architect's clarification for location (primarily for esthetic considerations) and then provide not less than the minimum Industry Standard, at no additional cost to the Owner.

C. "Standard of Quality". Defined as: A specific and particular manufacturer whose product(s) has / have been selected by the Architect as amply suitable to meet the Project requirements in one or more of the following criterions: appearance, physical attributes, performance characteristics, appropriateness for intended use, and cost.

1. The work of the individual Specification Section will be based on product(s) of the "Standard of Quality Manufacturer" and the product(s) of that manufacturer, designated within the Specifications Section by catalog number(s) (or other identification), shall become "Standard of Quality Product(s) and the basis by which the product(s) of "Other Acceptable Manufacturers", and any substitutions, are judged.
2. In the absence of the designation "Standard of Quality", such as for generic product, material or system, then the specified item (product, material or system) shall be the reference standard and shall become the "Standard of Quality".

D. "Equivalent Products". Defined as: Products having a level of excellence which, in the MDOT Architect's judgment, is equal to the level of excellence established by the product(s) selected as Architect's / Engineer's "Standard of Quality".

- E. "Manufacturer". Defined as: An entity whose principal business is the manufacturing, fabricating, assembling, and / or supplying of products / systems from off site for incorporation (in whole, or in part, such as components of a system) into the construction at the Project Site.
  - 1. The Architect's / Engineer's selection of a particular manufacturer usually is on the basis of the manufacturer's reputation within the Construction Industry, and / or "track record" with the Architect / Engineer, for producing quality products on time, and providing responsive follow-up and reliable warranties.
  - 2. The terms "Fabricator" and "Supplier" used in these Specifications shall be synonymous with "manufacturer".
  
- F. "Other Acceptable Manufacturers". Defined as: Manufacturers who have qualifications and products similar to those of the "Standard of Quality" Manufacturer (see above) selected by Architect / Engineer and are therefore "acceptable" to offer any of their products considered to be "equivalent" to the specified product(s).
  - 1. To the best of the Architect's / Engineer's knowledge, information and belief, the manufacturers, listed as "Other Acceptable Manufacturers", now have products available that are considered to be "equivalent" to the specified product (or selection) of the "Standard of Quality" Manufacturer. Where no "Standard of Quality" is indicated then any of the "Acceptable Manufacturers" listed may offer products complying with the specified requirements.
  - 2. The inclusion of particular manufacturers as "Other Acceptable Manufacturers" does not signify that other (that is, unlisted) manufacturers are not acceptable or that they do not have equivalent products nor does the omission of any manufacturer's name indicate unacceptability for any reason.
  - 3. Manufacturers, who are not listed in the Contract Documents, and who desire consideration, must submit their product under provisions of Section 01630-Product Options and Substitutions Procedures.

1.03 QUALITY ASSURANCE – GENERAL

- A. The quality of all products and workmanship shall be in accordance with the provisions of this Section and the requirements of the individual Specifications Section.
  
- B. Whenever a "level of excellence" higher than the minimum industry standard is expected for products and workmanship, the more rigid standards and precise requirements will be indicated within individual Specifications Sections.
  - 1. Example: For whatever reason, the Architect may specify a "dry film thickness (DFT)" for a coating that is more than the manufacturer's recommendation or than normally available in a three coat system. It shall be the Contractor's responsibility to achieve the required DFT with one or more additional coats, none of which shall be more than the manufacturer's recommendation for wet film thickness, for a single coat, when applied.
  
- C. Establishing and maintaining Project Quality Control shall be the responsibility of the Contractor.

1.04 QUALITY ASSURANCE – PRODUCTS

- A. All products incorporated into The Work shall be new except where otherwise provided by the Contract Documents and shall comply with the requirements of the individual Specifications Sections and as supplemented herein. All products incorporated into the Work shall be asbestos free. Products containing asbestos are not acceptable and will be considered as defective material. Whenever these products containing asbestos are discovered, they shall be removed from the Work at no cost to the Owner. Contractor shall certify that all materials incorporated into the Work are asbestos free, refer to Section 01770 - Closeout Procedures.
  
- B. Matching / Mating of Products:
  - 1. Products required in quantity within a Specifications Section shall be the same, and shall be interchangeable.



1.07 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions. Protect prefinished surfaces from damage or deterioration by acceptable means; do not use adhesive papers, sprayed or strippable coatings that bond when exposed to sunlight or weather.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering (do not use "Visqueen" or other polyethylene sheeting when subject to direct sunlight); provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surface in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under specified conditions and are fit for use.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 62 14

PRODUCT OPTIONS AND SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Scope: To give the product options available to the Contractor and to set forth the procedure and conditions for substitutions.

1.02 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, select any product meeting standards by any manufacturer.
- B. For products specified by naming several (minimum of three) products or manufacturers, select any product and manufacturer named. Contractor must submit request, as required for substitution, for any product not specifically named and give reasons for not using product specified. Substitution will **Not** be granted unless reasons are considered justified.
- C. For product specified by naming one or more products, but indicating the option of selecting equivalent products by stating "or approved equal" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.
- D. For products specified by naming only one product and manufacturer, an equivalent product will always be accepted if it is equal in all respects (size, shape, texture, color, etc.). The Contractor must submit a request for substitution as set forth in this section
- E. For products specified by naming only one product and manufacturer and stating no substitutions will be accepted, there is no option and no substitutions will be allowed.

1.03 PRODUCT SUBSTITUTION LIST

- A. Within 45 days after Notice to Proceed, submit to the MDOT Architect 4 copies of complete list of all proposed product substitutions.
- B. Tabulate list by each Specification Section.
- C. For named products specified with reference standards, include with listing of each product:
  - 1. Name and address of manufacturer.
  - 2. Trade name.
  - 3. Model or catalog designation.
  - 4. Manufacturer's data.
  - 5. Performance and test data.
  - 6. Reference standards.
- D. Proposed product will be reviewed for incorporation into the Project. Contractor will be notified for substitution rejection if not allowed, or will be instructed to submit in standard substitution submittal process for approval. See attached Substitution Request Form.

1.04 SUBSTITUTIONS

A. The MDOT Architect will consider formal written requests from Contractor for substitution of products in place of those specified. Only **One** request per product will be allowed. Refer to Section 01330 - Submittal Procedures. Include in request:

1. Complete data substantiating compliance of proposed substitutions with Contract Documents.
2. For products:
  - a. Product identification including manufacturer's name and address.
  - b. Manufacturer's literature: Submit literature of actual product specified and literature of proposed substitution with all comparable features or components highlighted. Highlighted information is to include, but shall not be limited to, product description, performance, test data and reference standards.
  - c. Samples of the proposed substitution.
  - d. Name and address of 3 similar projects on which product was used and date of installation.
3. For construction methods:
  - a. Detailed description of proposed method.
  - b. Drawings illustrating methods.
4. Itemized comparison of proposed substitution with product or method specified.
5. Data relating to changes in construction schedule.
6. Accurate cost data on proposed substitution in comparison with product or method specified.

B. In making request for substitution, Contractor represents:

1. He has personally investigated proposed product or method, compared the product specified with the proposed substitution, and determined that it is equal or superior in all respects to that specified.
2. He will provide the same guarantee for substitution as for product or method specified.
3. He will coordinate installation of accepted substitution into Work, making such changes required of Work to be complete in all respects.
4. He waives all claims for additional costs related to substitution that consequently becomes apparent.
5. Cost data is complete and includes all related costs under his Contract.

C. Substitutions will **Not** be considered if:

1. They are indicated or implied on Shop Drawings or product data submittals without formal request submitted in accordance with this Section.
2. Acceptance will require substantial revision of Contract Documents.
3. In the MDOT Architect's judgment, the product or material is not equal.

PART 2 PRODUCTS  
Not Used

PART 3 EXECUTION  
Not Used



SUBSTITUTION REQUEST FORM

PROJECT: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_

OWNER: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

ARCHITECT: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

CONTRACTOR'S REQUEST, WITH SUPPORTING DATA

1. Section of the Specifications to which this request applies:

\_\_\_\_\_

Product data for specified item and proposed substitution is attached (description of product, reference standards, performance and test data).

Sample is attached

Sample will be sent if requested by Authority having Jurisdiction.

2. Itemized comparison of proposed substitution with product specified.

ORIGINAL PRODUCT

SUBSTITUTION

Name, brand \_\_\_\_\_

Catalog No. \_\_\_\_\_

Manufacturer \_\_\_\_\_

Significant variations: \_\_\_\_\_

\_\_\_\_\_

3. Proposed change in Contract Sum:

Credit to Owner: \$ \_\_\_\_\_

Additional Cost to Owner: \$ \_\_\_\_\_

4. Effect of the proposed substitution on the Work:

Contract Time: \_\_\_\_\_

Other Contracts, if any: \_\_\_\_\_

CONTRACTORS STATEMENT OF CONFORMANCE OF PROPOSED  
SUBSTITUTION TO CONTRACT REQUIREMENTS

I/We have investigated the proposed substitution. I/We

1. Believe that it is equal or superior in all respects to originally specified product, except as stated in 2. above;
2. Will provide same warranty as required in Contract Documents;
3. Have included all cost data and cost implications of proposed substitution; including, if required, costs to other contractors, and redesign and special inspection costs caused by use of proposed substitution;
4. Will coordinate incorporation of proposed substitution in the Work;
5. Will modify other parts of the Work as may be needed, to make all parts of the Work complete and functioning;
6. Have verified that use of this substitution conforms to all applicable codes.
7. Waive future claims for added cost to Owner caused by proposed substitution.

CONTRACTOR \_\_\_\_\_ DATE: \_\_\_\_\_  
Signature

ARCHITECT'S REVIEW AND ACTION

- \_\_\_ Accepted
- \_\_\_ Not Accepted
- \_\_\_ Provide more information in the following categories and resubmit \_\_\_\_\_
- \_\_\_ Sign Contractor's Statement of Conformance and resubmit
- \_\_\_ Proposed substitution is accepted, with the following conditions:  
\_\_\_\_\_  
\_\_\_\_\_

Change Order will make the following changes:

(Add to) (Deduct from) Contract Sum: \$ \_\_\_\_\_  
 (Add to) (Deduct from) Contract Time: \_\_\_\_\_ days

ARCHITECT: \_\_\_\_\_ DATE \_\_\_\_\_

OWNER: \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_ Accepted \_\_\_ Not accepted

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Scope: To set forth broad general conditions covering cutting and patching that applies to everyone and everything on the job.
- B. Execute cutting including excavating, fitting or patching or work required to:
  - 1. Make several parts fit properly.
  - 2. Uncover work to provide for installation of ill-timed work.
  - 3. Remove and replace defective work.
  - 4. Remove and replace work not conforming to Contract requirements.
  - 5. Install specified work in existing construction.
- C. In addition to Contract requirements, upon MDOT Architect's written instructions:
  - 1. Uncover work for observation of covered work.
  - 2. Remove samples of installed materials for testing.
  - 3. Remove work to provide alteration of existing work.
- D. Do not cut or modify work of another Contractor without his consent.
- E. Payment for Costs: Costs caused by ill-timed, defective or work not conforming to the Contract will be borne by party responsible for ill-timed, defective or non-conforming work.

PART 2 PRODUCTS

- 2.01 GENERAL: Materials for replacement of work removed shall comply with individual Specifications Sections for type of work to be done.

PART 3 EXECUTION

3.01 GENERAL

- A. Inspection: Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching.
- B. Preparation prior to cutting: Provide shoring, bracing and supports required to maintain structural integrity. Provide protection for other portions of project and protection from the elements.

C. Performance:

1. Execute cutting and demolition of methods that prevent damage to other work and will provide surfaces to receive installation of repairs and new work.
2. Execute excavating and backfilling by methods that prevent damage to other work and prevent settlement
3. Restore work that has been cut or removed install new products to provide completed work in accordance with requirements of the Contract Documents.
4. Refinish entire surfaces as necessary to provide an even finish. Refinish continuous surfaces to the nearest intersection and assemblies.

END OF SECTION

SECTION 01 74 00 CLEANING

PART 1 GENERAL

1.01 SUMMARY

- A. Scope: Maintain premises and public properties from accumulations of waste, debris, and rubbish, caused by operations. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials and clean all sight-exposed surfaces; leave project clean and ready for use.
- B. Dispose of all waste, debris and rubbish in accordance with the Owner's requirements.

PART 2 PRODUCTS

- 2.01 MATERIALS: Use only cleaning materials recommended by the manufacturer of surface to be cleaned, but cross reference cleaning materials used on surfaces to insure they are recommended by the cleaning material manufacturer.

PART 3 EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute cleaning to insure that structure, grounds, and surrounding properties are maintained free from accumulations of waste materials and rubbish. Wet down dry materials and rubbish to lay dust and prevent blowing dust. Clean site and surrounding properties at reasonable intervals during progress of Work, and remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off MDOT owned property. Handle materials in a controlled manner with as few handling as possible; do not drop or throw materials from heights. Schedule cleaning operations so that dust or other contaminants resulting from cleaning process will not fall on wet or newly painted surfaces.
- B. No materials may be disposed of by dumping them in the sanitary or storm sewer systems without specific approval by the Owner.
- C. Washdown of cement trucks will be done at locations determined by the Project Engineer.

3.02 FINAL CLEANING

- A. Employ experienced workmen, or professional cleaners, for final cleaning. In preparation for Inspection of structure, conduct final inspection of sight-exposed surfaces and concealed spaces. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from sight-exposed finished surfaces. Repair, patch and touch up marred surfaces to specified finish to match adjacent surfaces.
- B. Broom clean paved surfaces; rake clean other surfaces of grounds.
- C. Remove temporary fencing and leave in same condition as surrounding landscaped areas.
- D. Keep Project clean until occupied by Owner.

END OF SECTION

## SECTION 01 77 00

## CLOSEOUT PROCEDURES

## PART 1 GENERAL

- 1.01 DESCRIPTION: The Scope of Work required under this Section consists of the Final Inspections, submitting of all closeout Documents and related items to complete the Work indicated on the Drawings and described in the Project Manual.
- 1.02 FINAL INSPECTIONS
- A. Engineer and Architect's Inspection: The Contractor shall make written request for a Final Inspection to the Project Engineer and MDOT Architect. Notice is to be given 10 calendar days prior to this inspection. At the day of inspection, the Contractor shall have 6 copies of a list prepared by the Contractor of deficiencies, which will be edited by the Project Engineer, MDOT Architect and Consultants. A copy of these composite lists will be given to the Contractor for correcting the Work. Within 15 calendar days after this revised list is received, the Contractor shall make all corrections of the items listed. If, in the Project Engineer and MDOT Architect's judgment, the Project is not ready for an Inspection, the Project Engineer may schedule another inspection.
- B. Owner's Inspection: After the Project Engineer and MDOT Architect have determined the Project to be Complete and all punch list items have been corrected, an Owner's Inspection will be scheduled. The Contractor shall submit a letter that states all items have been corrected and submit required closeout Documents. The Owners may add to the punch list items, if it is determined that corrective work still needs to be done. Within 15 calendar days after this revised list is received, the Contractor shall make all corrections of the items listed.
- C. Correction of Work before Final Payment: Contractor shall promptly remove from the Owner's premises, all materials condemned for failure to conform to the Contract, whether incorporated in Work or not, and Contractor shall, at his own expense, replace such condemned materials with those conforming to the requirements of the Contract. Failure to remedy such defects after 10 days written notice will allow the Owner to make good such defects and such costs shall be deducted from the balance due the Contractor or charged to the Contractor in the event no payment is due.
- D. Should additional inspections by the MDOT Architect's Consultants of the Work be required due to failure of the Contractor to remedy defects listed, the Project Engineer may deduct the expense of additional Consultants inspections from the Contract Sum in the Owner / Contractor Agreement. The additional expense will be based on the rate shown for services in the Consultants' Architect or Engineering Services Contract.
- 1.03 FINAL ACCEPTANCE: The Mississippi Department of Transportation presently does not recognize the term "Substantial Completion". Therefore, the Project is not complete and time does not end until all defects are remedied and Final Acceptance is given.
- 1.04 CLOSEOUT DOCUMENTS: Unless otherwise notified, the Contractor shall submit to the Owner through the Project Engineer to the MDOT Architect 2 copies the following before final payment is made:
- A. Request for Final Payment: AIA Document G702, current edition, completed in full or a computer generated form having similar data.
- B. Contractor's Affidavit of Payment of Debts and Claims: AIA Document G706, current edition, completed in full.

- C. Release of Liens and Certification that all Bills Have Been Paid: AIA Document G706A, current edition, completed in full or a sworn statement and affidavit from the Contractor to the Owner stating that all bills for this project have been paid and that the Owner is released from any and all claims and / or damages.
- D. Consent of Surety Company to Final Payment: AIA Document G707, current edition, completed in full by the Bonding Company.
- E. Power of Attorney: Closeout Documents should be accompanied by an appropriate Power of Attorney.
- F. Guarantee of Work: Sworn statement that all Work is asbestos free and guaranteed against defects in materials and workmanship for one year from Date of Final Acceptance, except where specified for longer periods.
  - 1. Word the guaranty as follows: "We hereby guarantee all Work performed by us on the above captioned Project to be free from asbestos and defective materials. We also guarantee workmanship for a period of one (1) year or such longer period of time as may be called for in the Contract Documents for such portions of the Work".
  - 2. All guarantees and warranties shall be obtained in the Owner's name.
  - 3. Within the guaranty period, if repairs or changes are requested in connection with guaranteed Work which, in the opinion of the Owner, is rendered necessary as a result of the use of materials, equipment, or workmanship which are inferior, defective, or not in accordance with the terms of the Contract, the Contractor shall promptly, upon receipt of notice from and without expense to the Owner, place in satisfactory condition in every particular, all such guaranteed Work, correct all defects wherein and make good all damages to the building, site, equipment or contents thereof which, in the opinion of the Owner, is the result of the use of materials, equipment, or workmanship which are inferior, defective or not in accordance with the terms of the Contract; and make good any Work or materials or the equipment and contents of said buildings or site disturbed in fulfilling any such guaranty.
  - 4. If, after notice, the Contractor fails to proceed promptly to comply with the terms of the guaranty, the Owner may have the defects corrected and the Contractor and his sureties shall be liable for all expense incurred.
  - 5. All special guaranties applicable to definite parts of the Work stipulated in the Project Manual or other papers forming part of the Contract shall be subject to the terms of this paragraph during the first year of the life of such special guaranty.
- G. Project Record Documents: Furnish all other record documents as set forth in Section 01785 - Project Record Documents.
  - 1. Provide all certificates, warranties, guarantees, bonds, or documents as called for in the individual Sections of the Project Manual. The Contractor is responsible for examining the Project Manual for these requirements

H. Additional Documents Specified Within the Project Manual:

1. General: Provide all Operational and Maintenance documents as called for in the individual Sections of the Project Manual. The Contractor is responsible for examining the Project Manual for these requirements.
2. Maintenance Stock: Deliver to Owner all required additional maintenance materials as required in the various Sections of the Specifications.

PART 2 PRODUCTS  
Not Used

PART 3 EXECUTION  
Not Used

END OF SECTION



SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Emergency manuals.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Maintenance manuals for the care and maintenance of products, materials, a finishes systems and equipment.
  
- B. Related Sections include the following:
  - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
  - 3. Division 01 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
  - 4. Divisions 02 through 32 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.02 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
  
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.03 SUBMITTALS

- A. Initial Submittal: Submit 2 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.
  
- B. Final Submittal: Submit 2 copies of each manual in final form at least 15 days before final inspection. Architect will return one copy with comments (if required) within 15 days after final inspection.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit 2 copies of each corrected manual within 15 days of receipt of Architect's comments.

