



Atlantic City Board of Education

Bid Specifications and Bidding Package

For

ATLANTIC CITY HIGH SCHOOL DISTANCE LEARNING LAB RENOVATIONS

BID # 22-021

2021-2022

Bid Opening Date: December 2, 2021

Bid Opening Time: 12:00PM Prevailing Time

Bid Opening Location: 1300 Atlantic Avenue
5th Floor, Conference Room
Atlantic City, NJ 08401

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Atlantic City Public Schools
PUBLIC WORKS PROJECT

Sealed bids for AC High School Distance Learning Lab Renovations, Bid #22-021, will be opened December 2, 2021, 12:00pm prevailing time. Please submit all proposals as follows:

Atlantic City Board of Education
Attn.: Atiya Byngs, Purchasing Administrator
1300 Atlantic Avenue, 5th Floor
Atlantic City, NJ 08401

The bid proposals will be opened and read immediately thereafter on the date and time noted above.

Blank forms of bids, specifications and general information may be obtained by submitting a request to abyngs@acboe.org. All potential bidders are to send their responses through the US Postal Service or other recognized delivery service that provides certification of delivery to the sender. Bids will not be accepted via facsimile transmission or email. Due to the COVID-19 pandemic and closures, hand delivery of bids is not recommended. Information concerning the live streaming of bid openings is available on the district's website at www.acboe.org and by clicking on Departments>Business Office>Bid & Request for Proposals.

Bids must be accompanied by a certified check, bank cashier's check, treasurer's check or Bid Bond, with corporate surety satisfactory to the Owner, in an amount not less than 10% of the Base Bid (but in no case in excess of \$20,000.00, pursuant to N.J.S.A 18A:18A-24), naming as payee or obligee, as applicable, Atlantic City Board of Education, to be retained and applied by the undersigned as provided in Contract Documents in case bidder would default in executing the Agreement or furnishing the required bonds and insurance certificates as required by Contract Documents.

Prospective bidders are advised that this Project is one which will be subject and will be governed by provisions of New Jersey State Law governing (a) Prequalification of Bidders N.J.S.A. 18A:18A-26 et seq., (b) Prevailing Wage Rates N.J.S.A. 34:11-56.27, (c) Use of Domestic Materials, N.J.S.A. 1 to 52:34-4 including any amendments and supplements thereto, and (d) P.L. 1977, Chapter 33, (N.J.S.A. 54:25-24-2) listing corporate/partnership names and addresses for individuals with a share of 10% or more.

"The Public Works Contractor Registration Act" became effective on April 11, 2000. No contractor shall bid unless the contractor is registered pursuant to this act.

Pursuant to P.L. 2009, c.315 and N.J.S.A. 52:32-44, all business organizations that do business with a local contracting agency are required to be registered with the State and provide proof of their Registration with the New Jersey Department of Treasury, Division of Revenue before the contracting agency may enter into a contract with the business.

In addition, and pursuant to N.J.S.A. 18A:18A-25, each bid must be accompanied by a certificate from a surety company stating it will provide said bidder with a bond in such sum as required by the above referenced statute.

No proposals may be withdrawn for a period of 60 days after the date set for opening of bids. Right is reserved to waive minor irregularities and to reject bids pursuant to N.J.S.A. 18A:18A-22.

Bidders must comply with the requirements of P.L. 1975, Chapter 127, N.J.A.C. 17:27 Laws Against Discrimination and NJSA 10:5-31 et seq.

By order of the Atlantic City Board of Education,

Celeste Ricketts Business Administrator

BID DOCUMENTS CHECKLIST

The following documents are to be submitted with your bid. Place a ✓ next to each number to indicate forms are included.