1.04 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

## PART 2 - PRODUCTS

### 2.01 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
  2. Table of contents.
  3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name, address, and telephone number of Contractor.
  6. Name and address of Architect.
  7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2 inches by 11 inches paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2 inches by 11 inches white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
  - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
  - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.02 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
  1. Type of emergency.
  2. Emergency instructions.
  3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
  1. Fire.
  2. Flood.
  3. Power failure.
  4. Chemical release or spill.
  5. System, subsystem, or equipment failure.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
  1. Instructions on stopping.
  2. Shutdown instructions for each type of emergency.
  3. Operating instructions for conditions outside normal operating limits.
  4. Required sequences for electric or electronic systems.
  5. Special operating instructions and procedures.

## 2.03 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
  1. System, subsystem, and equipment descriptions.
  2. Performance and design criteria if Contractor is delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.

8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.
- 2.04 PRODUCT MAINTENANCE MANUAL
- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.

- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
    - 1. Inspection procedures.
    - 2. Types of cleaning agents to be used and methods of cleaning.
    - 3. List of cleaning agents and methods of cleaning detrimental to product.
    - 4. Schedule for routine cleaning and maintenance.
    - 5. Repair instructions.
  - E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
  - F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
    - 1. Include procedures to follow and required notifications for warranty claims.
- 2.05 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL
- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
  - B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
  - C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
    - 1. Standard printed maintenance instructions and bulletins.
    - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
    - 3. Identification and nomenclature of parts and components.
    - 4. List of items recommended to be stocked as spare parts.
  - D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
    - 1. Test and inspection instructions.
    - 2. Troubleshooting guide.
    - 3. Precautions against improper maintenance.
    - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
    - 5. Aligning, adjusting, and checking instructions.
    - 6. Demonstration and training videotape, if available.

- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.01 MANUAL PREPARATION

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."
- F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Scope: To set forth the minimum procedure and requirements for keeping the Project Record Documents. One of these Documents is to be kept on site throughout the Project.
- B. Maintenance of Documents:
  - 1. Maintain 2 copies of all: Half-size Contract Drawings, Project Manual (Proposal), Addenda, Change Orders, Warranties, Certificates, Guarantees, Bonds, reviewed Shop Drawings, reviewed submittals (materials, fixtures, appliances, etc.), hardware schedules, field and laboratory test records, equipment brochures, spare parts lists, maintenance and operation manuals and other modifications to the Contract.
  - 2. Store Record Documents apart from Documents used for construction.
  - 3. Maintain Record Documents in clean, dry, and legible condition. Do not use Record Documents for construction purposes.
  - 4. Make Record Documents available at all times for inspection by the Project Engineer, MDOT Architect and Owner.
- C. Recording:
  - 1. General: Mark all modifications in red pencils. Keep Record Documents current. Review log at Progress Meetings. Do not permanently conceal any Work until required information has been accurately recorded.
  - 2. Contract Drawings: Legibly mark to record actual construction:
    - a. Horizontal and vertical location of underground and overhead utilities with their connections referenced to permanent surface improvements.
    - b. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
    - c. Field changes that involve dimension and detail.
    - d. Changes made by Supplemental Agreement (Change Order) or Field Order.
  - 3. Project Manual (Proposal) and Addenda: Legibly mark up each Section to record manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  - 4. Shop Drawings: Maintain as Record Documents; legibly mark Drawings to record changes made after review.



D. Submittals:

1. Furnish two (2) copies of all Record Documents.
2. The information, except Contract Drawings, shall be arranged and labeled by corresponding Specification Section, neatly bound in three ring binders, indexed, and all drawings readable without being removed or unstapled.
3. The name and address of each subcontractor and material supplier shall be listed in front of each binder along with the Project Manual (Proposal).
4. Sufficient information, such as as-built control drawings for air handling system and variable drive controls, shall be furnished to allow qualified personnel to service equipment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

- 1.01 SECTION INCLUDES: All concrete formwork and other related items necessary to complete project indicated by Contract Documents unless specifically excluded.
- 1.02 RELATED ITEMS SPECIFIED ELSEWHERE
  - A. Section 03 20 00 – Concrete Reinforcing.
  - B. Section 03 30 00 – Cast-in-Place Concrete.
- 1.03 PROJECT CONDITIONS: Contractor shall examine the substrate over which concrete forms are installed and advise the Project Engineer of conditions detrimental to the installation of concrete formwork. Do not proceed until unsatisfactory conditions have been corrected.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Wood forms: 3/4-inch exterior grade plywood on studs and joists.
- B. Form Ties: Standard snap ties, 1-1/2 inch break-back.
- C. Form Oil: Approved non-staining type, "Noxcrete" or equal. Oil must not affect bonding of finishes on exposed concrete.

PART 3 EXECUTION

- 3.01 FORM CONSTRUCTION: Forms shall be properly aligned, adequately braced and mortar tight to produce concrete shapes required by Drawings. Align forms so that the actual surface does not vary from true surface more than 1/8 inch. The surface shall be clean, undamaged, and free of offsets and irregularities at joints. Adequately brace and frame to retain true shapes under vibration and placing strains without leaks, bowing, or deflection.
  - A. Studs, girts, and walls shall not be less than 2 by 4's, S4S, construction of standard grade Douglas fir, or equal, selected for straightness. All walls shall consist of at least two 2 by 4's. Studs shall not be spaced more than 16 inches, girts not more than 24 inches and ties not more than 27 inches, on center.
  - B. Lightly oil wood forms prior to placing reinforcing, and with oil not permitted on the reinforcing. Where oil form is used, remove excess before pouring concrete.
  - C. Meet recommendations of "Recommended Practice for Concrete Form work" ACI 347 unless specified herein otherwise.

3.02 INSERTS AND FASTENING DEVICES FOR OTHER WORK

- A. Provide for installation of inserts, hangers, metal ties, anchors, bolts, dowels, nailing strips, grounds and other fastening devices required for attachment of other Work
- B. Locate partitions for other trades prior to pouring concrete in order that conduits, sleeves and inserts required by others will be installed in the proper locations
- C. Do not install sleeves in any concrete beams or piers except upon approval of the Project Engineer.
- D. Do not put aluminum conduits in concrete.

3.03 FORM REMOVAL

- A. Grade beam and column forms may be removed 24 hours after a pour is completed.
- B. Floor slab wood forms may be removed 10 days after pour, providing compressive strength has reached a minimum of 2500 psi based on job cast cylinders.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCING

PART 1 GENERAL

- 1.01 SECTION INCLUDES: All concrete reinforcing and the related items necessary to complete the Project indicated by the Contract Documents unless specifically excluded.
- 1.02 RELATED ITEMS SPECIFIED ELSEWHERE
- A. Section 03 10 00 – Concrete Forming and Accessories.
  - B. Section 03 30 00 – Cast-in-Place Concrete.
- 1.03 SUBMITTALS
- A. Submit reinforcing steel shop drawings and materials list prior to placement for MDOT Architect's approval. Shop drawings shall include complete placing plans, order lists, bend diagrams and details showing dimensions with clearances.
  - B. Furnish mill certificates for steel bar reinforcement, to the Project Engineer certifying that each shipment meets specifications. The fabricator will furnish certificates with bar lists to designate location of shipment and the time steel is delivered to the project.
- 1.04 QUALITY ASSURANCE
- A. Reinforcing bars shall conform to ASTM A 615 "Deformed Billet-Steel Bars for Concrete".
  - B. Mesh reinforcement shall conform to ASTM A 185 "Welded Steel Wire Fabric for Concrete Reinforcement".
  - C. Accessories shall conform to American Concrete Institute ACI 301 "Specifications for Structural Concrete for Buildings".
  - D. Placement shall be in accordance with approved shop drawings and ACI 318 "Standard Building Code Requirements for Reinforced Concrete".
  - E. Comply with ACI 315 "Manual of Standard Practice of Detailing Reinforced Concrete Structures".
- 1.05 DELIVERY, STORAGE, AND HANDLING
- A. Reinforcing bar steel and mesh shall be handled, shipped and stored in a manner that will prevent distortion or other damage.
  - B. Materials shall be stored in a manner to prevent excessive rusting and fouling with dirt, grease, or other bond-breaking coatings.
- 1.06 PROJECT CONDITIONS: Placement of concrete reinforcing shall be coordinated with installation of concrete formwork, vapor barriers, concrete inserts, conduit and all other items occurring in the area.

PART 2 PRODUCTS

- 2.01 STEEL BAR REINFORCEMENT: Bar reinforcement shall conform to ASTM A 615, grade 60, of domestic manufacture. Bars shall be new; free from rust, scale, oil, or other coatings that will prevent bond.
- 2.02 WELDED STEEL WIRE FABRIC: Shall conform to ASTM A 185, new, free from rust and other coatings that will prevent bond.
- 2.03 ACCESSORIES: Metal accessories as required shall support reinforcing bars and comply with ACI 315. Chairs and bolsters for use in exposed concrete shall have plastic coated or stainless steel legs or shall be plastic.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Fabricate and place reinforcement in accordance with the latest requirements of the American Concrete Institute and the approved shop drawings. Fabrication shall not proceed until MDOT Architect's approval is obtained.
- B. Reinforcing for one day's pour shall be completely placed and an inspection made by the Project Engineer / MDOT Architect prior to starting the pour.
- C. Concrete Protection for Reinforcement: Minimum coverage shall be as follows unless shown otherwise on drawings:
  - 1. Footings  
(bottom and sides) 3 inches clear
  - 2. Slabs 1-1/2 inches clear top and 3/4 inch clear bottom
  - 3. Beams 1-1/2 inch clear to stirrups
  - 4. Walls 2-1/2 inches clear
  - 5. Columns 2 inches clear to verticals
- D. Steel Dowels for successive work shall be wired in correct position before placing concrete. The "sticking" of dowels after placing concrete will not be permitted.
- E. Lap all bars 24 bar diameters at corners, splices and intersections.
- F. Do not weld reinforcing steel unless specifically approved by the Project Engineer.

END OF SECTION

## SECTION 03 30 00 CAST-IN-PLACE CONCRETE

## PART 1 GENERAL

- 1.01 SECTION INCLUDES: All cast-in-place concrete and other related items necessary to complete Project indicated by Contract Documents unless specifically excluded.
- 1.02 RELATED SECTIONS
- A. Section 03 10 00 – Concrete Forming and Accessories.
  - B. Section 03 20 00 – Concrete Reinforcing.
- 1.03 SUBMITTALS: Submit concrete mix design, concrete compression test reports and product data and manufacturer's installation instructions for concrete curing compound.
- 1.04 TESTING LABORATORY SERVICES: The Owner will provide testing as specified in Section 01 45 29.
- 1.05 QUALITY ASSURANCE
- A. Concrete work shall conform to all requirements of ACI 301, Specifications for Structural Concrete for Buildings and ACI 318 Building Code Requirements for Reinforced Concrete, latest editions, except as modified by supplemental requirements herein.
  - B. Concrete mix design proportioning shall be by a certified MDOT Class III technician and submitted to the Project Engineer prior to placing concrete. Mix proportions shall meet the requirements of the 804.02.10 Section of the MDOT's Standard Specifications, 2004 Edition, except concrete requiring a trowel finish shall not be air entrained. Concrete shall be sampled according to ASTM C 172 and compression test cylinders made and cured according to ASTM C 31. Control of mixes is to be maintained at the Ready-Mix Plant and on the job site. Adjustments of the mix proportions shall meet the requirements of Section 804.02.10.4 of MDOT's Standard Specifications, 2004 Edition.
  - C. The Owner will provide testing as specified in Section 01455 – Testing Laboratory Services. Cylinders, 3 specimens from each sample, are to be cast on the job in accordance with ASTM C 31. Specimens will be tested in accordance with ASTM C 39. One cylinder from each location will be tested at 7 days for information and the other two at 28 days for acceptance. Owner is to make at least one strength (average of two cylinders) for each class of concrete placed on any one day and an additional one strength test for each 100 cubic yards, or fractions thereof, of concrete placed in any one day. Copies of all test reports shall be furnished to the ready mixed concrete producer and as directed by the Project Engineer.
- 1.06 COORDINATION
- A. Verify that all pipes under grade have been installed and tested before being covered. Check and verify materials and locations of inserts, anchors, and items required by other trades before pouring concrete. Concerned subcontractors shall be notified of date of pour in sufficient time to allow for completion of their work.
  - B. The Contractor shall notify the Project Engineer upon completing formwork and all reinforcing steel for the next intended pour, and shall not commence pouring operation until all forms and steel are approved by the Project Engineer.

- C. Project Engineer shall have free access to all materials used, and the required samples are to be furnished by the Contractor, as directed.
- D. Inspection and written approval from the floor-covering subcontractor is required for slab finish receiving floor covering.

## PART 2 PRODUCTS

### 2.01 CONCRETE

- A. All concrete, unless otherwise specifically approved in writing by the Project Engineer, shall be transit-mixed in accordance with ASTM C94. Control of concrete shall be under supervision of testing laboratory as described in Section 01455.
- B. All concrete shall have 3,500-psi minimum compressive strengths at 28 days, unless noted otherwise.
- C. Maximum slump for normal weight concrete shall be 4 inches. Sump may be increased to 6 inches with an approved mid-range water reducer and up to 8 inches with an approved high-range water reducer.

### 2.02 CONCRETE MATERIALS

- A. Portland Cement: ASTM C-150, Type I.
- B. Water: From an approved source.
- C. Structural Concrete Aggregate: Nominal maximum aggregate size shall be used and shall meet the requirements of MDOT Standard Specifications, 2004 Edition.
- D. Admixtures: Admixtures shall be from the MDOT Approved List. Non-uniform addition of mixtures that result in erratic setting of the concrete will cause rejection of the concrete with subsequent removal from the structure at the concrete producer's expense.

### 2.03 RELATED MATERIALS

- A. Preformed Expansion Joint Fillers: Provide pre-molded, asphalt impregnated board in widths and thickness required by conditions (1/2-inch minimum). Joint fillers shall conform to ASTM D994, D1751 or D1752.
- B. Chemical Hardener (Sealer): Colorless aqueous solution containing a blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent containing not less than 2 pounds of fluosilicates per gallon. Sealer shall not interfere with floor finish.
- C. Curing Compound: Clear bond, manufactured by Guardian Chemical Co., Kure-N-Seal, manufactured by Sonneborn, Safe-Cure, manufactured by Dayton Superior Corp. or approved equal. Compound shall not interfere with bonding or floor finish.
- D. Non-shrink Grout: Shall be one part Portland cement to 2-1/2 parts of fine aggregate or Cement grout ASTM C 387 Dry Package mixtures similar and equal to Masterflow 713, Master Builders; SonnogROUT, Sonneborn; Five Star Grout, U.S. Grout Company.

## 2.04 CONCRETE MIXES

- A. The ready-mix concrete shall be mixed and delivered in accordance with requirements of ASTM C 94. Uniformly and accurately control proportions of material weight. Slump tolerances given in ASTM C 94 apply. Calcium chloride shall not be used.
- B. Failure of concrete to meet the specified requirements may result in rejection with subsequent removal and replacement or re-testing (including coring, load test, etc.) at the supplier's expense. Concrete exhibiting adverse reaction as a result of the presence of deleterious substances shall be removed and replaced or repaired in a manner completely satisfactory to the Project Engineer. All cost of such corrective action, including all necessary testing, shall be borne by the concrete producer.
- C. The Contractor may request adjustment to concrete mix design when characteristics of materials, job conditions, weather, test results, or circumstances warrant, at no additional cost to the Owner and as approved by the Project Engineer. Laboratory test data for revised mix designs and strength results must be submitted to and approved before using in the Work.

## PART 3 EXECUTION

### 3.01 PLACING CONCRETE

- A. Concrete shall be placed so as to avoid segregation of materials and to prevent cold joints by avoiding re-handling, by keeping pours generally level, and by adequate vibration. Placing is not to be started during rain or snow, and if placing is underway when such conditions occur, continue operations only long enough to provide a suitable construction joint.
- B. During hot weather or periods of low humidity combined with a definite breeze, rapid loss of moisture shall be discouraged by thorough wetting of forms and by using a fine fog spray when finishing. At these times particular attention shall be given to providing an adequate number of finishers to expedite this operation. During cold weather fresh concrete shall be protected from freezing.
- C. Prior to placing, forms shall be cleaned free of foreign material and shall be washed down with water. Placing shall be a continuous operation between planned construction joints with fresh cement mixed only with plastic concrete already in place. Avoid cold joints.
- D. Vibration shall be thorough, using vibrators small enough to work within reinforcing. The vibrator shall be inserted at many points about 24 inches apart. Avoid over-vibration and transporting concrete in form by vibration. A spare vibrator, which will operate, shall be kept on the job during all placing operations.

3.02 CONSTRUCTION JOINTS: Locate construction joints and provide shear keys as directed by the Project Engineer / MDOT Architect. Allow concrete to set for 24 hours before an adjoining pour is started. Slabs across the joint shall be level and the surface shall be level and shall not be feathered. Before proceeding with the following pour at a joint, thoroughly clean the joint, remove all loose material, and brush in a thick cement slurry.

3.03 CURING: Keep all concrete moist for 5 days after placing by covering with concrete curing paper, by leaving forms in place or by using curing compound. All combined with regular wetting as necessary.



### 3.04 PATCHING

- A. Honeycombed and defective concrete shall be removed and replaced, or repaired, as directed by the Project Engineer. Form tie holes and minor areas, as determined by the Project Engineer, shall be repaired as follows:
1. Completed patch shall be indistinguishable from surrounding surfaces in color and texture.
  2. Patching mixture, using same cement sand as used in concrete shall consist of 1 part cement to 2-parts sand, with just enough mixing water to permit placing. Premix mixture, allow standing at least 30 minutes before using, stirring with trowel during this period.
  3. Remove material to sound concrete, dampen surface and brush thick 1 to 1 cement sand bond coat into surface.
  4. When bond coat begins to lose water sheen, thoroughly pack patching mixture in place, leaving it somewhat higher than adjacent surface. Embed pieces of gravel by hand into patch.

### 3.05 FINISHES FOR FLATWORK

- A. Trowel finish floor surfaces scheduled as concrete finish walking surfaces, or floor surfaces scheduled to receive floor covering. Trowel finished surfaces shall be true planes within 1/8 inch in 10 feet as determined by a 10 foot straightedge placed anywhere on the slab in any direction.
- B. Smooth trowel finish after the surface is screeded and floated. Start troweling when all water has disappeared from the surface to first level the surface, then start final troweling when concrete has set where it no longer shows indentation from finger pressure. Trowel to a hard, smooth surface free of marks. Dusting of cement or cement and sand will not be permitted.
- C. Interior floors, with concrete finish scheduled, shall receive an application of hardener compound applied according to manufacturer's published instructions. Concrete surfaces to receive ceramic floor tile or brick shall receive float finish.
- D. Exterior walks and ramps shall have smooth trowel and fine broom finish.
- E. Exterior sign base shall have a Class 2, Rubbed Finish as follows:
1. After removal of forms, the Class 1 finish shall be completed and the rubbing of concrete shall be started as soon as its condition will permit. Immediately before starting this work, the concrete shall be kept thoroughly saturated with water for at least three hours.
  2. Surfaces shall be rubbed with a medium course Carborundum stone using a small amount of mortar on its face. The mortar shall be composed of cement and sand mixed in the proportions used in the concrete being finished. Rubbing shall be continued until all form marks, projections, and irregularities have been removed, all voids filled, and a uniform surface has been obtained.
  3. The final finish shall be obtained by rubbing with a fine Carborundum stone and water. This rubbing shall continue until the entire surface is a smooth texture and uniform color.
  4. After the final rubbing is completed and the surface has dried, it shall be rubbed with burlap to remove loose powder and objectionable marks.

3.06 FINISHES FOR GRADE BEAMS

- A. Exposed grade beam faces shall have a smooth form finish obtained by using selected form facing plywood, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with all fins or other projections completely removed and smoothed. Provide grout cleaned finish consisting of 1 part Portland Cement to 1-1/2 parts fine sand by column, and mix with water to the consistency of thick paint. Blend standard Portland cement and white Portland cement, amounts determined by trial patches, so that the final color of dry grout will closely match adjacent concrete surfaces.
- B. Thoroughly wet concrete surfaces and apply grout immediately to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

END OF SECTION

SECTION 07 92 00 JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preparation of substrate surfaces to receive materials.
- B. Sealant and joint backing (backer rod) materials and installation in the following general locations (even though not shown on the Drawings):
  - 1. Abutting dissimilar materials, exterior and interior.
  - 2. Exterior and interior wall openings (including penetrations required by piping, and other service and equipment.
  - 3. Joints in pavement and walks.
  - 4. Other locations, not included above but, specifically required by manufacturers of installed materials.
- C. Accessories: Including, but not limited to, primer, cleaner, backer rod, bond breaker, and masking tape.

1.02 RELATED SECTIONS: Section 01330 – Submittal Procedures.

1.03 SUBMITTALS: Submit manufacturer's product data and installation instructions for each type of sealant required. Product data shall include chemical characteristics, limitations, and color availability.

1.04 QUALITY ASSURANCE

- A. Applicator: Company specializing in the work of this Section with minimum 3 years documented satisfactory experience.
- B. Manufacturer's Certificate: Provide manufacturer's letter of certification that products meet or exceed specified requirements and are appropriate for uses indicated.
- C. Installation: Conform to Sealant and Waterproofers Institute requirements.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver caulking and sealant material to the site in original unopened packages with manufacturer's labels, instructions and product identification and lot numbers intact and legible.
- B. Store materials under cover, protected from inclement weather and adverse temperature extremes, in original containers or unopened packages, in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Drawings and Specifications are based on products manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 19438. Tel: (800) 523-6688.

- B. Equivalent products by the following manufacturers are acceptable:
  - 1. Dow Corning Corporation, Midland, MI. Tel: (800) 322-8723
  - 2. GE Silicones, Waterford, NY. Tel: (518) 233-2639.
  - 3. Sonneborn Building Products, Shakopee, MN. Tel: (800) 433-9517.
  - 4. Tremco, Inc., 3735 Green Road, Beachwood, OH 44122. Tel: (800) 562-2728.
- C. Substitutions shall fully comply with specified requirements and Section 01 62 14-Product Options and Substitution Procedures.

## 2.02 SEALANT TYPES AND USE SCHEDULE

- A. Type 1: Use for interior locations to be painted and where joints are less than 1/8 inch with none to slight movement anticipated: Pecora AC-20 + Silicone (Acrylic Latex Caulking Compound).
- B. Type 2: Use for horizontal floor and pavement joints: Pecora Urexpan NR-200 (two-part, self-leveling, traffic-bearing, polyurethane sealant).
- C. Type 3: Use for exterior locations. Pecora 864 (one-part Architectural Silicone Sealant). Color(s) to be selected by the Project Engineer / MDOT Architect from manufacturer's full range of standard Architectural colors plus 32 special Color-Flex Designer colors.

## 2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Backer Rod: Open cell polyurethane foam or closed cell polyethylene foam, compatible with sealant, sized and shaped to provide proper compression upon insertion in accordance with manufacturer's recommendations.
- D. Bond Breaker: Pressure sensitive adhesive polyethylene, TEFLON, or polyurethane foam tape.
- E. Masking Tape: Pressure sensitive adhesive paper tape.

## PART 3 EXECUTION

- 3.01 EXAMINATION: Installer must examine areas and conditions under which this Work is to be installed and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

## 3.02 PREPARATION

- A. Cleaning: Clean joint surfaces, using joint cleaner as necessary, to remove dust, dirt, oil, grease, rust, lacquers, laitance, release agents, moisture, frost or other matter that might adversely affect adhesion of sealant. Rake joints out to a depth equal to one-half the width.
- B. Masking: Mask areas adjacent to joints.
- C. Priming: If required, prime substrate surfaces following manufacturer's instructions.

- D. Mixing: When required, mix components of sealant materials in accordance with manufacturer's instructions to achieve required characteristics of sealant.

### 3.03 APPLICATIONS

- A. Mixing, application, surface condition, weather condition shall be as recommended by the manufacturer. Do not use material that has exceeded the recommended pot life.
- B. Install backing material in joints using blunt instrument to avoid puncturing. Do not twist the backing rod while installing. Install backing rod so that joint depth is 50 percent of joint width, but a minimum of 1/8-inch deep and a maximum of 3/8-inch deep.
- C. Apply sealant in joints using a pressure gun with nozzle cut to fit joint width. Ensure sealant is deposited in a uniform, continuous bead without gaps or air pockets.
- D. Tool joints to the required configuration within 10 minutes of sealant application. Remove masking materials immediately after tooling.

### 3.04 CLEANING AND REPAIRING

- A. Do not allow sealant or compounds to overflow or spill onto adjoining surfaces, or to migrate into voids of adjoining surfaces. Clean adjoining surfaces by whatever means necessary to eliminate evidence of spillage.
- B. When using flammable solvents, avoid heat, sparks and open flames. Provide necessary ventilation. Follow all precautions and safe handling recommendations from the solvent manufacturer and pertinent local, state and federal regulations.
- C. Leave finished work in a neat, clean condition with no evidence of spillovers onto adjacent surfaces.
- D. Repair or replace defaced or disfigured finishes.

### 3.04 CURE AND PROTECTION

- A. Cure sealant and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.
- B. Sealant Supplier / Applicator shall advise Contractor of procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at Time of Completion.

END OF SECTION

## SECTION 09 90 00

## PAINTING AND COATING

## PART 1 GENERAL

## 1.01 SECTION INCLUDES

- A. Painting and finishing of exterior and interior exposed items and surfaces throughout the project, except as otherwise indicated. Surface preparation, priming and finish coats specified in this Section are in addition to shop priming and surface treatment specified under other Sections of the Work.
- B. The Work includes field painting of exposed bare and covered pipes (including color coding), and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under the electrical Work, except as otherwise indicated.
- C. "Paint" 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.
- D. Paint all exposed surfaces whether or not colors are designated in "schedules", except where the natural finish of the material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas. If color or finish is not designated, the Project Engineer / MDOT Architect will select these from standard colors available for the materials system specified.

## 1.02 PAINTING NOT INCLUDED: The following categories of Work are not included as parts of the field-applied finish Work, or are included in other Sections of these Specifications.

- A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various Sections for structural steel, miscellaneous metal, hollow metal work, and similar items. Also, for fabricated or factory-built mechanical and electrical equipment or accessories.
- B. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) and electrical equipment including light fixture, switch-gear and distribution cabinets.
- C. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces generally in inaccessible areas, foundations spaced, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.
- D. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting, unless otherwise indicated.
- E. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting, unless otherwise indicated. Do not paint over any code-required labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information including basic materials analysis and application instructions for each coating material specified.
- B. Paint Systems: Comply with Article 2.04 indicating each type of primer and top coat required for each substrate by product name and number.
- C. Samples: Submit color samples for selection by Project Engineer / MDOT Architect from manufacturer's full range of colors.

1.04 DELIVERY AND STORAGE: Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label, and the following information:

- 1. Name or title of material.
- 2. Fed. Spec. Number, if applicable.
- 3. Manufacturer's stock number and date of manufacturer.
- 4. Manufacturer's name.
- 5. Contents by volume, for major pigment and vehicle constituents.
- 6. Thinning instructions.
- 7. Application instructions.
- 8. Color name and number.

1.07 JOB CONDITIONS

- A. Apply water-base paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 90 degrees F. unless otherwise permitted by the paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 45 degrees F. and 95 degrees F. unless otherwise permitted by the paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist; or when the relative humidity exceeds 85 percent; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instruction.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Drawings and specifications are based on products manufactured by ICI Dulux Paints, 925 Euclid Ave., Cleveland, OH 44115. Tel. (800) 984-5444.
- B. Equivalent products by the following manufacturers are acceptable:
  - 1. Devoe, Cleveland, OH. Tel. (888) 265-6753.
  - 2. Benjamin Moore & Company, Montvale, NJ. Tel. (800) 344-0400.
  - 3. Farrell-Calhoun Paint, Memphis, TN. Tel. (901) 526-2211.
  - 4. PPG Architectural Finishes, Inc., Pittsburgh, PA. Tel. (800) 441-9695.
  - 5. Sherwin-Williams Company, Cleveland, OH. Tel. (800) 321-8194.
- C. Substitutions shall fully comply with specified requirements and Section 01 62 14-Product Options and Substitution Procedures

## 2.02 COLORS AND FINISHES

- A. Paint colors, surface treatments, and finishes will be selected from color chips submitted by contractor. Prior to beginning Work, the Project Engineer / MDOT Architect will select color chips for surfaces to be painted. Use representative colors when preparing samples for review. Final acceptance of colors will be from samples.
- B. Color Pigments: Pure, non-fading, applicable types to suit the substrates and service indicated. Lead content in the pigment, if any, is limited to contain not more than 0.5 percent lead, as lead metal based on the total non-volatile (dry-film) of the paint by weight.
- C. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these Specifications in which prime paints are to be provided to ensure compatibility of total coats system for various substrates. Provide barrier coats over incompatible primer or remove and reprime as required. Notify the Project Engineer / MDOT Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

## 2.03 MATERIAL QUALITY

- A. Provide the best quality grade of the various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying the manufacturer's identification as a standard, best grade product will **not** be acceptable. Proprietary names used to designate colors or materials are not intended to imply that products of the named manufacturers are required to the exclusion of equivalent products of other manufacturers.
- B. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer, and use only within recommended limits.

## 2.04 PAINT SYSTEMS: Provide the following paint systems for the various substrates, as indicated.

- A. Paint Systems are as follows:

### 1. Ferrous and Zinc Coated Metal

1st Coat – Waterborne Acrylic Primer – ICI Devflex # 4020

2nd Coat – Waterborne Acrylic Semi Gloss Enamel – ICI Devflex # 4206

3rd Coat – Waterborne Acrylic Semi Gloss Enamel – ICI Devflex # 4206

(First coat not required on items that are shop primed.)

Not less than 2.5 mils dry film thickness.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Applicator must examine the areas and conditions under which painting Work is to be applied and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to the Applicator. Starting of painting Work will be construed as the Applicator's acceptance of the surfaces and conditions within any particular area.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.



3.02 SURFACE PREPARATION: Perform preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition. Remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, re-install the removed items by workmen skilled in the trades involved. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program the cleaning and painting so that contaminants from the cleaning process with not fall onto wet, newly painted surfaces.

A. Ferrous Metals:

1. Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
2. Touch-up shop-applied prime coats wherever damaged or bare, where required by other Sections of these Specifications. Clean and touch-up with the same type shop primer.

B. Galvanized Surfaces: Clean free of oil and surface contaminants with acceptable non-petroleum based solvent.

3.03 MATERIALS PREPARATION: Mix and prepare painting materials in accordance with manufacturer's directions. 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. Stir materials before application to produce a mixture of uniform density, and stir as required during the application of the materials. Do not stir surface film into the material. Remove the film and if necessary, strain the material before using.

3.04 APPLICATION

A. Apply paint in accordance with the manufacturer's directions. Use applicators and techniques best suited for the substrate and type of material being applied. Apply additional coats when undercoats, stains or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

B. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment. Paint the backsides of access panels, and removable or hinged covers to match the exposed surfaces.

C. Omit the first coat (primer) on metal surfaces that have been shop-primed and touch-up painted, unless otherwise indicated or barrier coat is required for compatibility.

D. Scheduling Painting: Apply the first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

- E. Minimum Coating Thickness: Apply each material at not less than the manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- F. Prime Coats: Apply a prime coat of material which is required to be painted or finished, and which has not been prime coated by others. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- G. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.
- H. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint Work not in compliance with specified requirements.

3.05 CLEANING AND PROTECTION

- A. Cleaning: During the progress of the Work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each workday. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- B. Protection: Protect Work, whether to be painted or not, against damage by painting and finishing Work. At the completion of Work, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

SECTION 26 05 10

ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE:

- A. This Division and the accompanying electrical drawings cover furnishing all labor, equipment and materials and performing all operations in connection with the installation of a complete and operational electrical system.
- B. The plans and specifications are considered cooperative and complimentary. Where one contradicts the other the specifications shall govern.
- C. All applicable portions of the General and Specific Conditions are included herein by reference.

1.02 DEFINITIONS:

- A. Install: Receive, store, place, fix in position, secure, anchor, etc., including necessary appurtenances and labor so the equipment or installation will function as specified and intended.
- B. Furnish: Purchase and supply equipment and components, including shipping and receiving.
- C. Provide: Furnish, install, connect, test, demonstrate and leave operational.
- D. Wiring: Wire or cable installed in raceway with all required boxes, fittings, connectors, etc.
- E. Work: Materials completely installed, including the labor involved.
- F. Or approved equal: Equal in type, design, quality and appearance, as determined by the Architect.
- G. Raceway: Galvanized rigid steel conduit (GRC), electrical metallic tubing (EMT), intermediate metal conduit (IMC), schedule 40 Polyvinyl Chloride (PVC), flexible steel (FLX), sheathed flexible steel (SLT), code gauge wireway (WW).

1.03 CODES AND REGULATIONS:

- A. All work shall comply with all local laws, ordinances and regulations applicable to the electrical and fire alarm/life safety system installation, NFPA, OSHA, ANSI, SBC, municipal ordinances governing electrical work, and with the requirements of the latest edition of the National Electrical Code.
- B. Where different sections of any of the aforementioned codes and regulations, the specifications or the plans require different materials, methods of construction, or other requirements, the most restrictive or stringent shall govern. In any conflict between a general provision and a special provision, the special provision shall govern.
- C. Obtain all permits and licenses, and pay all fees as required for execution of the Contract. Arrange for necessary inspections required by the Architect, city, county, state and other local authorities having jurisdiction (LAHJ) and present certificates of approval to the Architect or his designated representative.

- D. Under no circumstances will asbestos, or asbestos related materials, be allowed on this project.
  - E. Communicate with all required utility offices to meet utility schedules and regulations. Coordinate the local utility requirements with the requirements of these contract documents. Should conflicts arise, notify the Architect immediately. Acquire services to avoid project delays. Conform to regulations of the local utility company with respect to metering, service entrance and service access.
- 1.04 SITE VISIT:
- A. All parties shall visit the site and thoroughly familiarize themselves with the local conditions and existing conditions which may affect the cost of the Work prior to any project activity or submission of bids.
  - B. Where work under this Division requires extension, relocation, reconnection or modifications to the existing equipment or systems, the existing equipment or systems shall be restored to their original condition prior to completion of this Project.
  - C. No allowances will be made for lack of knowledge of existing job conditions which could reasonably be identified during site visit.
  - D. Verify the service entrance voltage and short circuit contribution with the serving power utility and provide written confirmation of same to the Architect prior to submitting shop drawings or ordering any materials for use in the building served. Provide service entrance equipment fully rated to interrupt the available fault current from the serving utility.
- 1.05 DRAWINGS AND SPECIFICATIONS:
- A. The Electrical Drawings are diagrammatic, and are not intended to show the exact location of raceways, outlets, boxes, bends, sleeves, fire sealant, couplings or other such elements except where dimensions are noted. Provide all required offsets, extensions or pull boxes required for a fully coordinated and operational system.
  - B. The Drawings and Specifications shall both be considered as part of the Contract. Any work or material shown in one and omitted in the other, or which may fairly be implied by both or either, shall be provided in order to give a complete job.
  - C. Should conflicts exist between the Drawings and Specifications, notify the Architect/Engineer for clarification prior to installation.
  - D. All conduit and wiring shown on the Electrical Drawings shall be provided under this Division regardless of its function.
  - E. Equipment configuration is based upon one manufacturer's product. Where the equipment selected by the Contractor for use on this Project differs from the configuration shown, the Contractor shall be responsible for coordinating space requirements, connection arrangements, interfaces with mechanical and plumbing equipment and all other affected trades and providing access for future maintenance and repair. Submit proposed revisions for approval by the Architect.
- 1.06 DEVIATIONS:
- A. No deviations from the drawings and specifications shall be made without the full knowledge and consent of the Architect.
  - B. If it is found that existing conditions make desirable a modification in requirements covering any particular item, report such item to the Architect for their review and instructions.

1.07 EQUIPMENT CONNECTIONS:

- A. All wiring, protective devices and disconnect switches shall be of the voltage, size and ampacity required for the actual equipment installed, when equipment varies from that specified on the drawings, without increase or additional costs. In no case shall these items be of smaller capacity than permitted by EQUIPMENT NAMEPLATE/NATIONAL ELECTRIC CODE.
- B. Provide suitable control equipment and feeders/branch circuits so that the above requirements shall be met without incurring additions to the Contract in time or cost. Conform with UL Listing and nameplate requirements for equipment furnished. Such adjustments shall be subject to the approval of the Architect.
- C. Provide suitable overcurrent protection and disconnecting means in conformance with the requirements of the NEC, for all items or equipment utilized on the project no matter how, or by whom, furnished. However, duplication, or redundancy, is not required. Coordinate said requirements with equipment furnished and with applicable trades.
- D. Branch circuits supplying control panels and other equipment master and local unit locations and quantities shall be coordinated at the submittal stage and provided under Division 26.
- E. Motor controllers shall be furnished and installed by Division 26 where automatic control of equipment is required, unless specified to be furnished as an integral part of packaged equipment. Provide the number and type of auxiliary contacts and relays necessary to interlock the equipment and provide the specified control sequence, reserving spare NO and NC contacts for future use. Power wiring to all motors and motor controllers and between motors and controllers shall be furnished under Division 26.
- F. Where drawings indicate or specifications require equipment to be controlled by line voltage interlock, safety device or control, provide line voltage control wiring in Division 16.
- G. For each electrical connection required, provide pressure connectors, terminals (lugs), electrical insulating tape, heat-shrinkable insulating tubing, cable ties, solderless wire connectors, and other items required to complete splices and terminations of the necessary types. Cover splices or terminations with electrical insulation equivalent to insulation of conductors terminated.

PART 2 - PRODUCTS

2.01 STANDARDS FOR MATERIALS AND WORKMANSHIP:

- A. All material shall be new and shall bear the inspection label of Underwriter's Laboratories, Inc. (UL).
- B. The published standards and requirements of the National Electrical Manufacturer's Association (NEMA), Underwriters' Laboratories (UL), Electrical Testing Laboratories (ETL), American National Standards Institute (ANSI), Institute of Electrical and Electronic Engineers (IEEE), Insulated Cable Engineers Association (ICEA), National Fire Protection Association (NFPA), Occupational safety Health Association (OSHA) and the American Society for Testing and Materials (ASTM) shall govern and apply where such have been established for the particular material in question.

- C. Specified catalog numbers and trade or manufacturers names are intended to describe the material, devices, or apparatus desired for type, construction features, electrical characteristics, ratings, operating functions, style and quality. Similar materials of other manufacturers, not less than specified quality, capacity or character may be substituted in conformity with the provisions of the General and Supplementary Conditions. Materials of the same type shall be the product of one manufacturer. Refer to Shop Drawing requirements.
- D. Furnish all materials specified herein or indicated on the drawings.
- E. All work shall be installed in a practical and workmanlike manner by competent workmen, licensed and skilled in their trade.