1. ADDENDA ACKNOWLEDGEMENT (if applicable) FORM
2. ADDENDUM FORM(S) (if issued)
3. AFFIRMATIVE ACTION LANGUAGE EXHIBIT A
4. AFFIRMATIVE ACTION QUESTIONNAIRE/PROOF
5. AMERICANS WITH DISABILITIES EXHIBIT B
6. BID DOCUMENTS CHECKLIST
7. BID PROPOSAL FORM
8. BID SECURITY (if applicable)
9. CERTIFICATE (CONSENT) OF SURETY
10. CONTRACTOR'S QUESTIONNAIRE/CERTIFICATION FORM
11. CONTRACTOR REGISTRATION CERTIFICATION FORM
12. CONTRACTOR'S REGISTRATION APPLICATION (IF APPLICABLE)
13. FORM W-9
14. EQUIPMENT CERTIFICATION FORM
15. NON-COLLUSION AFFIDAVIT FORM
16. POLITICAL CONTRIBUTION DISCLOSURE FORM
17. PRE-QUALIFICATION AFFIDAVIT FORM – ATTACH NOTICE OF CLASSIFICATION AND TOTAL AMOUNT OF UN-COMPLETED CONTRACTS
18. PREVAILING WAGES CERTIFICATION FORM
19. SPECIFICATIONS/SCOPE OF WORK SIGNATURE SHEET
20. STATEMENT OF OWNERSHIP FORM
21. SUBCONTRACTOR'S DISCLOSURE STATEMENT (if applicable)
22. SWORN CONTRACTOR CERTIFICATION – QUALIFICATIONS AND CREDENTIALS
23. TAXPAYER'S IDENTIFICATION NUMBER - (must be included on the bid form where indicated)
24. VENDOR'S AFFIDAVIT

The following documents are not required to be submitted with the proposal, but must be submitted prior to the contract award:

1. Proof of business registration with the state of New Jersey (NJ Business Registration Certificate)
2. Disclosure of Investment Activities with Iran
3. Certification of Federal Non Debarment

I have read the above and complied with the given instructions.

AUTHORIZED SIGNATURE: _____ TITLE: _____

COMPANY: _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

ADVISORY INFORMATION FOR BIDDERS

1. PROMPTNESS OF BID SUBMITTAL

It is the responsibility of the bidder to ensure their bid proposal is presented at the district's Business Office before the date and time fixed for closure of the bid proposal period. This will occur at the advertised date and prevailing time. No extensions or exceptions will be made. Access to the Business Office may be delayed because of security clearance.

2. MAIL

All mail is brought to the Board Offices in mailbags, approximately 10:00 am each day. The mail is then sorted within the district system by departments. The Business Office routinely receives its mail at approximately 11:00am.

3. HAND DELIVERY

Due to the COVID-19 pandemic, all potential bidders are to send their responses through the US Postal Service or other recognized delivery service that provides certification of delivery to the sender. **Please do not attempt to hand deliver bids.**

4. UPS / FED EX / AND OTHER EXPRESS DELIVERY SERVICES

Deliveries of this type are usually made from 10:00am and beyond. These items are brought only to the receptionist at the main building entrance. The receptionist then calls the various departments with a request to pick up their items. There may be some delays in getting bid proposals to the Business Office on the 5th floor.

Bid proposals arriving after the advertised date and time for any reason **cannot** be accepted or opened. The school district will not be responsible for any delay in the purchasing department receiving bid proposals.

Bidders are advised to confirm the purchasing department's receipt of mailed proposals prior to the advertised opening date and time.

THE BOARD OF EDUCATION WILL NOT ASSUME RESPONSIBILITY FOR BIDS FORWARDED THROUGH THE MAIL OR IF LOST IN TRANSIT AT ANY TIME BEFORE THE OPENING.

INSTRUCTIONS TO BIDDERS

- BIDS** must be properly submitted and executed in accordance to the Instructions and made upon the forms supplied by the Atlantic City Board of Education. *Material deviations or alterations* shall be grounds for rejection. After being executed by the bidder or someone having authority for same, the bid must be enclosed, sealed and the covering properly marked to indicate the contents. The sealed envelope containing the bid should be enclosed in another envelope and mailed via the US Postal Service or other recognized delivery service that provides certification of delivery to the sender and addressed as follows:

**Atlantic City Board of Education
Bid# 22-021 ACHS DISTANCE LEARNING LAB
Attn: Atiya Byngs, Purchasing Administrator
1300 Atlantic Avenue, 5th Floor
Atlantic City, NJ 08401**

It is the responsibility of each bidder to ensure the bid proposal is complete and submitted **prior** to the advertised bid date and time. No bids shall be received or accepted by the Atlantic City Board of Education after the advertised bid date and time.