2.02 SHOP DRAWINGS:

- A. Provide complete electrical characteristics for all equipment. Submit for approval data of the materials and equipment to be incorporated into the Work. Submittals shall include descriptive materials, catalog cuts, diagrams, performance characteristics, and charts published by the manufacturer indicating conformance to the specification and drawing requirements; model numbers alone will not be acceptable. Submittals shall be made by Specification section number, tabbed, within three ring binders, grouped and submitted in packages as indicated below. Shop drawings shall be submitted for the following equipment and items suitably bound, and marked:

Section 26 05 19 Low-Voltage Electrical Power Conductors and Cables  
Section 26 05 26 Grounding and Bonding for Electrical Systems  
Section 26 05 33 Raceways and Boxes for Electrical Systems  
Section 26 27 00 Low-Voltage Distribution Equipment  
Section 26 32 13 Engine Generators  
Section 26 36 00 Automatic Transfer Switches

- B. Shop drawings and/or catalog data submittals on all items of equipment and materials shall be submitted in conformity with requirements of the General and Supplementary Conditions. Do not submit more than the required number of sets as indicated by Architect. Do not submit equipment or materials not requested in the Specifications.
- C. All material lists and shop drawing submittals shall include a stamped indication by the Contractor signifying that the submittals have been previously reviewed for complete compliance with the Contract Documents, that all coordination required between trades prior to field installation has occurred and that the material being submitted is approved for installation. The stamped indication shall include the name of the contracting firm, the date of the review and the signature of the contractor. The Engineer will not review the shop drawing submittals without the contractor's stamped approval already on the shop drawings. The responsibility of complying with the Contract Documents will not be relieved by the Architect's review, which requires 10 working days from the date the shop drawings are received by the Architect.
- D. All pricing is to be based upon the products, manufacturers, and processes described in the Contract Documents. Requests for approval of substitutions shall be written and delivered to the Architect's/Engineer's office in conformity with the provisions of the General and Supplemental Conditions. Do not submit any shop drawing or product data that does not conform with the contract documents.
- E. Resubmittals, if necessary, shall be made as specified above. Resubmittals will highlight and indicate any and all revisions made there to and will include the following text " Resubmittal #\_\_\_", typed in a prominent location on the cover sheet.

- F. Samples of all materials proposed for use shall be presented to the Architect/Engineer for his approval when requested.
  - G. Submittals shall be noted with any deviations, alterations or limitations of product from the specified materials. The product will be rejected upon failure to indicate this information. Any conflict or failure to perform comparably to the originally specified materials will result in product rejection. It will be the Contractor's responsibility to replace the alternate material or equipment with the originally specified one and to demolish, replace, repair and retest the equipment, including repair or replacement of any component of the building, finishes or other systems affected by said replacement, at no additional costs to the Owner.
- 2.03 SUPPORT FASTENER DEVICES:
- A. Anchors for post tensioned concrete applications shall be cast in place continuous or spot insert channel providing a safety factor of 3 in 3000 lb hard rock concrete.
  - B. Anchors for cast in place concrete shall be insert type expansion shields and bolts, lead shields and bolts or self drilling expansion shields and bolts. Powder actuated pins of 1500 pound pull out strength may be utilized in concrete.
  - C. Anchors for wood construction shall be lag bolts or power driven wood screws.
  - D. Anchors in hollow masonry shall be toggle bolts.
  - E. Anchors for steel attachment shall be machine screws, bolts, or beam clamps.
  - F. Equipment mounted to drywall construction shall be secured to power channel (13/16" x 1 5/8" minimum). Secure channel to a minimum of two (2) dry wall studs with drywall screws and washers.
- 2.04 SUPPORTS: Furnish and install under this contract all angle iron, channel iron, rods, threaded rod, supports or hangers required to install or mount all electrical equipment, material or related devices. Conduit shall not be supported from steel decking, roof decking, bridging, ceiling or ceiling support wires.
- 2.05 IDENTIFICATION:
- A. All equipment or devices specified in Division 16 shall be identified with an engraved plastic nameplate. Identification of flush equipment shall be on the inside of the cover. Surface equipment shall be identified on the outside. Plastic nameplates shall be multicolored laminated plastic with engraved lettering. Nameplates shall be provided as scheduled:
    - 1. 480/277 volt normal power equipment shall be black faceplate/white core(1 1/2" x 6" with 3/8" high letters).
    - 2. 480/277 volt emergency power equipment shall be red faceplate/white core(1 1/2" x 8" with 1/2" high letters). Faceplate shall read "Emergency - 480 Volts".
    - 3. 208/120 volt normal power equipment shall be white faceplate/black core(1 1/2"x 6" with 3/8" high letters).
    - 4. 208/120 volt emergency power equipment shall be white faceplate/red core (1 1/2" x 8" with 1/2" high letters). Face plate shall read "Emergency - 120 Volts".
    - 5. Computer power equipment (ie UPS, isolated ground, etc.) shall be orange faceplate/white core (1 1/2: x 8" with 3/8" Faceplate shall read "Computer - \_\_\_\_\_ Volts".
    - 6. Provide 3" high x (length as required) for electrical switchboards.
    - 7. Junction boxes for emergency power, lighting, fire alarm systems, etc. shall have circuit numbers indicated and labeled as required.

8. Junction boxes for general power, lighting and mise, systems etc. shall have circuit numbers indicated and voltage (system) labeled as required.

2.06 AS-BUILT (RECORD) DRAWINGS:

- A. Maintain on the job site at all times during construction a set of "As-Built" mylar sepias with all changes during construction marked thereon. This set shall be utilized for no other purpose. Include any addenda, change orders, field orders, project sketches or "marked-up" drawing prints as may be generated on the job site to assist in recording the changes.
- B. The "As-Built" sepias shall show all changes and deviations from the Contract Drawings including relocation of outlets, conduit and equipment. Record final dimensioned locations of switchboards, panelboards, transformers, disconnect switches, etc. Make sufficient measurements to locate all underground conduit. Show exact locations of underground cable and conduits, both interior and exterior, fully dimensioned from building column lines or permanent exterior structures. These drawings shall be available for reference at the time of final inspection.
- C. At the completion of construction, the Contractor shall purchase a set of reproducible drawings from the Architect/Engineer at cost of printing and shipping. All changes noted above shall be incorporated thereon by the Contractor. The reproducible drawings, with one set of blueline prints thereof and the original sketches and marked-up "As-Built" prints shall be presented to the Owner.

2.07 MAINTENANCE AND INSTRUCTION MANUALS:

- A. Submit to the Architect/Engineer/Owners Representative upon completion of the work and prior to final inspection, copies of maintenance and instruction manuals for equipment provided as outlined below:
  1. Three sets of the following data are required:
    - a. Operating and maintenance instructions.
    - b. Spare parts list.
    - c. Copies of approved submittal data.
    - d. Copies of panelboard circuit directories reflecting all field changes.
    - e. Test reports of all tests performed.
    - f. Contact names and phone numbers for parts suppliers of submitted equipment.
  - B. Arrange each set of data in a orderly way and bind each set in a separate 3-ring hard-cover binder with appropriate label identifying the Project, Architect, Engineer, Contractor, Subcontractor and Date.

- 2.08 SUBMISSION OF DRAWINGS: Submission of Architect's drawings for shop drawings and unaltered Architect's drawings for "As-Built" will not be acceptable.

PART 3 - EXECUTION

3.01 COORDINATION:

- A. Before any conduit or equipment are located in any area, coordinate the space requirements. Such shall be arranged so that space conditions will permit access for future maintenance and repair. Coordinate the installation of electrical equipment with concealed ductwork, piping, insulation, structural appurtances and wall thickness.
- B. Conduit and equipment installed at variance with the above requirements shall be relocated and/or revised to conform with the above requirements without incurring additions to the Contract.



- C. Do not scale drawings. Obtain dimensions for layout of equipment from the Architectural drawings unless noted on the Electrical drawings.
  - D. Contractor for work under this division shall be fully responsible for determining in advance of purchase that proposed equipment and materials for installation shall fit into the confines indicated and allow sufficient clearance for maintenance and service of all equipment including other trades.
  - E. Clearances in front of electrical switchboards, panelboards, motor starters, bus plugs etc. (equipment requiring maintenance while energized) shall be installed in accordance with N.E.C. 110-162 condition number 2.
- 3.02 PROTECTION OF MATERIALS:
- A. Refer to the general requirements section of the Specifications for storage, protection and handling requirements.
  - B. Provide dry, weathertight staging and storage for materials and equipment requiring protection from weather and moisture per manufacturer's recommendations. Install temporary lighting or heat sources to prevent moisture accumulation. Provide protection against direct sunlight, precipitation, wind, ice, fire or excessive heat. Store materials in original undamaged packaging with manufacturer's labels and seals intact. Containers which are broken, damaged or watermarked are not acceptable and are subject to rejection.
  - C. Materials and equipment will not be installed until the environmental conditions of the project are suitable to protect same per manufacturer's recommendations. Equipment or materials damaged or subjected to moisture, precipitation, direct sunlight, cold or heat are not acceptable and shall be removed from the project and replaced at no additional costs to the Owner.
  - D. All conduit and other openings shall be kept protected to prevent entry of foreign matter or construction debris. Fixtures, equipment, and apparatus shall be kept covered for protection against dirt, water, chemical or mechanical damage before and during construction.
  - E. The original finish, including shop coat of paint of fixtures, apparatus or equipment that has been damaged shall be restored without incurring additions to the Contract in time or price.
- 3.03 CUTTING AND PATCHING: The Contractor is responsible for all cutting and patching, including escutcheon plates where necessary, whether or not such cutting and patching is shown or indicated.
- 3.04 CLEANING AND PAINTING:
- A. Remove foreign materials, drywall compound, overspray, oil, dirt and grease from all raceway, fittings, supports, boxes, cabinets, pull boxes, panelboard trims and equipment to provide clean surfaces for painting. Remove surface oxidation and restore galvanized surfaces with cold process galvanizing compounds. Touchup marred or scratched surfaces of fixtures, panelboard and cabinet trims, motor control centers, switchboards, cabinets, and equipment enclosures with paint furnished by the equipment manufacturer specifically for that purpose. When touchup is required, provide one base coat over imperfection and subsequent coat over entire side or surface of equipment.
  - B. Do not paint trim hinges, latches, clamps, locks, device covers or trim covers. Mask or remove such items prior to finishing.
  - C. Unless otherwise noted herein, all painting shall conform to the "Painting" section of the specifications.
  - D. Where plywood backboards are utilized to mount electrical or electronic equipment provided under Division 16, finish same with two (2) coats of light gray semi-gloss paint.

- 3.05 ACCESS TO ELECTRICAL ITEMS: Install all concealed electrical equipment, junction and pull boxes, apparatus, or devices so as to maintain access for maintenance, operations and replacement. Access doors or covers shall be provided where required by NEC or LAHJ and shall be installed in accordance with manufacturer's instructions. Refer to the Architect for approved types, means, methods and appearance. Locate each access unit accurately in relation to electrical work requiring access.
- 3.06 ELECTRICAL ROOMS AND CLOSETS:
- A. Manufacturer's equipment shall not be larger than that dimensioned, or scaled, on plans. Conflicts shall be brought to the attention of the Architect, for resolution prior to ordering equipment.
  - B. Clear working space in electric rooms and closets shall be no less than required by the N.E.C.
  - C. Submit for review, prior to construction or purchase of any equipment, scaled drawings of electrical rooms, closets, or spaces showing, in detail, planned installation locations of the equipment. These shall clearly show compliance with A and B above.
- 3.07 EQUIPMENT CONNECTIONS:
- A. Review all divisions of specifications, where equipment requiring electrical service is specified, to determine the complete scope of work under this division of the specifications. Provide electrical connections and service to all equipment specified elsewhere requiring such connections or service.
  - B. Connect all equipment requiring electrical connections, in accordance with the equipment manufacturer's requirements. Where equipment connections require specific locations, determine and coordinate same with submittals. Provide concealed service to central plant equipment locations and pads.
- 3.08 NAMEPLATES AND IDENTIFICATION:
- A. Provide and install nameplates for new transformers, switchboards, switchgear, panels, disconnect switches, time switches, pull boxes, junction boxes, contactors, relays and other unit equipment. Nameplates shall be affixed with epoxy cement. Refer to 26 05 10-2.5 for additional requirements.
  - B. Install nameplates plumb and level.
  - C. Provide and install sleeve type wire markers on all conductors at all termination points and access points. Branch circuit identification (as LP-21") shall be installed on hot and neutral conductors. Dedicated circuits and isolated ground technical power circuits shall have wire markers installed on ground conductor. Label junction and pull box covers with all circuit numbers contained therein.
- 3.09 EXCAVATION AND BACKFILLING:
- A. Provide and perform all excavation required to install conduit, ductbanks and manholes indicated on the drawings and/or specified. Trenches shall be of uniform width required with minimum 8" clearance on both sides. Remove and dispose of all materials not to be used for backfill. Maintain dry excavations for electrical work, by removing water. Grade areas to prevent surface water from entering excavation. Remove any accumulated water by pumping. Perform all excavation by open cut. Excavate with vertical-sided excavations where possible. Where necessary, provide sheeting and cross-bracing to sustain sides of excavations. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition. Establish requirements for trench shoring and bracing to comply with local codes and LAHJ. No tunneling shall be permitted.

- B. The bottom of all trenches and excavation shall be graded to provide uniform bearing surface for conduits or ductbanks on undisturbed soil at every point along entire length. Tamp overexcavation with specified backfill materials. Remove unstable materials unsuitable for supporting equipment or installation and replace with specified materials for a minimum of twelve (12) inches below invert of equipment or installation.
- C. Specified materials shall be utilized for backfilling, in not more than six (6) inch layers and tamped until the installation has cover of not less than the adjacent grade and not more than two (2) inches above same. Remove sheeting and cross-bracing during backfilling wherever such removal would not endanger the work or other property. Equalize backfilling operation to avoid shifting of materials and equipment installed. Compaction of backfill materials shall be at least equal to surrounding undisturbed material. Backfill trenches with concrete where excavations pass within 18" of footings or other utility lines. Do not settle backfill with water. Conform to compaction requirements and methods specified elsewhere.
- D. Electrical duct shall be installed a minimum of 24" below finished grade with bottom of duct below geographic frost line. Duct shall not be in direct contact with building structure (slab) except for vertical riser supports.

3.11 TESTS AND CERTIFICATIONS:

- A. Upon completion of the electrical work and prior to final inspection, conduct an operating test in the presence of the Architect or his designated representative.
- B. The installation shall be demonstrated to operate in accordance with the Contract Documents. Any material or workmanship which does not meet with the approval of the Architect shall be removed, repaired or replaced as directed without incurring additions to the Contract in time or cost. All electrical systems shall be tested for compliance with the specifications.
- C. Furnish all instructions, tools, test equipment and personnel required for the test. Have sufficient tools and personnel available to remove equipment covers, coverplates, etc., as required for review of internal wiring and proper inspection. Provide hand tools, flashlights, ladders, outlet testers, VOM, meters and keys required to access and observe system operation and characteristics. Turn circuits on and off as directed and demonstrate operation of equipment as directed.
- D. Contractor shall test all wiring and connections for continuity and grounds by megger testing. Upon indication of defective insulation, Contractor shall remove and replace the defective conductor and demonstrate by testing that the new conductor is acceptable. Record feeder load currents and line voltages measured at each transformer, switchboard and panelboard after installation of all equipment and lighting. Adjust transformer taps as required to provide optimum voltage levels. Adjust single phase load connections to balance feeder load and document on as-built drawings. Provide the Owner with full documentation of all testing for future reference.
- E. Refer to the individual specification sections and the electrical systems testing section of the specifications for specific testing requirements.
- F. The authorized manufacturer's service representative shall review systems and equipment for correct operation, conformance with specification requirements and manufacturer's requirements and submit certification indicating above mentioned conformances for the following systems:
  - 1. Emergency Generator Set
  - 2. Automatic Transfer Switches
  - 3. Interfaces to Mechanical & Building Systems

3.12 DEMONSTRATION AND INSTRUCTION:

- A. Present to the Owner and the Architect/Engineer or his designated representative a physical demonstration and oral instructions for proper operation and maintenance of each of the electrical equipment and systems installed. Authorized manufacturer's representatives familiar with the specified equipment shall conduct training for the following systems:
  - 1. Emergency Generator Set
  - 2. Automatic Transfer Switches
  - 3. Interfaces to Mechanical & Building systems

3.13 TEMPORARY WIRING: Provide a temporary electrical lighting and power distribution system of adequate size to properly serve the construction requirements, including adequate feeder sizes to prevent excessive voltage drop. Temporary work to be installed in accordance with the National Electrical Code, Article 305, and as required by OSHA or applicable local safety codes, rules and regulations.

3.14 WARRANTY:

- A. All systems and components shall be provided with a one-year warranty from the time of final acceptance. The warranty shall cover all defects in materials, design and workmanship. During this warranty period, all defects in materials and workmanship shall be corrected without incurring additions to the Contract. The correction shall include removing the defective part(s), replacing and installing the new parts (including shipping and handling), all required cutting, patching, repainting, or other work involved, including repair or restoration of any damaged sections or parts of the premises resulting from any fault included in the warranty, entirely at the expense of the Contractor.
- B. In addition to this general warranty, present to the Architect any other guarantees or warranties from equipment or system manufacturers. These supplemental guarantees or warranties shall not invalidate the general warranty.

END OF SECTION

SECTION 26 05 19

LOW VOLTAGE ELECTRICAL POWER  
CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. All work specified in this Section shall comply with the provisions of Section 26 05 19.
- B. This Section covers the furnishing, installation and connections of the building wiring system. Interior wiring, power distribution, lighting, appliance and equipment, motor and exterior wiring systems extending beyond the building are included. The wiring system shall be complete from electrical service entrance to every electrical device requiring an electrical connection.

PART 2 – PRODUCTS

2.01 CONDUCTORS:

- A. Conductors shall be copper of 98% conductivity, soft temper, 600 volt insulation. Sizes specified are American Wire Gage (AWG) for No. 4/0 and smaller and thousand circular mils (kcmil) for all sizes larger than No. 4/0. Service entrance conductors shall be 600 volt, type XHHW.
- B. Conductors No. 10 and smaller shall be solid and type "THHN" / THWN" insulation. No. 8 and larger shall be stranded and type "THHN" / "THWN" or "XHHW" insulation.
- C. All wire and cable shall be U. L. Listed and shall bear the U. L. Label.
- D. All conductors shall have size, grade of insulation, voltage and manufacturer's name permanently marked on the exterior at maximum 24 inch intervals.
- E. Conductor size shall be a minimum of No. 12 AWG. Conductor size shall be not less than indicated on the drawings. The minimum size of all emergency circuits shall be No. 10 AWG.
- F. Fixture wire shall be No. 14 AWG silicone rubber insulated, stranded fixture wire, Type THAN (90 degrees C.).
- G. Control conductors for use on 120 volt control wiring shall be No. 14 AWG stranded Type THHN/THWN, unless indicated otherwise on the drawings or as required for compliance with voltage drop requirements.
- H. Where cables are used for switch leg, the white conductor shall be permitted to supply the switch, but not as a return to the switchboard outlet for 277 volt lighting switch legs and phase conductor shall be.

- 2.02 PREFABRICATED CABLE ASSEMBLIES: Metal clad cable type MC may be utilized for concealed branch circuit wiring only as permitted by local authority having jurisdiction. Insulated ground conductor shall be provided.

2.03 CONNECTORS:

- A. Terminations and connections shall be made with U. L. Listed connectors applied per manufacturer's recommendations.
- B. Connections of #10 AWG and smaller size power and lighting branch circuit conductors shall be made with insulated spring steel wire nut connectors. Size #8 AWG and larger connections shall be made with hydraulically applied compression type connectors with insulated covers.
- C. Connections of special system conductors shall be made via dedicated terminal strips labeled to indicate wire number and system type. Wire nut connections in system junction box are not acceptable.

2.04 ALTERNATE MATERIAL DESCRIPTION: (OPTIONAL)

- A. Where permitted by local authority having jurisdiction, aluminum conductors may be utilized for conductor sizes No. 4/0 and larger in lieu of copper conductors specified and indicated on the drawings. Insulation of aluminum conductors shall be identical to insulation specified and indicated for copper conductors. Aluminum conductor's sizes shall be based upon not less than equivalent copper ampacities (NEC Table 310-16) and voltage drop characteristics. Submit table of proposed substitution for review and approval in accordance with submittal requirements.
- B. Fittings utilized to terminate aluminum conductors shall be compression type, U. L. Listed for the application.
- C. Where aluminum conductors are utilized, raceways shall be increased in size in accordance with the conduit fill limitations of the National Electrical Code. Derating factors of NEC Article 310-10 or note 8/ NEC 310-16 shall be applied, where applicable. As-built drawings shall reflect the size of aluminum conductors and raceway installed.

2.05 ACCEPTABLE MANUFACTURERS:

- A. Wire and Cable products:
  - 1. Southwire Co.
  - 2. Rome Cable
  - 3. Alcan Cable
  - 4. Carol Cable
  - 5. AFC Cable Systems
  - 6. American Insulated Wire
  - 7. Cerro Wire & Cable
  - 8. General Cable
  - 9. Triangle PWC
  - 10. Cabelec
  - 11. Okonite
- B. Signal Cable products:
  - 1. Belden
  - 2. Continental
  - 3. Dekoron
  - 4. West Penn

- C. Connector products:
  - 1. AMP
  - 2. Burndy
  - 3. Eagle
  - 4. Gould
  - 5. Ideal
  - 6. Joslyn
  - 7. O-Z Gedney
  - 8. Thomas & Betts
  - 9. IlSCO
  - 10. Buchanan
  - 11. King
  
- D. Wire management products:
  - 1. AMP
  - 2. Thomas & Betts
  - 3. Panduit
  - 4. Wieland
  
- E. Wire & Cable identification products:
  - 1. Thomas & Betts SM series
  - 2. Wieland C type
  - 3. Brady type XC
  
- F. Wire Pulling lubrication products:
  - 1. Ideal Yellow 77
  - 2. Electro Y ER EAS
  - 3. Burndy Silkon

### PART 3 - EXECUTION

#### 3.01 WIRING:

- A. All conductors shall be installed in conduit, unless noted otherwise. All conductors shall be pulled in at the same time. No conductors shall be pulled into the conduit until the conduit system is complete and plaster/drywall construction has dried. Clean, swab and evacuate conduit system before pulling in conductors. Do not exceed the manufacturer's maximum pulling tension.
- B. Conductors shall be continuous from outlet to outlet and from outlet to junction box or pull box. All splices and joints shall be carefully and securely made to be mechanically and electrically solid with proper U. L. Listed connectors. Where connection is made to any terminals of more than 30 amperes capacity and where conductors larger than No. 10 are connected to any terminal, copper terminal lugs shall be secured to the conductors. Where multiple connections are made to the same terminal, individual lugs for each conductor shall be used.
- C. Each conduit shall have a minimum of three (3) conductors pulled in unless that particular conduit is noted as being for systems other than electrical circuitry and/or future use or unless noted otherwise. Grounding conductors are not shown in wire count, but are required from circuit origin to last device.

- D. Conductors for lighting and receptacle circuits shall have color coded jackets. The wiring shall be color coded with the same color used with its respective phase through the entire job as follows:

208/120	Volt Systems	Type	480/277 Volt Systems
Black	Phase A		Brown
Red	Phase B		Orange
Blue	Phase C		Yellow
White	Neutral		Gray
Green	Ground		Green/tracer
White/Green Stripe	IG Neutral		Black w/ Black Stripe
Green/White Stripe	IG Ground		Green

- E. The feeder and service entrance conductors shall be color coded by the use of one (1) inch wide colored plastic tape applied within 6" of each conductor end.
- F. Branch circuit conductors shall not be smaller than No. 12 and where the home run from panel to first device exceeds 60'-0", the conductors from home run outlet to panel shall be No. 10 minimum.
- G. Branch circuit wiring which supplies more than one fluorescent fixture through wireway of other fixtures shall be rated for use at 105 degrees C.
- H. For branch circuits terminating in outlet without device, leave minimum of 12" of slack wire coiled for connection of equipment.
- I. All conductors shall be identified with proper circuit numbers at all access points, terminals, junction boxes and at panelboards within 6" of conductor ends.
- J. Special systems conductors shall be color coded in accordance with system manufacturer's recommendations or in a manner approved by the Engineer.
- K. Maintain phase rotation established at service entrance point throughout entire project.
- L. Taps and splices, where permitted by these specifications, shall be performed with an encapsulating watertight connection kit which insulates and moisture seals the connection.
- M. Grounding conductors are not indicated in the wire count shown on the drawings, but are required in all branch circuit and feeder installations. Provide insulated ground conductor (sized per NEC requirements) in all raceways.

3.02 CONNECTIONS:

- A. All connectors shall be U.L. Listed and shall be utilized in full accordance with manufacturer's requirements.
- B. Splices shall be made only where specifically approved by the Engineer. Conductors shall be continuous from origin to first outlet box or manhole. Splices made exterior to the structure, or below grade, shall be compression type connections with insulated, waterproof covers. Submit splicing requests for review and approval prior to installation.
- C. Termination lugs shall be applied to all single cables #8 and larger, and shall be compression type fittings. The use of mechanical type lugs, kerneys or other pressure type connections will not be permitted.



- D. All compression connections shall be long barrel type installed using hydraulic tools designed for the purpose.
- E. Insulated spring steel wire nut connectors shall be used for branch circuit connections of #10 and smaller conductors. Connections of #8 and larger sizes shall be made with compression type connections with insulated covers. Where exposed to moisture or corrosion spring steel wire nut connectors shall be silicone filled.
- F. Control and special system riser and junction boxes shall be fitted with terminal strips and all conductors shall be labeled per system requirements. The installation of wirenuts in special system riser and junction boxes is not acceptable.
- G. Phase rotation at service equipment shall be maintained throughout entire project, color coding of conductors shall be consistent for feeders and branch circuits through out entire project.

3.04 IDENTIFICATION:

- A. All conductors shall be identified with full circuit number at all access points, boxes, and at panelboards within 6 inches of conductor end. Identification shall be permanently marked PVC split sleeve or tubing type
- B. Tape or laminated type wire markers are not acceptable
- C. Permanently mark the junction box cover with the circuit numbers for all conductors contained within. Utilize black marker for normal power and red marker for emergency power and fire alarm.

3.05 WIRE MANAGEMENT:

- A. Power and control wiring within all enclosures, and within switchboards and electrical equipment shall be bundled or routed within slotted wiring duct in a workmanlike manner.
- B. Any knockout, cutout or slot containing wiring shall be fitted with bushing or continuous grommet strip to avoid fraying or abrasion.
- C. Train and lace all conductors within panelboard or control enclosures with cable ties or spiral wrapping.
- D. Spare conductors installed shall be identified and capped.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. All work specified in this Section shall comply with the provisions of Section 26 05 10.
- B. This section covers the installation of the building grounding system. The grounding system shall be established with equipment grounding conductors; the use of metallic raceways as the only method of equipment grounding is not acceptable.
- C. In addition, this section covers ground fault protection for the main service entrance equipment.

PART 2 - PRODUCTS

2.01 GROUNDING CONDUCTORS:

- A. Grounding electrode conductors shall be bare or green insulated copper conductor sized as indicated on the drawings.
- B. Equipment grounding conductors shall be green insulated type THHN/THWN, or XHHW conductors sized as indicated on the drawings. Where size is not indicated on the drawings, conductor size shall be determined from the National Electrical Code table on sizes of equipment grounding conductors.
- C. Bonding jumpers shall be flexible copper bonding jumpers sized in accordance with the National Electrical Code tables for grounding electrode conductors.

2.02 PANELBOARDS, TRANSFORMERS, MOTOR CONTROLLERS, AND DISCONNECT SWITCHES:

- A. Provide each low voltage distribution and branch circuit panelboard with a copper equipment grounding bar brazed or riveted to the associated enclosures or cabinet and an insulated neutral bar.
- B. Provide a conductor termination grounding lug bonded to the enclosure of each equipment item.

2.03 DEVICES: Each receptacle and switch device shall be furnished with a grounding screw connected to the metallic device frame.

2.04 GROUND RODS:

- A. Ground rods shall be 3/4" x 10'-0 copper clad steel.
- B. Sectional ground rods shall be hot dip galvanized 5/8" x 10' sections with an internal stainless steel splined coupling pin.

2.05 HYDRAULIC TERMINATIONS:

- A. Acceptable manufacturers for hydraulically applied terminations are Square D, Burndy and Thomas and Betts (T & B).

- B. Acceptable manufacturers for mechanically applied terminations are Ideal, Burndy and Thomas and Betts (T & B).

### PART 3 - EXECUTION

#### 3.01 INSTALLATION:

- A. Ground all non-current carrying parts of the electrical system, i.e. raceways, equipment enclosures and frames, junction and outlet boxes, machine frames and other conductive items in close proximity with electrical circuits, to provide a low impedance path for potential grounded faults.
- B. Service entrance and separately derived electrical systems, grounding electrode system:
1. The neutral conductor of the electrical service serving the premises wiring system shall be grounded to the ground bus bar in the service equipment which shall be grounded to the cold water system, the ground rod system, and other grounding electrodes specified herein or indicated on the drawings. Grounding electrode conductors shall be installed in rigid, nonmetallic conduit to point of ground connection, unless subject to physical damage in which case it shall be installed in galvanized rigid steel. Where metallic conduit is permitted, bond conduit at both ends to grounding electrode conductor with a U.L. bonding busing.
  2. Make connection to main water line entering the building. Make connections ahead of any valve or fittings whose removal may interrupt ground continuity. Install a bonding jumper of the same size as the grounding conductor around the water meter.
  3. Bond together the following systems to form the grounding electrode system. All system connections shall be made to the electrodes as close as possible to the service entrance equipment and each connected at the service entrance equipment ground bus. Do not connect electrode systems together except at ground bus.
    - a. Cold water piping system
    - b. Ground rod system
    - c. Lightning protection system
    - d. Steam and chilled water piping
    - e. Main rebar in foundation footing
    - f. Building structural steel components.
  4. Ground the neutral of all dry type transformers with #4/0 cu. conductor riser tied back to main switchgear which shall serve as the grounding electrode for the separately derived system. In reinforced concrete structures, building steel shall be considered to be reinforcing steel of vertical columns. Make connection to building steel with chemical weld type connector, in a location in unfinished space where the connection will not be subject to physical abuse.
  5. Ground the neutral and frame of the emergency generator to building steel and the ground rod system, which shall serve as the grounding electrode for the separately derived system. In reinforced concrete structures building steel shall be considered to be reinforcing steel in vertical columns. Make connection to building steel with chemical weld type connector, in a location in unfinished space where the connection will not be subject to physical abuse.
  6. Grounding Electrode connections to structural steel, reinforcing bars, ground rods, or where indicated on the drawings shall be with chemical exothermic weld connection devices recommended for the particular connection type. Connections to piping shall be with U.L. listed mechanical ground clamps.
  7. Bonding shall be in accordance with the National Electrical Code.

8. Install ground rods where indicated on the drawings with the top of the ground rods 12 inches below finished grade.

C. Equipment Grounding Conductor:

1. Grounding conductors for branch circuits are not shown on the drawings; however, grounding conductors shall be provided in all branch circuit raceways and cables. Grounding conductors shall be the same AWG size as branch circuit conductors.
2. Grounding conductors for feeders are typically indicated on the drawings and the raceway is sized to accommodate grounding conductor shown. Where grounding conductor size is not indicated on the drawings, conductor shall be in accordance with the equipment grounding conductor table of the National Electrical Code.
3. A grounding conductor shall be installed in all flexible conduit installations. For branch circuits, grounding conductor shall be sized to match branch circuit conductors.
4. A feeder serving several panelboards shall have a continuous grounding conductor which shall be connected to each related cabinet grounding bar.
5. The equipment grounding conductor shall be attached to equipment with bolt or sheet metal screw used for no other purpose. Where grounding conductor is stranded, attachment shall be made with lug attached to grounding conductor with crimping tool.
6. Equipment grounding conductors shall terminate on panelboard, switchboard, or motor control center grounding bus only. Do not terminate on neutral bus. Provide a single terminal lug for each conductor. Conductor shall terminate in the same section as the phase conductors originate. Do not terminate neutral conductors on the ground bus or equipment grounding conductors on the neutral bus.

3.02 TESTING:

- A. Upon completion of the ground rod installation, the Contractor shall test the installation in accordance with the "Electrical System Tests" section of this Specification. Grounding resistance reading shall be taken before connection is made to the building cold water piping system. Ground resistance readings shall not be taken within forty-eight hours of rainfall. Results of ground resistance readings shall be forwarded, in writing, immediately to the Project Engineer.
- B. If the resistance to ground exceeds 5 ohms, additional rods shall be driven and bonded together, until a reading of 5 ohms or less to ground is obtained. After completion of the grounding system, measure the system ground resistance with a "Megger Earth Tester". Submit directly to the Project Engineer two (2) copies of each test report certified by the testing technician and the electrical contractor.
- C. All grounding electrode conductors and ground bus shall be measured by the Contractor for objectionable levels of current, and to detect any inadvertent connection of neutral to ground.
- D. If the ground current exceeds 10% of the rating of the conductor ampacity, all devices on that feeder or circuit shall be rechecked for proper connection.
- E. All grounding system connections shall be rechecked at final checkout for correct wiring termination methods and mechanical strength.

END OF SECTION

## SECTION 26 05 33

## RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

## PART 1 - GENERAL

## 1.01 DESCRIPTION

- A. All work specified in this Section shall comply with the provisions of Section 26 01 00.
- B. This Section covers the installation of all interior and exterior conduit and raceway systems, outlet boxes, pull boxes, junction boxes and wiring troughs or other boxes throughout the wiring system, including supports.
- C. Outlets are located diagrammatically on the drawings. Outlets shall be located so as to be symmetrical with Architectural details.

## PART 2 - PRODUCTS

## 2.01 GENERAL MATERIAL REQUIREMENTS:

- A. All boxes shall be U. L. Listed and labeled.
- B. Boxes shall be of one-piece construction, fabricated from NEC gauge galvanized steel, unless rustproof cast metal boxes are specified or required by NEC, or unless otherwise shown on the drawings.

## 2.02 CONDUIT

- A. Galvanized rigid steel conduit (GRC) shall be low carbon, hot-dipped zinc galvanized steel to meet U.L. 6 Standards, ANSI C80.1 and shall have NPT (ANSI B1.20.1) full cut threaded joints, galvanized after forming. IMC shall carry U. L. Label. Conduit with integral couplings may be utilized for 2.5 inch sizes and above provided it conforms to U. L. Safety Standard #514-B.
- B. Intermediate metal conduit (IMC) shall be premium hardened steel conforming to ASTM-A568, hot galvanized with zinc chromate exterior with polymer sealcoat to meet U.L. 1242 and ANSI C80.6 standards. Interior to be finished with corrosion inhibiting organic coating. Both coatings shall conform to ANSI C80.6 requirements. IMC shall have NPT (ANSI B1.20.1) full cut threaded joints, galvanized after forming. Conduit with integral couplings may be utilized for 2.5 inch sizes and above provided it conforms to U. L. Safety Standard #514-B. IMC shall carry U. L. Label.
- C. Electrical metallic tubing (EMT) shall be high grade mild ductile steel, hot galvanized exterior with a clear organic polymer topcoat to meet U.L. 797 Standards and ANSI C80.3. Interior to be finished with corrosion inhibiting clear organic coating. Conduit with integral set screw couplings may be utilized for 2.5 inch sizes and above provided it conforms to U. L. Safety Standard #514-B.
- D. Plastic conduit (PVC) shall be schedule 40 PVC heavy wall type for 4" and smaller, Schedule 20 for 5" and larger. PVC shall be U.L. Listed, NEMA TC 2, sunlight resistant and suitable for use with 90 degree C conductors.

- E. Flexible metal conduit (FLX) shall be extra flexible, extra strength galvanized steel conduit tubing and shall meet U. L. Standard for Flexible Steel Conduit and U.L. Standard for Safety #1. The use of aluminum flexible conduit is not permitted.
- F. Liquid-tight flexible metal conduit (WFX) shall be UL Listed with galvanized steel core of square locked or interlocked design, integral ground conductor and thermoplastic PVC (polyvinyl chloride) cover. The use of aluminum core or non-metallic types is not permitted.
- G. Electrical non-metallic tubing (ENT) shall be UL Listed and manufactured to the requirements of NEMA TC-13. This raceway is permitted to be utilized with concrete encasement or unexposed installations only. Do not install exposed in plenums or other open areas. Utilize steel outlet boxes in all partition construction. Utilize plastic boxes only in concrete encasement.
- H. Steel conduit approved manufacturers are Allied, Triangle, Republic, Wheatland and Pittsburg.
- I. Flexible conduit approved manufacturers are Anamet (Anaconda) and Republic.
- J. PVC conduit approved manufacturers are Carlon, Triangle, and Johns-Manville.
- K. PVC coated metallic conduit approved manufacturers are Robroy, Permacote and Occidental.

## 2.02 CONDUIT FITTINGS

- A. GRC and IMC conduit fittings shall be zinc-coated, ferrous metal and taper threaded type, U. L. Labeled.
- B. EMT fittings shall be zinc-coated steel and shall be Type 1 or 2 (raintight compression or concrete tight set-screw type). EMT connectors shall have insulated throats. Die cast, malleable iron or pressure cast material will not be accepted. Fittings shall bear U. L. Label. Two (2) inch and larger fittings shall be compression type or shall utilize dual set screws for each side of fitting.
- C. PVC fittings, elbows and cement shall be NEMA TC3, produced by the same manufacturer. All joints shall be solvent welded in accordance with the manufacturer's recommendations.
- D. Conduit connections to switchboards, motor control centers, transformers, panels, cabinets, and pull boxes shall have locknuts designed to bite into the metal.
- E. Each conduit end shall be provided with either an insulated throat connector or separate locknut and insulated bushing. Bushing shall be installed before any wire is pulled.
- F. Expansion fittings shall be provided in all conduits which crosses an expansion joint either in, across, or through same. Fittings shall be U.L. 467 and 514 Listed. Fittings shall contain an internal flexible metal braid to maintain system ground continuity.
- G. Flexible conduit fittings shall be cast malleable iron or stamped steel type with integral fastener. Fittings shall be U.L. Listed for the application. The use of "squeeze" type cast or stamped steel connectors is not permitted.