- BID OPENING**

All bids will be unsealed by the purchasing administrator **December 2, 2021 at 12:00pm** local time at the following location:

**Atlantic City Board of Education
1300 Atlantic Avenue, 5th Floor
Atlantic City, NJ 08401**

To ensure social and physical distancing among participants during the COVID-19 pandemic, bidders and/or their authorized agents and the general public may view the bid opening through online live streaming. Information concerning online live streaming and link are available on the district's website at www.acboe.org and by clicking as follows: **Departments>Business Office>Bid & RFP Proposals**

Questions concerning bids should be directed in writing to Atiya Byngs, Purchasing Administrator, via e-mail at abyngs@acboe.org.

- BID PROPOSAL PACKAGES—NUMBER OF COPIES TO SUBMIT** (1) ORIGINAL; (1) COPY

The district requires one (1) original proposal (marked "original") and one (1) copy to be submitted at the prevailing date and time. The original will be kept on file in the Business Office and one copy will be available for public inspection. Faxed proposals will not be accepted; electronic (e-mailed) proposals will not be accepted.

FAILURE TO SUBMIT THE REQUESTED NUMBER OF COPIES MAY BE CAUSE FOR REJECTION.

- AFFIRMATIVE ACTION -REQUIRED EVIDENCE**

The construction contractor shall complete and submit an Initial Project Workforce Report, Form AA-201 upon notification of award by the board of education. Proper completion and submission of this Report shall constitute evidence of the contractor's compliance with the regulations. Failure to submit this form may result in the contract being terminated. The contractor also agrees to submit a copy of the Monthly Project Workforce Report, Form AA-202 once a month thereafter for the duration of the contract to the Department of Labor Workforce and Development and the board of education Public Agency Compliance Officer.

All bidders should familiarize themselves with N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1.1 et seq. MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE—EXHIBIT B. If awarded a contract, your company/firm will be required to comply with the above requirements.

All relevant questions should be related to:

Department of Treasury
Division of Purchase and Property
Contract Compliance and Audit Unit
EEO Monitoring Program—PO Box 206
Trenton, New Jersey 08625-0206

All bidders are required to complete and submit the Affirmative Action Construction Contracts Acknowledgment Form, here within enclosed in the bid package.

5. AMERICAN GOODS

In accordance with N.J.S.A. 18A:18A-20, only manufactured products of the United States, wherever available, and where possible are to be used with this project.

6. AMERICANS WITH DISABILITIES ACT; FACILITIES FOR HANDICAPPED PERSONS

The contractor must comply with all provisions of Title II of the Americans with Disabilities Act (ADA), P.L 101-336, in accordance with 42 U.S.C. S121.01 et seq. The Board of Education further recognizes that all specifications for the construction, remodeling or renovation of any public building shall provide facilities for the physically handicapped. Reference—N.J.S.A. 18A:18A-17.

It is further recommended that bidders are required to read the Americans with Disabilities language form that is included in these specifications. The form shall be signed to show agreement with the provisions of Title II of the Act and the provisions are to be made a part of the contract. The signed form shall be submitted with the bid proposal. The contractor is obligated to comply with the Act and to hold the owner harmless.

**7. ANTI-BULLYING BILL OR RIGHTS—REPORTING HARASSMENT, INTIMIDATION AND BULLYING—
CONTRACTED SERVICE**

The contracted service provider shall comply with all applicable provisions of the New Jersey Anti-Bullying Bill of Rights Act—N.J.S.A. 18A:37-13.1 et seq., all applicable code and regulations, and the Anti-Bullying Policy of the Board of Education. The district shall provide to the contracted service provider a copy of the board's Anti-Bullying Policy.

In accordance with N.J.A.C. 6A:16-7.7 (c), a contracted service provider, who has witnessed, or has reliable information that a student has been subject to harassment, intimidation, or bullying shall immediately report the incident to any school administrator or safe schools resource officer, or the school business administrator/board secretary.

8. ANTI-DISCRIMINATION PROVISIONS—N.J.S.A. 10:2-1

Every contract for or on behalf of the State or any county or municipality or other political subdivision of the State, or any agency of or authority created by any of the foregoing, for the construction, alteration or repair of any public building or public work or for the acquisition of materials, equipment, supplies or services shall contain provisions by which the contractor agrees that:

- A.** In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;
- B.** No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;
- C.** There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of \$50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and
- D.** This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

No provision in this section shall be construed to prevent a board of education from designating that a contract, subcontract or other means of procurement of goods, services, equipment or construction shall be awarded to a small business enterprise, minority business enterprise or a women's business enterprise pursuant to P.L.1985, c.490 (C.18A:18A-51 et seq).

9. ARBITRATION

All matters in dispute other than those set forth above shall be submitted to arbitration at the request of either party to the dispute and the decision of the arbitrators shall be final and conclusive. Any demand for arbitration shall be made within a reasonable time after the dispute has arisen but in no case shall the demand be made later than the time of final payment.

10. ARCHITECT OR CONSTRUCTION DISPUTES; ALTERNATIVE DISPUTE RESOLUTION PROCESS

All disputes relating to construction contracts or relating to contracts for engineers or architects, surveyors, design or skilled services relating to construction contracts for prompt payment issues shall be submitted to the following Alternative Dispute Resolution process ("ADR"):

All disputes shall first be submitted to the architect of record, if there is one, for a determination. If thirty (30) days pass without a determination by the architect or a determination is made that does not resolve the dispute, then the claims shall be submitted for non-binding mediation by a single mediator. The mediation shall be held where the project is located before a mediator who is mutually acceptable to the parties. The parties shall share the mediator's fees equally. If the dispute is submitted for mediation the neutral party involved must demonstrate knowledge of the Public School Contracts Law.

Nothing shall prevent either party from seeking injunctive or declaratory relief in court at any time. The alternative dispute resolution practices required by this section shall not apply to disputes concerning the bid solicitation process, or to the formation of contracts.

The Bidder further agrees to include a similar provision in all agreements with independent contractors and consultants retained for the project and to require all independent contractors to include similar mediation provisions in all agreements with subcontractors, suppliers or fabricators so retained, thereby providing for mediation as the primary method for dispute resolution between the parties to those agreements. The arbitration of claims is expressly excluded under this Contract.

If the parties cannot resolve their dispute through the mediation process, the parties are free to file an action in the appropriate court of law.

11. ASSIGNMENT

Assignment to any third party of any moneys due or to become due to the bidder or any contract based on this bid is prohibited and will not be recognized by the Atlantic City Board of Education.

12. AVAILABILITY OF FUNDS

When award of contract is made in one fiscal year with the effective date in the next fiscal year, the award shall be contingent upon the availability and appropriation of sufficient funds for that purpose for the year in which said contract takes effect. When a contract shall be awarded for a period in excess of one year, said contract shall be contingent upon the annual availability and appropriation of sufficient funds for that purpose for each year of the contract term.

13. BID BOND GUARANTEE AND BONDING REQUIREMENTS

The name address and phone number of the Bond Underwriter as well as the Bond Number shall be included with all bonds submitted to the board of education.

A. Bid Guarantee/Bid Bond Required for this bid: YES X NO

Each bid shall be accompanied by a bid bond, cashier's or certified check in the amount of \$20,000. This bond shall be made payable to the Atlantic City Board of Education. Such deposit shall be forfeited upon refusal of a bidder to execute a contract, as liquidated damages; otherwise, checks shall be returned when the contract is executed and the surety (performance) bond is filed with the Board of Education. The bid security check for unsuccessful bidders will be returned as soon after the bid opening as possible, but in no event later than 10 days after the bid opening. **Uncertified business checks, personal checks or money orders are not acceptable.**

All bid bonds submitted must be signed and witnessed with original signatures. The board will not accept facsimile or rubber stamp signatures on the bid bond. Failure to sign the bid bond by either the Surety or Principal shall be deemed cause for disqualification of the bid. The Attorney –in –Fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the Power of Attorney. The Atlantic City Board of Education will only accept bid bonds from companies that are licensed and qualified to do business in the State of New Jersey. Such a list may be obtained upon request to the State of New Jersey, Department of Insurance, CN 325, Trenton, NJ 08625. **Failure to submit a bid guarantee, when required, shall be cause for disqualification and rejection of bid.**

Please note: The name, address and phone number of the Bid Underwriter as well as the Bond Number shall be included withal bonds submitted to the Board of Education.

B. Certificate (Consent) of Surety Required: YES X NO ___

When required, each bidder must submit with his bid a certificate from a surety company stating that the surety company will provide the contractor with a performance bond in an amount equal to the amount of the contract (N.J.S.A. 18A: 18A-25). Such surety company must be licensed and qualified to do business in the State of New Jersey. All certificate (consent) of surety documents must be signed with original signatures.