- H. Liquidtight flexible metal conduit fittings shall be liquidtight with neoprene bushing, nylon gland, tapered hub threads and outlet bushing. Fittings shall be U.L. Listed for the application. The use of non-metallic or thermo-plastic insert connectors is not permitted.
1. EMT conduit fittings approved manufacturers are Raco, Steel City, Crouse-Hinds, O.Z Gedney, Thomas & Betts, Efcor and Appleton.
  2. GRC and IMC fittings approved manufacturers are Appleton, Crouse-Hinds, O.Z. Gedney or Thomas & Betts.
- 2.03 SMOKE AND FIRE STOP FITTINGS: If and where required, smoke and fire stop fittings shall be U.L. listed for that purpose. The fittings used to seal conduit either on the outside of the conduit or cable or internally shall have heat activated intumescent material which expands to fill all voids and shall be O.Z./Gedney "FIRE-SEAL" or Dow Corning silicone RTV foam with an hourly fire-rating equal to or higher than the rating of the floor, ceiling or wall through which the cable or conduit passes. The seals for conduit shall be of the flanged type. Penetration of any fire rated wall, floor, or ceiling shall use Through-Penetration Firestop Systems described in the current Underwriters Laboratories Building Materials Directory.
- 2.04 RACEWAY SUPPORTS
- A. Raceways and systems shall be supported independent of any other equipment or appurtenances except the building structure. Suspended ceiling systems will not be considered as structure for support purposes, even if so rated by the manufacturer.
  - B. All support components shall be zinc-coated or have equivalent corrosion protection. Unprotected components shall be removed and replaced at no additional costs to the Owner.
  - C. Conduit support straps shall be single hole cast malleable iron or dual hole stamped steel type with zinc coating sized for type of raceway used. Conduit clamps for single conduit support shall be stamped steel with bolt & nut fastener and threaded rod support. Multiple conduit support channel straps shall be galvanized stamped steel two piece clamps with bolt & nut fasteners.
  - D. Conduit support channel shall be minimum 1 5/8" x 1 5/8" x 12 gauge rollformed pre-galvanized steel or painted steel conforming to ASTM A-570 Grade 33 or ASTM A-446 Grade A requirements. Channel cross section shall be increased to provide higher load bearing capability, if required by this installation. Channel shall have elongated holes at two (2) inch centers.
  - E. Drop wire type hangers will not be permitted. Any hanger which may distort the ceiling support structure will not be permitted. Lathers channel and chain are not acceptable for conduit hangers.
  - F. Furnish and install under this contract all angle iron, channel iron, rods, threaded rod, supports or hangers required to install or mount all electrical equipment, material or related devices. Conduit shall **not** be supported from steel decking, roof decking, bridging, ceiling or ceiling support wires.
  - G. Before any conduit, or equipment are located in any area, coordinate the space requirements with all trades. Such shall be arranged so that space conditions will allow all trades to install their work, and will also permit access for future maintenance and repair. Coordinate the installation of recessed electrical equipment with concealed ductwork, piping, insulation, structural appurtenances and wall thickness.

- H. Support branch circuit conduits and raceways at intervals not exceeding ten (10) feet and within three (3) feet of each termination. Support feeder conduit and raceway at intervals not exceeding twelve (12) feet and within three (3) feet of each termination.
  - I. Conduit and equipment installed at variance with the above requirements shall be relocated and/or revised to conform with the above requirements without incurring additions to the Contract.
  - J. Raceway installed within reinforcing steel of elevated or slab on grade concrete construction shall be tied to the re-steel at intervals not exceeding three (3) feet.
- 2.05 SUPPORT FASTENER DEVICES
- A. Anchors for post tensioned concrete applications shall be cast in place continuous or spot insert channel providing a safety factor of 3 in 3000 lb hard rock concrete.
  - B. Anchors for cast in place concrete shall be insert type expansion shields and bolts, lead shields and bolts or self drilling expansion shields and bolts. Powder actuated pins of 1500 pound pull out strength may be utilized in concrete.
  - C. Anchors for wood construction shall be lag bolts or power driven wood screws.
  - D. Anchors in hollow masonry shall be toggle bolts.
  - E. Anchors for steel attachment shall be machine screws, bolts, or beam clamps.
  - F. Equipment mounted to drywall construction shall be secured to power channel (13/16" x 1 5/8" minimum). Secure channel to a minimum of two (2) dry wall studs with drywall screws and washers.
  - G. Under no circumstance will nylon or composition type tie wraps or straps be permitted for use in supporting electrical raceway. Utilize galvanized tie wire or prefabricated steel clips for such support.

2.06 OUTLETS

- A. Outlet boxes and covers shall be of such form and dimensions as to be adapted to their specified usage, locations, size and quantity of conduit, and size and quantity of conductors entering the boxes.
- B. Outlet boxes for flush mounted light fixtures shall be four inch square boxes 1 1/2" deep, with blank cover, installed adjacent to fixture served. Connection to fixture shall be with flexible steel conduit and fixture wire.
- C. Flush ceiling outlets for surface or pendant mounted lighting fixtures shall be one-piece 4" square or octagonal pressed steel boxes, minimum two (2) inch depth.
- D. Boxes for devices in unfinished masonry walls or stud walls shall be 4" square boxes with a square cornered tile wall cover (plaster ring), set flush with masonry or drywall construction. Where only one conduit enters box or one wiring device is provided, 2 3/4" deep box may be used. Outlet boxes for dimmers, GFI outlets, and all other conditions shall be full depth. Use multigang boxes where more than one device is mounted together under common coverplate. Do not use sectional switch boxes.



- E. Boxes in concrete ceiling slab shall be octagonal, concrete-tight two (2) inch deep concrete boxes. Welded boxes are not acceptable.
- F. All outlet boxes in plaster, drywall, stucco or masonry walls or ceiling shall be provided with plaster rings.
- G. Junction boxes and all outlets not indicated as containing wiring devices or lighting fixtures shall have covers. Covers for outlets in walls shall be as specified for wall switches and receptacles.
- H. Outlet boxes exposed to the weather, under raised floor, used in exterior wiring system and outlet boxes for vaportight lighting fixtures and devices shall be of cast corrosion resistant type.
- I. In special "Fire Rated" partitions, outlets shall comply with ASTM No. E119 and maintain fire barrier ratings.
- J. Utility (handy) boxes with matching covers may be used in mechanical and electrical spaces for switches and 15A/120V receptacles.
- K. Where special purpose devices are utilized and require larger outlet box than specified herein, provide outlet box suitable for specific device. These outlet boxes shall be of the same type as specified herein for the installation required. Coordinate requirements prior to rough-in installation.

#### 2.07 JUNCTION AND PULL BOXES

- A. Dimensions of pull boxes and junction boxes shall not be less than those dimensions required by the National Electrical Code (NEC) article 370-18 for the number, size and position of conductors and raceway entering the box. Only a single extension ring shall be permitted on a box to increase the volume.
- B. Pull boxes required in finished spaces shall be installed out of sight lines and located per Architect's direction. Box shall be flush mounted cabinets provided with trim, hinged door and flush latch and lock to match panel trim for flush mounted electrical panelboard.
- C. Pull boxes for installation of vertical riser conductors shall be provided with red seal type VVC or approved supports for all conductors as required by the NEC.
- D. Pull boxes for horizontal feeders containing more than one feeder (not including parallel conductors) shall be provided with reinforced flange shall be compartmented by barriers (or feeder conductors shall be fire-taped) and provided with minimum 1 5/8" x 1 5/8" fiberglass channel strut (removable) for support of conductors. Wood supports within pull boxes are not acceptable.
- E. Provide box covers for all junction and pull boxes of same materials and construction as box. Identify feeder or branch circuit conductors contained within on outside of cover for surface mounted boxes and within cover on flush mounted boxes.

#### 2.08 EXTERIOR PULL BOXES & HANDHOLES

- A. Exterior pull boxes shall be Quazite "PC" style Gasketed boxes, resistant to sunlight exposure, weathering and chemicals, with solid base, penta-head security bolts, heavy duty rated cover with logo to suit purpose, with compressive strength of 11,000 psi, or approved equal. Size shall be minimum 12"w x 18"d x 12"h unless noted otherwise. Set assembly at final finished grade elevation.

- B. Exterior handholes shall be Quazite “PG” style stackable service box assemblies resistant to sunlight exposure, weathering and chemicals, with solid base, penta-head security bolts, heavy duty rated cover with logo to suit purpose, with compressive strength of 11,000 psi, or approved equal. Size shall be minimum 24”w x 36”d x 18”h unless noted otherwise. Provide extensions as required to bring assembly to final finished grade elevation.
- 2.09 CONDUIT BODIES & FITTINGS: Conduit bodies and fittings shall be NEMA FB-1 zinc coated steel or malleable iron, taper threaded type, of material matching conduit type with gasketed cover containing captive screws.
- 2.10 WIRING TROUGH: Wiring trough shall be NEMA 1, unless noted otherwise, hinged cover with captive screws, grey enamel finished inside and outside, 16 or 14 gauge steel as per NEC requirements. Size of trough based on NEC requirements.
- 2.11 PULL BOXES & ENCLOSURES:
- A. Pull boxes for feeder and power conductors shall be NEMA 1 with 14 or 12 gauge galvanized steel bodies and 12 or 10 gauge galvanized steel screw covers. Seams shall be continuously welded and ground smooth. Cover screws shall be captive, stainless steel type. Provide oil-resistant gasket and adhesive. Size pullboxes as specified.
  - B. Enclosures for termination of special systems wiring shall be NEMA 1 panel enclosures with 14 gauge steel bodies and removable hinged doors. Provide back panel of 14 gauge steel construction and wiring terminal blocks. Enclosures shall be painted ANSI 61 and panels shall be white enamel. Size enclosures for quantity of terminations required plus 25% spare capacity.
- 2.12 ACCEPTABLE MANUFACTURERS
- A. Outlet boxes:
    1. Steel City
    2. Hubble/RACO
    3. Crouse-Hinds
    4. Appleton
  - B. Floor boxes:
    1. Steel City
    2. Walker
    3. Hubbell
    4. American Electric
  - C. Poke-through devices:
    1. Hubbell
    2. Walker
    3. Raceway Components
    4. Thomas & Betts
  - D. Exterior junction boxes & handholes:
    1. Quazite
    2. Nelson
    3. Killark
    4. Associated Plastics

- E. Conduit bodies & fittings:
  - 1. Adalet-PLM
  - 2. Myers
  - 3. O-Z Gedney
  - 4. Appleton
  - 5. Efcor
  - 6. Crouse-Hinds
  
- F. Wiring troughs:
  - 1. Electromate
  - 2. Square D
  - 3. Universal
  - 4. Hoffman
  - 5. Wiegmann
  - 6. General Metals
  - 7. Keystone
  
- G. Pull boxes & enclosures:
  - 1. Hoffman
  - 2. Electromate
  - 3. Wiegmann
  - 4. Universal
  - 5. American Electric
  - 6. Crouse-Hinds
  - 7. Square D

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. Provide galvanized steel or cast type boxes for all outlets, and for junction or pull boxes. All boxes shall be accessible and sized per NEC requirements. Provide access panels in any non-accessible spaces to allow access to boxes installed.
  
- B. Provide an UL listed outlet box for each ceiling mounted fan assembly shown.
  
- C. Where outlet boxes are used to support lighting fixtures, as junction boxes, or device outlet boxes, the box shall be anchored to the structural members of the building per NEC 370-13.
  
- D. Outlet boxes shall be flush mounted unless they are specifically shown as being used with exposed conduit or are located above a ceiling.
  
- E. Where outlets are supplied from conduit run in or below floor slabs, the conduit shall be stubbed up at the location shown and the wall built up around the conduit.
  
- F. Cuts for outlet boxes in masonry walls shall be made so that the coverplate will completely cover the cut. The mounting height of switch, receptacle and other outlets may be varied slightly, with the Architect's approval, so that the outlet box, top or bottom, will occur at a masonry joint.

- G. The edge of all outlet boxes shall be flush with the surface in which they are recessed. The devices that fit into the outlet boxes shall be screwed tight before the cover plate is installed and the coverplate shall not be used as a means of tightening the devices in place. Provide box extensions as required to permit the above. Coordinate fabric panels, finishes and woodwork provisions in order to determine exact requirements.
- H. Where outlets are shown as being adjacent and different mounting heights are specified for each, they shall be mounted one directly over the other, on the centerline of the group.
- I. Electrical outlet boxes may be installed in vertical fire resistive assemblies classified as fire/smoke and smoke partitions without affecting the fire classification, provided such openings occur on one side only in each framing space and that openings do not exceed sixteen square inches. All clearances between such outlet boxes and the gypsum board shall be completely filled with joint compound or approved fire-resistive compound. The wall shall be built around outlet boxes larger than sixteen square inches so as not to interfere with the wall rating.
- J. Where low voltage device is to be installed in common boxes with line voltage device (or devices of different operating voltage), provide insulated barrier within boxes to establish separate compartments.
- K. Remove only knockouts required and plug all unused openings per NEC 370-18/373-4 requirements.
- L. Extend branch circuit grounding conductor to each box. Provide grounding pigtail via dedicated fastener.
- M. Outlet boxes in the same wall shall not be mounted back-to-back but shall be offset a minimum of six (6) inches, except in acoustical rated walls where 24" is required.
- N. Install pull boxes only in unfinished spaces or concealed above accessible ceilings. Provide pull boxes when any of the following conditions apply:
  - 1. Where indicated on the drawings.
  - 2. Where conduit run exceeds 150 feet from access point to access point.
  - 3. Where conduit run contains in excess of 360 degrees bend or offset.
  - 4. To facilitate conductor installation or to insure that manufacturer's maximum pulling tension is not exceeded.
  - 5. Where requirements of the special system or telephone installer/vendor dictate raceway access or provisions.
- O. Do not splice conductors in pull boxes. Splices are not permitted in pull boxes except where specifically approved in writing by the Engineer. Where splices are permitted, make splices as specified in Wire & Cable Specifications.
- P. Where pull boxes are required, multiple circuits within pull box shall:
  - 1. Circuit conductors and feeders shall be individually laced with nylon straps and nylon identification tabs. Conduits shall enter pull box in such manner that conduits enter and exit in the same plane (both horizontal and vertical).
  - 2. Feeder circuits shall be separated by full height and length sheet metal (NEC gage) or polyester resin barrier secured with angle brackets.

- Q. Where exterior junction or pull boxes are required, install in the following manner:
1. Exterior junction or pull boxes shall be mounted flush with finished grade, unless noted otherwise. Coordinate with the final grade elevation.
  2. Heavy traffic rated covers shall be provided in sidewalks, paved areas or within six (6) feet of same.
  3. Seal conduit entries into boxes with duct seal to prevent entrance of water, after conductors are installed.
  4. Taps and splices, where permitted by these specifications, shall be performed with an encapsulating watertight connection kit which insulates and moisture seals the connection.
- R. After completion, clean all work of dirt, construction debris, paint and refuse.

### 3.02 COVERS

- A. All junction boxes, outlet boxes, multi-gang switch boxes, utility boxes, etc., shall be covered with a coverplate. The coverplate shall be a finished plate as specified elsewhere unless designated otherwise.
- B. Coverplates shall be mounted vertically unless designated otherwise.
- C. Permanently mark each junction box and pull box cover with the circuit numbers for all conductors contained within. Utilize indelible ink black marker for normal power and red marker for emergency power and fire alarm.
- D. All junction boxes and pull boxes for wiring systems above 600 volts shall be painted red and identified with high voltage warning labels in accordance with OSHA standards. Raceway shall be identified with the same labels installed every twenty (20) linear feet.

### 3.03 EQUIPMENT ANCHORING

- A. Support all boxes from structure:
1. Secure to wood with wood or sheet metal screws.
  2. Secure to hollow masonry with toggle bolts.
  3. Secure to light gage metal with sheet metal screws.
  4. Secure to heavy gage metal with bolts or clamps.
  5. Anchors for solid masonry and concrete shall be self-drilling or insert expansion shields with bolts or powder actuated drive pin studs (except in post-tension construction).
  6. Secure outlet boxes to dry wall studs with steel mounting bracket screwed into stud having support leg to restrain box.
  7. Where box is suspended below structure, support from structure with threaded steel rod secured with double nuts. Pull boxes larger than 18" x 18" x 8" shall be supported from power strut and threaded steel rod suspension. Provide seismic bracing where required by local authority.

- B. All items of electrical equipment, such as enclosures, panels, troughs, pull boxes, etc., shall be securely anchored to the building structure. The anchoring shall be accomplished by utilizing a minimum size of 3/8" steel anchor bolts in the structure and to the item of equipment. A minimum of two (2) anchor bolts shall be provided on each side of each item of equipment with the following exceptions:

Exception No. 1: If the equipment manufacturer includes more than two (2) anchor holes per side in the base or base frame of the equipment item, then there shall be one anchor for each anchor hole.

Exception No. 2: If the equipment manufacturer recommends a particular quantity greater than two (2) per side, then that quantity of anchors shall be provided.

### 3.04 CONDUIT

- A. Rigid galvanized conduit or intermediate metal conduit shall be used for service entrance and all feeders and branch circuits where exposed to damage or moist conditions.
- B. EMT shall be used for feeders, branch circuits, fire alarm and telephone when not underground or in concrete in contact with the earth. Raceway underground or in concrete in contact with the earth shall be rigid galvanized conduit, intermediate metal conduit or Schedule 40 PVC. Conduit exiting elevated slabs or slab on grade shall be IMC. PVC conduit exiting slab is not permitted.
- C. Conduit shall be continuous from outlet to outlet, from outlet to cabinet, junction box and pull box. Conduit shall enter and be secured to all boxes, etc., in such a manner that each system will be electrically continuous from service to all outlets. All conduit from cabinets and junction boxes shall terminate in approved outlet box or conduit fittings. Conduit connections to any box which has no threaded hub shall be double locknuted and bushing installed.
- D. Provide junction boxes or pull boxes where shown and where necessary to avoid excessively long runs or too many bends between outlets. The conduit sizes shown may be increased if desired to facilitate the pulling of cables.
- E. All conduit shall be concealed unless indicated otherwise. Install exposed conduit parallel with or at right angles to the building walls and support from walls or ceilings at intervals required by Code with approved galvanized malleable iron or stamped steel clamps or hangers. Concealed conduit above the ceiling shall be supported independent of ceiling construction. Where ceilings of lay-in type are used, conduit must be installed minimum six (6) inches above ceiling structure to permit removal of ceiling panels and lighting fixtures.
- F. Use threaded rods and hangers consisting of double-nutted threaded rods and channel or angles of 12 gauge minimum steel for supporting multiple conduit. Refer to drawing details.
- G. Minimum size conduit for exposed branch circuits shall not be smaller than 1/2". Raceway installed in concrete slabs shall be minimum 3/4". Home runs shall extend from outlets shown to panel designated. Home runs shown shall not be combined. Home run conduit shall not be smaller than 3/4".

- H. Type GRC and IMC conduit shall be cut and threaded with similar die heads. Deburr outside of all cuts prior to cutting threads. Cut threads one thread short so that they meet in the coupling and all threads are covered when wrench tight. Deburr inside of end after cutting threads. Right and left hand couplings shall not be used; conduit couplings of the Erikson Type shall be used at locations requiring such joints. Utilize only rigid type hand benders, "Chicago" type benders or power benders with required IMC shoes. DO NOT attempt to bend IMC with "hickey" type hand benders. Any such bends will be replaced at no additional costs to the Owner. Utilize only U.L. Listed conduit fittings, elbows and junction boxes (IMC or GRC types).
- I. All conduit for future use and for special systems such as telephone, data or TV wire shall be left with No. 16 gauge wire or approved pull cord pulled in them.
- J. Expansion fittings shall be installed in all conduit penetrations through, around or in expansion joints, and all straight runs in excess of 150 feet. Watertight flexible metallic conduit, connectors and couplings may be utilized for exposed transitions. U.L. 467 & 514 Listed fittings are required in slab.
- K. Provide non-hardening elastic type duct seal compound, Neer No. DC, 3M Co. "Scotchfil," or Gardner Bender duct seal, for each conduit entering the building from outside, for each conduit entering refrigerated spaces, for each conduit entering exterior equipment and for each conduit passing from one space into another which is normally at a lower temperature. Conduits entering refrigerated spaces shall be IMC.
- L. Provide intermediate metal conduit and watertight conduit hubs on conduit terminating in a box or cabinet exposed to the weather or damp locations.
- M. Space in sleeves or around conduit that pass through fire resistive or fire rated walls, partitions, floors or ceilings shall be closed by packing with an U.L. labeled fire resistive material, or provide mechanical fire stop fittings that will maintain the rating of the barrier penetrated. Conform with local authority requirements and UL Building Materials Directory.
- N. Coordinate the conduit routing and installation location with the actual electrical equipment furnished. Review submittals for termination locations. Coordinate with all Specification Divisions and submittals to determine termination and access locations. Coordinate installation sequence with all other trades to avoid conflicts and provide the fastest overall installation schedule.
- O. Dented, misformed or flattened conduits are not permitted and shall be removed and replaced.
- P. Protect conduits against dirt, plaster, and construction debris with the use of conduit plugs. Tape is not acceptable. Plugs shall remain in place until all masonry or/and drywall construction is complete. Protect conduit stubups during construction from damage, and replace any bent conduits.
- Q. Conduits serving roof mounted equipment shall pass through roof curb where such is provided. Roof penetrations outside this equipment will not be permitted.
- R. Separate raceway systems shall be provided for power systems and for control, signal and communications systems. Do not install above systems cables in the same raceway as branch circuit or feeder cables.