The Board will not accept facsimile or rubberstamp signatures. The certificate (consent) of surety, together with a power of attorney must be submitted with the bid. Submission of a Consent of Surety which contains any prior conditions upon the Surety's issuance of the required Bonds (other than the award of the contract) may be cause for rejection of the bid.

Failure to sign the Certificate (Consent) of Surety by either the Surety or Principal, and/or failure to submit the properly executed Certificate (Consent) of Surety with the bid package, shall be deemed cause for disqualification and rejection of the bid.

C. Performance Bond Required: YES X NO ___

1. The successful bidder shall furnish a Performance, Payment and Completion Bond in a sum of at least one hundred (100%) percent of the total amount payable by the terms of this Contract. Such bond shall be in the form required by Statute.
2. Such bond shall further carry a stipulation that no advance, premature, excessive or delayed payments by the Owner shall in any way affect the obligation of the Surety on its bond.
3. Such bond shall further stipulate that no payments made to the Contractor, nor partial or entire use of occupancy of the work by the Owner shall be an acceptance of any work or materials not in accordance with this Contract and the Surety shall be equally bound to the same extent as the Contractor.
4. It is expressly stipulated that the Surety for the Contractor on the project shall be obligated to make periodic inquiries of the Owner at reasonable times, to determine whether its Principal has performed or was performing the Contract in accordance with all of its terms and conditions, particularly in relation to the progress payments scheduled under said Contract with the Owner.
5. In the event the Contractor defaults or fails to perform the work prescribed under the Contract for any reason whatsoever, it shall become the unqualified obligation of the Surety for the defaulting contractor to complete the Contract in accordance with its terms following receipt of notice from the owner of such default.
6. Successful bidder shall execute formal contract with the Board in the form required and in such number of counterparts as the Board may request.
7. Such Performance, Payment and Completion Bond shall be furnished and such Contracts shall be executed and delivered by the successful bidder within ten (10) days after the receipt by the successful bidder of notice accepting his bid by the Board.
8. The Atlantic City Board of Education will only accept performance bonds from surety companies that are licensed and qualified to be business in the State of New Jersey.

9. Please note: The name, address and phone number of the Bond Underwriter as well as the Bond Number shall be included with all bonds submitted to the Board of Education

14. BID ITEMS

No bidder will be allowed to offer more than one price on each item even though they may feel that he has two or more types/products that will meet specifications. Bidders must determine for themselves which type of product to offer. If said bidder should submit more than one price on any item, all prices for that item shall be rejected.

15. BID PRICES

The net unit price and extension for each article which the bidder agrees to furnish shall be written **NEATLY** in INK or typewritten in the spaces provided on the Board's Bid Proposal form, opposite the name of the item for which the price is given. In the event there is a discrepancy between the unit price and the extended total, the unit price shall govern. If the bidder wishes to change a price entered on his proposal PRIOR TO SUBMITTING SAID BID, they shall do so by crossing out the originally entered, inserting the correct price and extension and INITIALING SAME IN INK.

Prices shall include proper packing, inside delivery and all delivery charges, F.O.B. DESTINATION PREPAID to the Board of Education's designated points.

All additional charges and taxes, including consumer's taxes which are required to be paid under existing and future laws, shall be paid by the bidder without right of reimbursement from the Board of Education. The bidder is required to provide any tax exemption certificates or blanks that shall be necessary.

The winning bidder shall agree to guarantee the bid price(s) for a period of ninety (90) days from the bid opening.

16. BID PROPOSAL FORM(S)

All bids are to be written in by computer, typewriter, or ink in a legible manner on the official Bid Proposal Form. Any bid price showing any erasure or alteration must be initialed by the bidder in ink at the right margin next to the altered entry. Failure to initial any erasure or alteration may be cause to disqualify that particular bid entry. If the disqualified entry is a required one, the entire bid may be subject to rejection, so please fill out all entries with care. The amount written in words must match the numerical amount on the Bid Form. If a discrepancy exists between the written and the numerical amounts, the written amount shall govern.

The bid proposal form must be duly signed by the authorized representative of the company in the appropriate space, at the end of the Bid Form. Failure to sign the bid proposal form may be cause to disqualify the entire bid. If the bid proposal form contains more than one sheet, then bidders are requested to affix the company name and address on each intervening sheet between the front sheet and the signature sheet that already bears the company information.

The Board of Education will not consider any bid on which there is any alteration to, or departure from, the bid specifications. Bidders are not to make any changes on the Bid Proposal Form, or qualify their bid with conditions differing from those defined in the contract documents. If bidders do make changes on the Bid Proposal Form, except as noted above for initialed clerical mistakes, it shall be cause to disqualify that particular bid as non-responsive N.J.S.A. 18A:18A-2(y).

By submitting a proposal, the bidder covenants that he has carefully examined the contract documents, addenda (if any), and the site(s); and that from his investigation he has satisfied himself as to the nature and location of the work, the general and local conditions and all matters which may in any way affect the work or its performance, and that as a result of such examination, he fully understands the intent and purpose thereof, his obligations there under, and that he will not make any claim for, or have any right to damages, because of the lack of any information.

Each bidder submitting a bid for a service contract shall include in his bid price all labor, materials, equipment, services, and other requirements necessary, or incidental to, the completion of the work, and other pertinent work as hereinafter described, in accordance with the contract documents.

17. BIDDER'S RESPONSIBILITY FOR BID SUBMITTAL

It is the responsibility of the bidder to ensure that their bid is presented to the Business Office and officially received before the advertised date and time of the bid. It is understood and agreed upon that any person in the Board of Education will be absolved from responsibility for the premature opening of any bid not properly labeled and sealed.

18. BRAND NAME OR EQUIVALENT

Brand names and/or descriptions used in these specification are to acquaint bidders with the types of goods and services desired and will be used as a standard by which goods and services offered as equivalent will be evaluated.

When a specification uses "brand name or equivalent," the listed brand name shall serve as a reference or point of comparison for the functional or operational characteristic desired for the good or service being requested. Where a bidder submits an equivalent, it shall be the responsibility of the bidder to document the equivalent claim. Failure to submit such documentation shall be grounds for rejection of the claim of equivalence.

In submitting its bid, the bidder certifies that the goods and services to be furnished will not infringe upon any valid patent or trademark and that the successful bidder shall, at its own expense, defend any and all actions or suits charging such infringement, and will save the owner harmless from any damages resulting from such infringement.

The contractor shall guarantee any or all goods and service supplies under these specifications. Defective or inferior goods shall be replaced at the expense of the contractor. The contractor will be responsible for return freight or restocking charges.

19. BUSINESS REGISTRATION CERTIFICATE (N.J.S.A. 52:32-44)

Pursuant to N.J.S.A. 52:32-44 as amended by P.L. 2009 – Chapter 57, all bidders or companies providing responses for requested proposals are required to submit a copy of their New Jersey Business Registration Certificate as issued by the Department of the Treasury of the State of New Jersey. Failure to provide the New Jersey Business Registration Certificate prior to the award of the contract will be cause for the rejection of the entire bid. The board of education is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required to by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of Treasury.

Goods, Services, and Construction Contracts

N.J.S.A. 52:32-44 imposes the following requirements on contractors and all subcontractors:

A contractor shall provide the contracting agency with the business registration of the contractor and that of any named subcontractor prior to the time a contract, purchase order, or other contracting document is awarded or authorized. At the sole option of the contracting agency, the requirement that a contractor provide proof of business registration may be fulfilled by the contractor providing the contracting agency sufficient information for the contracting agency to verify proof of registration of the contractor, or named subcontractors, through a computerized system maintained by the State.

A subcontractor named in a bid or other proposal made by a contractor to a contracting agency shall provide a copy of its business registration to any contractor who shall provide it to the contracting agency pursuant to the provisions of subsection b. of this section. No contract with a subcontractor shall be entered into by any contractor under any contract with a contracting agency unless the subcontractor first provides the contractor with proof of a valid business registration. For bids and requests for proposals, the contracting agency must retain the proof of business registration in the file where documents relating to the contract are maintained. For all other contracts, proofs of business registration shall be maintained in an alphabetical file.

The contractor shall maintain and submit to the contracting agency a list of subcontractors and their addresses that may be updated from time to time during the course of the contract performance. A complete and accurate list shall be submitted before final payment is made for goods provided or services rendered or for construction of a construction project under the contract. A contracting agency shall not be responsible for a contractor's failure to comply with this subsection.