- S. Service entrance and fire pump feeders shall be installed "Outside" of the building as defined by NFPA and the N.E.C. Provide concrete encasement where required to conform with Code requirements.
- T. All conduits installed exposed shall be IMC to a minimum elevation of ten (10) feet AFF. Exposed boxes shall be type FS cast metal.
- U. Where hazardous locations, as classified by the National Electrical Code, exist, all raceway and fittings and the installation of these materials shall comply with Article 500 requirements.
- V. All conduits for interior wiring systems operating above 600 volts shall be galvanized rigid conduit, painted red at access points and labeled per OSHA requirements..
- W. Maintain minimum three (3) inch clearance when raceway crosses piping and/or systems operating above 75 F and provide twelve (12) inches separation when installed parallel to hot piping, flues or appliances operating above 75 F.
- X. Nonmetallic fittings shall be applied with compatible solvent welding cement and shall be fitted while solvent is liquid. Overwrap all fittings used in concrete encasement with suitable tape. Provide o-rings at terminal points to provide watertight seal.

### 3.05 FLEXIBLE CONDUIT

- A. Watertight flexible metallic conduit shall be used in making short flexible connections to all motors, transformers, bus duct switches, kitchen equipment and rotating or vibrating machinery or equipment. The flexible conduit at these locations shall be as short as possible, but shall have a minimum length of 12". Flexible metallic conduit shall be used in making connections to heaters, fixed equipment or flush mounted light fixtures.
- B. A green stranded bonding jumper shall be installed inside of all flexible conduit that extends directly from a non-flex conduit to a rotating or vibrating machine. Where a junction box is used, the green stranded bonding jumper shall be installed inside the flexible conduit and attached to the junction box and to the machine

### 3.06 CONDUIT PROTECTION

- A. All threaded joints in galvanized rigid conduit that is encased in concrete shall have a U.L. listed joint compound applied. All conduit installed outside the building underground shall be buried a minimum of 30" below finished grade but in no case shall be buried deeper than 48". Where conduit inside building is installed below the floor slab, the vapor barrier shall be run below the conduit concrete encasement. Conduit installed in any slab, where permitted above, shall be above the bottom steel and below the top steel. No conduit shall be spaced less than 3" apart. Submit conduit layout to structural consultant for review and approval prior to rough-in.
- B. Conduit shall be secured in place and protected where necessary to prevent damage to work during construction. The ends of all conduit shall be plugged with suitable caps (not tape) to avoid filling with any foreign matter. All conduit shall be blown out and swabbed clear of water and trash prior to pulling wire.



- C. Provide identifying marker tape the entire length of each conduit installed in the ground outside the building. The tape shall be constructed of inert polyethylene, resistant to acids, alkalis, etc., in the soil, and shall be a minimum 4 mil thickness. The tape shall be yellow, 6" wide, and shall have the words, "CAUTION - ELECTRIC LINE BURIED BELOW," imprinted with contrasting permanent ink. The imprint shall repeat itself for the entire length of the tape. The tape shall be buried at a maximum of 18" below finished grade, above a portion of the earth fill. Identify all underground and underslab conduit locations on as-built drawings for future reference.
- D. Damaged, oxidized, warped or improperly stored raceway will be removed from the jobsite and replaced with new materials. Non-metallic conduit stored on site prior to installation shall be stored on a flat surface off the ground and shall be protected from direct sunlight and debris.

### 3.07 CORING, CUTTING AND PATCHING

- A. Perform all coring, cutting and patching of existing walls and floors in order to install the work. Set sleeves for conduit accurately before the concrete floors are poured, or set boxes on the forms so as to leave openings in the floors in which the required sleeves can be subsequently located. Fill in the voids around the sleeves with concrete.
- B. Should the performance of this preliminary work be neglected and should cutting be required in order to install conduit, then the expense of the cutting and restoring of surfaces to their original conditions shall be accomplished without incurring additions to the Contract.

### 3.08 BELOW GRADE RACEWAY INSTALLATION

- A. Provide and perform all excavation required to install conduit, ductbanks and manholes indicated on the drawings and/or specified. Trenches shall be of uniform width required with minimum 8" clearance on both sides. Remove and dispose of all materials not to be used for backfill. Maintain dry excavations for electrical work, by removing water. Grade areas to prevent surface water from entering excavation. Remove any accumulated water by pumping. Perform all excavation by open cut. Excavate with vertical-sided excavations where possible. Where necessary, provide sheeting and cross-bracing to sustain sides of excavations. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition. Establish requirements for trench shoring and bracing to comply with local codes and LAHJ. No tunneling shall be permitted.
- B. The bottom of all trenches and excavation shall be graded to provide uniform bearing surface for conduits or ductbanks on undisturbed soil at every point along entire length. Tamp overexcavation with specified backfill materials. Remove unstable materials unsuitable for supporting equipment or installation and replace with specified materials for a minimum of twelve (12) inches below invert of equipment or installation.
- C. Specified materials shall be utilized for backfilling, in not more than six (6) inch layers and tamped until the installation has cover of not less than the adjacent grade and not more than two (2) inches above same. Remove sheeting and cross-bracing during backfilling wherever such removal would not endanger the work or other property. Equalize backfilling operation to avoid shifting of materials and equipment installed. Compaction of backfill materials shall be at least equal to surrounding undisturbed material. Backfill trenches with concrete where excavations pass within 18" of footings or other utility lines. Do not settle backfill with water. Conform to compaction requirements and methods specified elsewhere.

- D. Concrete encased underground ductbanks shall be installed where indicated on the drawings. Ductbank conduits shall be non-metallic type EB, thin wall PVC with concrete encasement.
1. Stagger couplings of adjacent conduit runs by a minimum of two (2) feet. Provide pre-fabricated conduit supports installed per manufacturer's recommendation. Anchor ductbank assembly in trench to avoid "floating" during concrete pour.
  2. Changes in direction shall be made by the installation of long sweep bends of minimum twenty-five (25) foot radius. All 90 degree ells shall be long sweep type of minimum twenty-four (24) inch radius.
  3. Below all paving and traffic areas, all ductbank shall be reinforced with the installation of No. 5 rebar six (6) inches on center at each corner and on all sides, parallel to duct, and with continuous No. 3 rebar perpendicular to duct on sixteen (16) inch centers. Concrete cover for reinforced ductbanks shall be minimum six (6) inches with at least three (3) inches above rebar. Reinforcing of duct bank shall continue at least ten (10) feet to each side of required areas.
  4. All ductbanks shall be sloped to drain toward manholes and shall be laid with minimum grade of four (4) inches per hundred feet.

END OF SECTION

SECTION 26 27 00

LOW-VOLTAGE DISTRIBUTION EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. All work specified in this Section shall comply with the provisions of Section 26 05 10.
- B. This section covers describes the Electrical service entrance requirements to the building from the power company transformer.
- C. Electric service shall be obtained from the local Electrical Utility Company having jurisdiction.
- D. Transformers pads, barriers, clearances and primary service shall be provided and installed as directed by the Electric Utility Company rules, regulations and installation guide.
- E. Electric service shall be 120/240 Volts,3 Phase, 4 Wire, Delta connected, Ampacity as indicated on the plans.
- F. Electrical Contractor shall make all arrangements with the Electric Utility that are necessary to obtain electrical service, both temporary and permanent.
- G. Metering and current transformers shall be provided and installed as directed by the Electric Utility Company. This contractor shall make all provisions necessary for the installation of the Electric Utility metering equipment in accordance with utility company.
- H. Electrical Contractor shall make all arrangements for temporary electrical service to the site during the construction phase, and maintain electric service to existing facilities as required.

PART 2 - PRODUCTS

2.01 SERVICE ENTRANCE CABLES:

- A. Install service entrance cables as shown on drawings and as specified herein.
- B. All materials and methods of construction for service provisions shall comply with the Electric Utility Company requirements.
- C. Provide 4" PVC primary conduit from the utility demarcation point to the primary side of the power company transformer. Coordinate routing with the power company representative.

PART 3 - DISTRIBUTION

3.01 INSTALLATION:

- A. Obtain all necessary standards and detail drawings from the Electric Utility Company before building construction or excavation adjacent to service equipment is started.
- B. Coordinate service and connections with the Electric Utility.

- C. Make arrangements with the Owner and the Electric Utility Company to install, terminate, relocate, or transfer primary electric service without disruption of the normal operation of the Owner's business, or any other electric services (eg. adjacent tenants...etc.) as required. Installation cost of the electric service should included provision for the work of both the electrical contractor and utility company (if so required) for non normal work hours (eg. nighttime or weekend...etc.).

END OF SECTION

## SECTION 26 32 13

## ENGINE GENERATORS

## PART 1 - GENERAL

## 1.01 DESCRIPTION:

- A. All work specified in this Section shall comply with the provisions of Section 26 05 10.
- B. This section covers the Emergency Power System which shall consist of one engine-driven generator set which contains an engine directly coupled to an electric generator, together with the necessary controls, accessories, critical silencer, skid mounted tank, engine jacket heater, battery charger, remote alarm panel, weatherproof housing, transfer devices, and fuel supply to provide electric power in the event of a failure of the normal power supply.

## 1.02 QUALITY ASSURANCE:

- A. The following specifications and standards are incorporated into and become a part of this specification by reference. Except where a specific date is given, the issue in effect (including amendments, addenda, revisions, supplements, and errata on the date of invitation for bids, shall apply. In text, such specifications and standards are referenced by basic designation only.

1. National Fire Protection Association (NFPA):  
NFPA-110 - Emergency and Stand-By Power Systems.
2. Electrical Generating Systems Association: (ESGA) Standards:  
EGS A CEP2 - Codes for Emergency Power by States and Major Cities  
EGS A GTD3 - Glossary of Standard Industry Terminology and Definition.  
EGS A ECB1 - Performance Standard for Engine Cranking Batteries  
EGS A TSS1 - Performance Standard for Transfer Switches for use with Engine Generator Sets  
EGS A BCES1 - Performance Standard for Battery Chargers  
EGS A ICAE - Performance Standard for Electric Generator Set Instrument Control and Auxiliary Equipment.
3. Institute of Electrical and Electronics Engineers (IEEE) Standards:  
IEEE 446 - IEEE Recommended practices for Emergency and Standby Power Systems  
IEEE 472 - Voltage Surge Withstand Capabilities
4. National Electric Manufacturers Association (NEMA) Standards:  
MG-1 - Motors and Generators  
ICSI-109 - Test and Test Procedures for Automatic transfer Switches  
ICS2-447 - A.C. Automatic Transfer Switch
5. Underwriters Laboratories Inc. (U.I.) Publications:  
UL 1008 - Automatic Transfer Switches
6. American National Standards Institute (A.N.S.I.):  
C37.90a - Voltage Surge Withstand Capability
7. UL2200 – Stationary Engine Generators

## 1.03 SUBMITTALS:

- A. Refer to Section 26 05 10 submittal requirements.

- B. Manufacturer's Product Data: Submit material specifications and installation data for products specified under Section 2 - Products to include:
1. Product data for the engine driven generator sets shall contain not less than the information listed as follows:
    - a. Certification that the engine driven generator set(s) furnished will serve electrical loads indicated including motor starting loads with type (s) of starting indicated.
    - b. Continuous and stand-by rating of engine driven generator set(s) including voltage and phase.
    - c. Frequency and voltage regulation with maximum instantaneous voltage dip and time of recovery to stable operation.
    - d. Output voltage adjustment range in percentage of rated plant voltage.
    - e. Alternator type and method of connection to prime mover.
    - f. Components contained in engine instrument panel.
    - g. Rating of engine at operating speed, engine cycle and number of cylinders.
    - h. Type of engine lubrication system and verification of components specified.
    - i. Type of engine governor.
    - j. Components contained in engine instrument panel.
    - k. Fuel consumption at rated load.
    - l. Starting batteries including ampere hour rating.
    - m. Verification that all accessories specified is to be provided. This includes cold weather starting aid with rating and voltage indicated, exhaust system with muffler type indicated.
  - C. Shop Drawings: Submit shop drawings to indicate information not fully described by the product data to indicate compliance with the contract drawings. Include layout of all equipment.
  - D. Submittals shall include the nearest location of permanent parts outlet from which parts may be obtained and written assurance that trained service personnel will be available on 24 hours' notice.
  - E. Operation and Maintenance Data: Include in each operation and maintenance manual, one set of operating, maintenance and parts manuals covering all components for the EGS. Provide instructions to the owner in operation and maintenance of his equipment, both in written form and with on-site personnel including a factory technician from the paralleling switchboard manufacturer.

## PART 2 - PRODUCTS

### 2.01 ENGINE GENERATOR SET

- A. General: This system shall include one engine generator set and as represented in the published specifications for that model. Each set shall be rated for KW **and voltage** as indicated on the plans at 120/240, 3-phase, 4 wire. 8 PF, 60 Hz, 3 phase, 4 wire, Each engine generator set shall be mounted on a heavy duty steel base to maintain proper alignment between components, and each set shall incorporate vibration isolators of the type and quantity as specified by the set manufacturer.

B. Engine: Engine shall be stationary, liquid cooled, compression ignited for diesel operation. Engine shall be capable of driving the generator of this rating on a continuous standby basis for the duration of normal source interruptions per SAE J1349 conditions. The electrical contractor shall be responsible for field coordinating the provision and installation of gas pipe size, length, pressure requirements and point of termination.

C. Engine components shall include the following:

1. A 24 volt DC, solenoid shift, electric starter(s) as required by manufacturer.
2. Positive displacement, mechanical full pressures lubrication oil pump, full flow lubrication oil filter with replaceable element, pressure relief valve, dipstick oil level indicator.
3. Dry element air cleaner with replaceable element.
4. Engine speed isochronous governing system to control generator frequency +/- 0.25% of rated frequency under steady state load conditions, and capable of parallel operation with load sharing controls when required. Where electronic governing systems are factory installed as standard equipment, and without additional cost, the mechanical governing system shall not be required.
5. Engine mounted thermostatically controlled water jacket heater to aid in quick starting. Heater shall be rated as recommended by engine manufacturer and be disconnected whenever the engine starts. Contractor shall provide proper circuit from normal utility power source.
6. Engine protection devices shall have sensing elements located on the engine to initiate the following alarms and engine shutdowns:
  - a. Low lubrication oil pressure shutdown with indicator
  - b. High coolant temperature shutdown with indicator
  - c. Overspeed shutdown with indicator
  - d. Overcrank lockout with indicator
7. Provide low coolant shutdown, which shall activate high engine temperature lamp and shutdown.
8. Engine starter battery charging alternator, with solid state voltage regulator.

D. Engine Cooling System:

1. Engine shall be radiator cooled by engine mounted radiator system including belt driven pusher fan, coolant pump, and thermostat temperature control. Performance of components shall be as required by the manufacturer.
2. The generator equipment supplier shall provide and install 50% ethylene glycol antifreeze solution to fill engine cooling system at start-up.

E. Engine Exhaust System:

1. Exhaust muffler shall be provided for each engine of size(s) as recommended by manufacturer. Muffler shall be of the critical type, mounted on top of weather protective housing with tail pipe and rain cap.
2. Flexible exhaust connection shall be provided as required for connection between engine exhaust manifold and exhaust line, in compliance with applicable codes and regulations.
3. All exhaust system components shall be properly sized to assure proper operation without excessive back pressure when installed. Make provisions as required for pipe expansion and contraction.

## F. Generator:

1. Generator shall be single bearing, self aligning, four pole, synchronous type, revolving field, with amortisseur windings, with direct drive centrifugal blower for proper cooling and minimum noise, with temperature compensated solid state voltage regulator, with brushless rotating rectifier exciter system. No brushes will be allowed. Generator shall be directly connected to engine flywheel housing and driven through a flexible coupling to insure permanent alignment. Insulation shall meet NEMA standards for Class **H** type. The maximum temperature rise shall not exceed 130 degrees C at 40 degree C ambient. Generator design shall prevent potentially damaging shaft currents.
2. The three phase, broad range, re-connectable generator shall have 12 leads brought out to allow connection by user to obtain any of the available voltages for the unit.
3. Voltage regulator shall be solid state design and shall function by controlling the exciter magnetic field between stator and rotor to provide no load to full load regulation of rated voltage within +/- 2% during steady state conditions. The engine generator set and regulator must sustain at least 90% of no load voltage for ten (10) seconds with 250% of rated load at near zero power factor connected to its terminals. A rheostat shall provide a minimum of + 5% voltage adjustment from rated value.
4. The generator, exciter, and voltage regulator shall be designed and manufactured by the engine generator set manufacturer so that the characteristics shall be matched to the torque curve of the prime mover. This design allows the prime mover to use its fullest power producing capacity (without exceeding it or over compensating) at speeds lower than rated, to provide the fastest possible system recovery from transient speed dips.
5. PMG (permanent magnet) exciter shall be three phase, full wave, rectified, with heavy duty silicon diodes mounted on the common rotor shaft and sized for maximum motor starting loads. **Self or shunt excited alternators are not acceptable.**
6. Generator design shall be of the self protecting type, as demonstrated by the prototype short circuit test as described under "Testing" herein. All other generator performance criteria shall be equal to that of the specified equipment.

## H. Engine-Generator Set Controls:

1. Provide a lighted, unit mounted control module that is factory built, wired, tested, and mounted by the generator manufacturer.
2. Engine generator set control shall include the following:
  - a. Gauges and meters: oil pressure gauge, coolant temperature gauge, charge rate voltmeter and running time meter.
  - b. Manual selector switch: RUN OFF/RESET-AUTO
3. Remote, two wire controls start up terminals.
4. Manual reset safeguard breaker.
5. Automatic engine shut down for the following fault conditions:
  - a. Over-crank
  - b. Over-speed
  - c. Low oil pressure
  - d. High engine temperature



6. Indicator lamps shall be provided to signal the following functions:
  - a. SYSTEM READY indicates system is in "AUTO" mode
  - b. PRE LOW OIL PRESSURE indicates oil pressure is marginally low
  - c. PRE HIGH ENGINE TEMPERATURE indicates engine temperature is marginally high
  - d. LOW OIL PRESSURE indicates engine has shutdown because of critically low oil pressure
  - e. HIGH ENGINE TEMPERATURE indicates engine has shut down because of critically high temperature
  - f. OVERSPEED indicates engine has shut down because of excessive r/min
  - g. OVERCRANK indicates the starter has been locked out because cranking time was excessive
  - h. LOW ENGINE TEMPERATURE indicates engine temperature is marginally low for starting
  - i. LOW FUEL indicates fuel supply is sufficient for only 2.5 hours run time at full load, on secondary tank.
  - j. GENERATOR NOT IN AUTO indicates control switch is not in the "AUTOMATIC" position.
  - k. Provide two additional fault condition lamps to be designated later.
7. A fault reset switch shall be provided to clear fault indications and allow restarting of the engine after shut down faults. The control design shall be such that the fault indication shall remain until reset. The fault indicator memory shall not be dependent on the presence of either A C or D C voltage and shall retain the fault status memory even through complete removal and replacement of the starting batteries. The fault reset function shall operate only when the RUN STOP REMOTE switch is in the STOP position.
8. A locking screwdriver type potentiometer shall be provided to adjust the voltage + 5% from rated value.
9. Manual reset exciter field circuit breaker.
10. A locking screwdriver type potentiometer (electronic governor) shall be provided to adjust the speed + 2% from rated value.
11. AC voltmeter, 90 degree scale, 2 1/2" (61.25mm) flange, 2% switchboard meter.
12. AC ammeter, 90 degree scale, 2 1/2" (61.25mm) flange, 2% switchboard meter.
13. Frequency meter 45 65 Hz., 90 degree scale, 2 1/2" (61.25mm) flange, +0.6 Hz panel meter.
14. Four position AC meters phase selector switch to read line current and voltage in each phase with off position.

I. Auxiliary Equipment:

1. Starting Battery: One (1) battery system, consisting of lead calcium batteries, shall be supplied for each engine and shall be mounted in a battery rack within the engine generator set skid-base.
2. Battery Charger: A voltage regulated battery charger shall be provided for each engine generator set. Chargers shall be equipped with float, taper, and equalize charge setting. The charger power shall be supplied from the normal source; contractor shall provide circuits as required.
3. Vibration Isolators: Each engine generator set shall be mounted on vibration isolators either internal or external to the set skid base.

4. A 240 VAC heater with thermostat shall be provided within the engine generator set control panel to eliminate condensation.
  - a. Electrical contractor shall provide necessary circuits from normal utility source as required for both the heater and battery charger.
5. Remote Alarm Annunciator: Provide remote alarm annunciator for engine generator set with light indicators as follows:
  - a. Generator fault - Electrical contractor shall provide control circuits to the remote alarm annunciator as shown on the plans.
6. A weather protective housing with access panels and ventilation openings.
7. Skid mounted fuel tank, 2500 gallons with initial fill and re-filled after testing. Tank to be UL142 and meet all local fire department requirements.
8. Provide generator output breaker(s) as shown on the drawings.

#### 2.02 AUTOMATIC TRANSFER SWITCHES

- A. Furnish and install automatic transfer switch in accordance with specification section 26 36 00 "Automatic Transfer Switches".

#### 2.03 ACCEPTABLE MANUFACTURERS

- A. Products of the following manufacturers, which comply with these specifications, are acceptable:
  1. Engine driven generator sets: Kohler, Caterpillar, **Cummins/Onan**, or Detroit Diesel

### PART 3 - EXECUTION

#### 3.01 GENERAL INSTALLATION

- A. Installation: Emergency generator and all components shall be installed, including all connections, at locations and as indicated on drawings, and in accordance with approved shop drawings, manufacturer's instructions, and manufacturer's standard specification and dimension sheets.
- B. Instruction, Drawings, Parts and Operation Information: Two copies of complete instructions shall be in booklet form and shall consist of operating and maintenance of the equipment and major components supplied.
- C. Owner Orientation: A representative of the supplier shall meet with representative of the owner at the time of final acceptance tests, shall review the operation and parts books, correct starting and control methods, and recommend preventive maintenance procedure.

#### 3.02 SPECIAL TESTING:

- A. The assembled engine-generator set is to be tested at the Engine manufacturer's location to ensure proper operation of the individual components, subassemblies, and the complete assembly. The test shall be run under the same conditions that will exist at the site, i.e. physical constraints such as louvers, grates, etc. and environment. All electrical and mechanical defects shall be remedied during testing.

1. The following procedure shall be used:
  - a. Confirm all variable settings to engine-generator switchgear specifications.
  - b. Start unit and run at no load for five minutes, making an audible and visual check for abnormal noises, vibration, water and oil leaks.
  - c. Increase to 50% load for a minimum of thirty minutes. Record test data at end of run, at steady state.
  - d. Increase to 100% load for a minimum of thirty minutes. Record test data at end of run, at steady state.
  - e. Drain all water and oil.
  - f. Apply nucle oil or equivalent preservative to intake manifolds and oil pan sufficient for one year's engine protection.
  - g. Required test data:
    - 1) Time and reading
    - 2) Ambient air temperature
    - 3) rpm
    - 4) KW
    - 5) AC voltage, phase-to-phase
    - 6) AC amperes
    - 7) Frequency
    - 8) Exciter field voltage
    - 9) Exciter field amperes
    - 10) Jacket water temperature from engine
    - 11) Lubrication oil pressure to engine
    - 12) Lubrication oil temperature from engine
    - 13) Intake manifold pressure/vacuum
    - 14) Crankcase pressure
  - h. All safety shutdown points shall be set, tested, and recorded. Recorded charts shall be made of voltage and frequency for all load change.
2. Testing
  - a. An installation check, start-up, and load test shall be performed by the engine manufacturer's local representative at a time agreed upon by site engineer, operators, and maintenance staff. This representative must have received factory training within the previous two years. Resistive load banks shall be provided. Test shall be minimum four hours at full load.
  - b. The test shall consist of the engine manufacturer's standard procedures. All associated auxiliary systems shall be tested for proper connections and interaction with the engine-generator set.
- 3.03 TRAINING: The engine manufacturer's representative shall provide on-site training to Owner. Training shall include maintenance, parts ordering, safety, automatic operation, manual operation, engine safeties, protective relaying, complete system operation, troubleshooting, and a complete review of operation and service manuals.

END OF SECTION

## SECTION 26 36 23

## AUTOMATIC TRANSFER SWITCHES

## PART 1 - GENERAL

## 1.01 DESCRIPTION:

- A. All work specified in this Section shall comply with the provisions of Section 26 05 10.
- B. This section covers the automatic transfer switch for the emergency power system. Refer to the following sections for related work:
  - 1. 26 32 13 Engine Generators

## 1.02 QUALITY ASSURANCE:

- A. The following specifications and standards are incorporated into and become a part of this specification by reference. Except where a specific date is given, the issue in effect (including amendments, addenda, revisions, supplements, and errata on the date of invitation for bids, shall apply. In text, such specifications and standards are referenced by basic designation only.
  - 1. National Fire Protection Association (NFPA):  
NFPA-110 - Emergency and Stand-By Power Systems.
  - 2. Electrical Generating Systems Association: (ESGA) Standards:  
EGS A CEP2 - Codes for Emergency Power by States and Major Cities  
EGS A GTD3 - Glossary of Standard Industry Terminology and Definition.  
EGS A ECB1 - Performance Standard for Engine Cranking Batteries  
EGS A TSS1 - Performance Standard for Transfer Switches for use with Engine Generator Sets  
EGS A BCES1 - Performance Standard for Battery Chargers  
EGS A ICAE - Performance Standard for Electric Generator Set Instrument Control and Auxiliary Equipment.
  - 3. Institute of Electrical and Electronics Engineers (IEEE) Standards:  
IEEE 446 - IEEE Recommended practices for Emergency and Standby Power Systems  
IEEE 472 - Voltage Surge Withstand Capabilities
  - 4. National Electric Manufacturers Association (NEMA) Standards:  
MG-1 - Motors and Generators  
ICSI-109 - Test and Test Procedures for Automatic transfer Switches  
ICS2-447 - A.C. Automatic Transfer Switch
  - 5. Underwriters Laboratories Inc. (U.I.) Publications:  
UL 1008 - Automatic Transfer Switches
  - 6. American National Standards Institute (A.N.S.I.):  
C37.90a - Voltage Surge Withstand Capability
  - 7. UL2200 – Stationary Engine Generators

## 1.03 SUBMITTALS:

- A. Refer to Section 26 05 10 submittal requirements.

- B. Manufacturer's Product Data: Submit material specifications and installation data for products specified under Part 2 - Products to include:
  - 1. Product data for the transfer switch shall contain not less than the information listed as follows:
    - a. List of accessories contained in the control panel.
    - b. Withstand rating in RMS symmetrical amperes.
- C. Shop Drawings: Submit shop drawings to indicate information not fully described by the product data to indicate compliance with the contract drawings. Include layout of all equipment.
- D. Submittals shall include the nearest location of permanent parts outlet from which parts may be obtained and written assurance that trained service personnel will be available on 24 hours' notice.
- E. Operation and Maintenance Data: Include in each operation and maintenance manual, one set of operating, maintenance and parts manuals covering all components for the transfer switch. Provide instructions to the owner in operation and maintenance of his equipment, both in written form and with on-site personnel including a factory technician from the paralleling switchboard manufacturer.

## PART 2 - PRODUCTS

### 2.01 AUTOMATIC TRANSFER SWITCHES:

- A. Furnish and install automatic transfer switches with number of poles, ampere rating, voltage and withstand ratings as shown in plans. This system shall be the product of one manufacturer. The system shall be listed to the latest requirements of Underwriters' Laboratories Standard UL-1008 and rated for Total System Load.
- B. Electrical operation shall be accomplished by a momentarily energized single solenoid operating mechanism which receives power from the source to which the load is being transferred. Fuse or thermal protection of the main operator is prohibited. The operating transfer time shall be one-sixth of a second or less. Mechanical locking in each position shall be accomplished without the aid of permanent magnets, latching solenoid, or motor operators.
- C. Operation shall be inherently double-throw whereby all contacts move simultaneously and with no programmed delay in a neutral position. Electrical spacing's shall be equal to or exceed those listed in table 15.1 of UL-1008. Only those main contact structures specifically manufactured for transfer switch service shall be acceptable. An overload or short circuit shall not cause the switch to go to a neutral position.
- D. Inspection of all contacts (movable and stationary) shall be possible from the front of the switch without disassembly of operating linkages and without disconnection of power conductors. A manual operating handle shall be provided for maintenance purposes. The maintenance handle shall permit the operator to stop the contacts at any point throughout the entire travel to properly inspect and service the contacts when required.
- E. The transfer switch shall have fully rated neutral transfer contacts which momentarily interconnect the neutrals of the sources and load for 100 milliseconds maximum, during the transfer/ retransfer operation. The neutrals shall remain so interconnected until the line contacts close on the alternate source. Line and neutral contacts shall be driven by a single main operator.

- F. The automatic transfer switch shall include a separately mounted control panel with adjustable solid state sensing and timing functions. The following operational characteristics shall be provided:
1. Time delay on momentary dips in normal source (0.5-6.0 seconds) factory set at 1.0 second.
  2. Time delay on transfer to emergency for controlled loading of generator (0-5 minutes), factory set at 0 minutes or as shown on plans.
  3. Time delay on retransfer to normal (0-30 minutes), factory set at 0 minutes.
  4. Toggle switch to manually bypass time delay on retransfer.
  5. Time delay on engine shutdown after retransfer to normal (0-5 minutes), factory set at 5 minutes.
  6. Close differential voltage sensing of all normal source phases (pickup 85-100% of nominal and dropout 75-98%), factory set at 85% dropout and 95% pickup of nominal.
  7. Independent single phase voltage (85-100%) and frequency (90-100% pickup) sensing of the emergency source to prevent premature transfer, factory set at 90% voltage and 95% frequency of nominal.
  8. Test switch (momentary type). To simulate failure of normal source.
  9. Gold plated 10 amp contact which closes to initiate engine starting.
  10. Pilot lights to indicate switch positions.
  11. Auxiliary contacts (1 closed on "Normal" and 1 closed on "Emergency") rated 10 amps, 480 VAC.
  12. An in-phase monitor shall be provided. The monitor shall control transfer/retransfer operation between live sources so that closure on the alternate source will occur only when the two sources are approaching synchronism and the two sources are within 15 electrical degrees maximum so that inrush currents do not exceed normal starting currents. The monitor shall function over a frequency difference range of up to +2.0 Hz. with a maximum operating transfer time of one-sixth of a second. If the voltage of the load-carrying source falls below 70%, the in-phase function shall be automatically bypassed. The monitor shall not require inter-wiring with the generator controls, or active control of the governor.
  13. All time delay and sensing functions shall be adjustable over the ranges indicated and operated with minimum drift (not to exceed 3%) over -20 degrees C. to +70 degrees C. The control panel shall be provided with a protective cover. The control panel shall not draw more than 15 volt-amperes continuously under normal operating conditions.
- G. The switch must comply with UL-1008 and NEMA Std. Pub. ICS2-447. In addition, the switch must meet or exceed the following requirements and if so requested, be verified by certified laboratory test report:
1. Temperature Rise: Measurements shall be made after the overload and the endurance tests.
  2. Withstand: UL listed to withstand the magnitude of fault current available at the switch terminals when coordinated with respective protective devices as shown on the plans at an X/R ratio or 6.6 or less. The main contacts of the transfer switch shall not trip open or weld when subjected to fault currents.
  3. Dielectric: Test, following the withstand current rating test, at 1960 VAC rms minimum.
  4. Transient Withstandability: Control panel voltage surge withstand capability test per IEEE Std. 472-1974 and voltage impulse withstand test per NEMA Std. Pub. ICS-1-109.

2.02 ACCEPTABLE MANUFACTURERS:

- A. Products of the following manufacturers, which comply with these specifications, are acceptable:
  - 1. Transfer Switches: ASCO, RussElectric, Zenith or by generator manufacturer.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION:

- A. Installation: Transfer switches and all components shall be installed, including all connections, at locations and as indicated on drawings, and in accordance with approved shop drawings, manufacturer's instructions, and manufacturer's standard specification and dimension sheets.
- B. Instruction, Drawings, Parts and Operation Information: Two copies of complete instructions shall be in booklet form and shall consist of operating and maintenance of the equipment and major components supplied.

END OF SECTION

## SECTION 31 23 12 EXCAVATION, FILLING AND GRADING

## PART 1 GENERAL.

- 1.01 SECTION INCLUDES: The extent of excavation, filling and grading is shown on the Drawings. Preparation of subgrade for Emergency Generator slab, walks, and pavements is included as part of this Work. Backfilling of trenches is included as part of this Work.
- 1.02 RELATED SECTIONS: Section 01 45 29 – Testing Laboratory Services.
- 1.03 QUALITY ASSURANCE:
- A. Perform excavation Work in compliance with applicable requirements of governing authorities having jurisdiction.
  - B. Compaction density shall be 95 percent of the maximum dry density value as determined by ASTM D 698 (Standard Proctor Test) of AASHTO T-99.
  - C. Soils compaction control tests shall be performed as specified herein and under Section 01455 - Testing Laboratory Services. Stability is defined as absence of significant yielding or pumping of soils under compaction effort.
  - D. Number of Tests: Make test(s) in accordance with AASHTO T-99 for each class of material. Make in-place density tests in accordance with AASHTO T-238 (Nuclear Method) for density tests, as the fill and backfill work progresses. At least one test per lift of any isolated portions and each footing.
  - E. Work on Non-Tested Areas: Placing permanent construction over fill that has not been tested and approved may require removal of permanent Work, re-compacting the fill and replacing the Work at no additional cost to the Owner.
- 1.04 EXISTING UTILITIES
- A. Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the Utility Owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
  - B. Do not interrupt existing utilities serving facilities occupied and used by Owner or others except when permitted in writing by Project Engineer and then only after acceptable temporary utility services have been provided. Demolish and completely remove from site existing underground utilities indicated "To Be Removed". Coordinate with utility companies for shut off of services if lines are active.
- 1.05 PROTECTION OF PERSONS AND PROPERTY: Barricade open excavations occurring as part of this Work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- 1.06 USE OF EXPLOSIVES: The use of explosives is not permitted.



## PART 2 PRODUCTS

- 2.01 BACKFILL AND FILL: Select fill shall be an approved select material free from trash, debris, stones larger than 3 inches, roots and other organic matter.
- 2.02 GRANULAR FILL
- A. Below existing natural grade line: Sandy clay with a liquid limit less than 45 and PI in range of 10 to 22, or clayey sand with PI not less than 7 and liquid limit not greater than 35.
  - B. Above existing natural grade under slabs and footings: Silty or sandy clay as above or clayey-sand with LL less than 35 and PI of 3 to 15.

## PART 3 EXECUTION

- 3.01 INSPECTION: Examine the areas and conditions under which excavating, filling, and grading are to be performed and notify the Contractor, in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner.
- 3.02 EXCAVATION
- A. Excavation consists of removal and disposal of material encountered when establishing required grade elevations.
  - B. Earth excavation includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not classified as rock excavation or unauthorized excavation.
  - C. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Project Engineer. Unauthorized excavation, as well as remedial Work directed by the Project Engineer, shall be at the Contractor's expense. Under footings, foundation bases, fill unauthorized excavation by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Project Engineer.
  - D. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Project Engineer.
  - E. Additional Excavation: When excavation has reached required subgrade elevations, notify the Project Engineer / Architect who will make an inspection of conditions. If unsuitable bearing materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material as directed by the Project Engineer / Architect. Removal of unsuitable material and its replacement as directed will be paid on the basis of contract conditions relative to changes in work.
  - F. Stability of Excavations. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

- G. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross braces, in good serviceable condition. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
  - H. Dewatering: Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrade and foundations.
    - 1. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
    - 2. Convey water removed from excavations and rainwater to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.
- 3.03 MATERIAL STORAGE: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Dispose of excess soil material and waste materials as herein specified.
- 3.04 EXCAVATION FOR STRUCTURES: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive concrete.
- 3.05 EXCAVATION FOR TRENCHES: Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room. Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations. Beyond the building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.
- A. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for the entire body of the pipe. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below the bottom of such footings, or which pass under wall footings. Place concrete to the level of the bottom of adjacent footings.
  - B. Do not backfill trenches until tests and inspections have been made and backfilling authorized by the Project Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.
- 3.06 COLD WEATHER PROTECTION: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

- 3.07 **COMPACTION:** Control soil compaction during construction providing minimum percentage of density specified for each area classification. Compact soil to not less than the following percentages of maximum dry density.
- A. Emergency Generator Slab: Compact top 12 inches of subgrade and each layer of backfill or fill material at 95 percent maximum dry density.
  - B. Walkways Compact top 6 inches of subgrade and each layer of backfill or fill material at 95 percent maximum dry density.
- 3.08 **MOISTURE CONTROL:** Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
- 3.9 **BACKFILL AND FILL:** Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
- A. In excavations and under grassed areas by Owner; use satisfactory excavated or borrow material. Under grassed areas by Owner, loosen subgrade to depth of 4 inches, and spread topsoil to depth of 4 inches. Till surface to a level, fine texture.
  - B. Under Emergency Generator Slab and walks, use sub-base material, or satisfactory excavated or borrow material, or combination of both. Backfill excavations as promptly as work permits, but not until completion of the following:
    1. Acceptance by Project Engineer of construction below finish grade including, where applicable, dampproofing, waterproofing, and soil treatment.
    2. Inspection, testing, approval, and recording locations of underground utilities.
    2. Removal of concrete formwork, shoring and bracing, and backfilling of voids with satisfactory materials.
    4. Removal of trash and debris.
- 3.10 **GROUND SURFACE PREPARATION:** When existing ground surface has a density less than that specified under "Compaction" for the particular area classification, break up the ground surface, pulverize, moisture condition to the optimum moisture content, and compact to required depth and percentage of maximum density.
- 3.11 **PLACEMENT AND COMPACTION:** Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- A. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content. Compact each layer to required percentage of maximum dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  - B. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.

- 3.12 GRADING: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- A. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:
1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below the required subgrade elevations.
  2. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 feet above or below the required subgrade elevation.
  2. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation.
  4. Grading Surface of Fill Under Emergency Generator Slab: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2 inch when tested with a 10-foot straightedge.
- 3.13 COMPACTION: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.
- 3.14 MAINTENANCE: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- A. Reconditioning Compacted Areas: Where subsequent construction operations or adverse weather disturbs completed compacted areas, scarify surface, re-shape, and compact to required density prior to further construction.
- 3.15 DISPOSAL OF EXCESS AND WASTE MATERIALS: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off the Owner's property.

END OF SECTION