A contractor or a contractor with a subcontractor that has entered into a contract with a contracting agency, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury the use tax due pursuant to the "Sales and Use Tax Act," P.L.1966, c.30 (C.54:32B-1 et seq.) on all their taxable sales of tangible personal property delivered into this State.

A contracting agency entering into a contract with a contractor, or a contractor with a subcontractor, shall include in its contract with that contractor, or a contractor with a subcontractor, for the term of the contract, a requirement that the contractor or subcontractor and each of their affiliates shall collect and remit to the Director of the Division of Taxation in the Department of Treasury the use tax due pursuant to the "Sales and Use Tax Act," P.L.1966, c.30 (C.54:32B-1 et seq.) on all their sales of tangible personal property delivered into this State.

For the purposes of this subsection, "affiliate" means an entity that (1) directly, indirectly, or constructively controls another entity, (2) is directly, indirectly, or constructively controlled by another entity, or (3) is subject to the control of a common entity. For purposes of this subsection an entity controls another entity if it owns, directly or individually, more than 50% of the ownership interest in that entity.

If a contractor fails to provide proof of a business registration certificate upon request by the contracting agency for a contract that does not require bidding or a request for proposals, and the contracting agency determines that the purpose of the that contract is of a proprietary nature with a contractor that does not have a business presence in New Jersey, the contracting agency shall provide the Division of Revenue, within 10 days of executing the contract, a copy of the contract, evidence of the contractor's taxpayer identification number, and a signed certification attesting to the proprietary nature of the contract and representing that the contracting agency made a diligent effort to obtain proof of a business registration from the contractor.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provided false business registration information, shall be liable for a penalty of \$25 for each day, not to exceed \$50,000, for each proof of business registration not properly under a contract with the board of education.

20. CHALLENGES TO BID SPECIFICATIONS (N.J.S.A. 18A:18A-15)

Any prospective bidder who wishes to challenge a bid specification shall file such challenges in writing with the Purchasing Administrator no less than three (3) days prior to the opening of bids. Challenges filed after that date shall be considered void and having no impact on the Board of Education or the award of a contract.

21. CHANGE ORDERS (N.J.A.C. 6A:23A-21.1 et. seq.)

Pursuant to New Jersey Administrative Code change orders are limited to three (3) types and may be approved by the Board of Education in an amount up to twenty percent (20%) when necessitated:

- Emergencies consistent with N.J.S.A. 18A:18A-7;
- Unforeseeable physical conditions; and
- Minor modifications to the project/scope that achieve cost savings, improve service or resolve construction conditions.

All change orders must be submitted to the Board of Education for review and written approval. All contractors are prohibited from performing any additional work or providing additional materials or supplies outside the scope of the original purchase order, estimate, or quote/proposal unless the contractor receives written permission from the Board of Education.

22. CONTRACTOR'S REGISTRATION EVIDENCE

Pursuant to N.J.S.A. 34:11-56.48 et. seq., "The Public Works Contractor Registration Act," all contractors bidding on this public works project shall submit with their bid a copy of one of the following:

- A.** Contractor's Certificate of Registration as issued by the Contractor Registration Unit of the New Jersey Department of Labor, valid on the date of the bid.
- B.** Application for Public Works Contractor Registration form as submitted to the New Jersey Department of Labor Division of Wage and Hour Compliance.

In the event that the application form (option B above) is submitted in lieu of the actual Certificate of Registration, the contractor shall provide to the Atlantic City Board of Education a copy of their Certificate of Registration upon receipt from the Department of Labor. Per C. 34:11-56.51, no Contractor shall engage in any contract for public work unless the Contractor is registered pursuant to this act. If the certificate of registration is not subsequently provided following use of the option to use the application form to satisfy the contractor's registration evidence at time of bid, the contractor will be considered "non-responsive," which will nullify their contract award. Subcontractors must also comply with N.J.S.A. 34:11-56.48 et. seq.

23. CONTRACTS

A. Award of Contract; Rejection of Bid

The contract shall be awarded, if at all, to the lowest responsible bidder as determined by the Board of Education. The Board of Education reserves the right to reject any or all bids pursuant to N.J.S.A. 18A:18A-2(s), (t), (x), (y), 18A:18A-4(a), 18A:18A-22, and to waive minor irregularities and to take such alternates that the Board feels are in the best interests of the Board. The Board may at its option accept the lowest bid on each item and split awards among the various bidders who submit the lowest responsible bids. Further, the Board may at its option accept any quantity of each item at the pride bid depending on need. Pursuant to N.J.S.A. 18A:18A-36 the Atlantic City Board of Education shall award the contract or reject all bids within sixty (60) days, noting the exception highlighted in the law.

B. Equal Contract Prices

Pursuant to N.J.S.A. 18A:18A-37(d) when two or more bidders submit equal prices and the prices are the lowest responsible bids, The Atlantic City Board of Education may award the contract to the vendor whose response, in the discretion of the Board, is the most advantageous, price and other factors considered.

C. Return of Contracts and Related Documents

Upon written notification of award of contract by the Atlantic City Board of Education, the successful bidder shall sign and execute a formal contract agreement when contract is over the bid threshold of \$40,000 for the year. If a formal contract is not required, an approved and signed Atlantic City Board of Education Purchase order will constitute a contractual agreement.

The executed contract and related documents shall be returned to the purchasing administrator within ten (10) days of receipt of notification. Failure to execute the contract and return said contract and related documents within the prescribed time may be cause for a delay in payment for services rendered or products received or the annulment of the award by the Board of Education with the bid security becoming the property of the Atlantic City Board of Education. The Board of Education reserves the right to accept the bid of the next lowest responsible bidder.

D. Completion Date and Timelines

The successful bidder, to whom the contract is awarded, shall complete the work stated in the contract document and bid specifications as follows:

1. February 2022 - Project shall commence but limited to:
 - a) Pre-construction meeting (date to be determined)
 - b) Prepare and issue Submittals (Shop Drawings, Finishes, etc.)
 - c) Determination of material availability and lead times
 - d) Coordinate with manufacturers for fabrication requirements

2. March 2022 – Ordering and procurement of materials
 - a) Contractor shall verify fabrication times will meet schedule
 - b) Contractor shall place orders for all required materials
 - c) Coordinate mobilization strategies with school district personnel

3. June 2022 – Onsite construction commences
 - A. Project Coordination and Schedule:
 1. Summer School Schedule.
 - a. Classes are in session into the month of July.
 - b. The school will be open and available for the month of August for construction.

4. September 1, 2022 – Onsite construction completed
 - a) 70 Calendar days duration per proposal
5. October 30, 2022 – Contract closeout complete

E. Contract Extensions and Renewals

The awarded vendor may be given the option to renew their contract for no more than one two-year, or two one-year, extensions subject to limitations per N.J.S.A. 18A:18A-42(n). Provided performance under the contract is satisfactory and complies with the requirements of these specifications, and upon agreement of both parties, the contract may be extended for additional twelve (12) month periods not to exceed a maximum contract period of (4) four years in accordance with the terms required by N.J.S.A. 18A:18A-42.

The School Business Administrator and/or the Board Secretary or the Purchasing Administrator may negotiate terms for a renewal of the contract proposal and present such negotiated proposal to the Board of Education. The Atlantic City Board of Education is the final authority in awarding renewals and extensions of contracts. All multi-year contracts and renewals are subject to the availability and appropriation annually of sufficient funds as may be needed to meet the extended obligation.

F. Termination of Contract

The successful bidder, to whom the contract is awarded, will be required to do and perform the work/services and to provide and furnish the materials in connection therewith in accordance with the plans and specifications. If, through any cause, the contractor shall fail to fulfill in a timely and proper manner obligations under the contract or if the contractor shall violate any of the requirements of the contract, the board of education shall there upon have the right to terminate the contract by giving written notice to the contractor of such termination and specifying the effective date of termination. Such termination shall relieve the board of education of any obligation for balances to the contractor of any sum or sums set forth in the contract. The board of education will pay only for goods and services accepted prior to termination.

Notwithstanding the above, the contractor shall not be relieved of liability to the board of education for damages sustained by the board of education by virtue of any breach of the contract by the contractor and the board of education may withhold any payments to the contractor for the purpose of compensation until such time as the exact amount of the damage due the board of education from the contractor determined.

The contractor agrees to indemnify and hold the board of education harmless from any liability to subcontractor/suppliers concerning payment for work performed or goods supplied arising out of the lawful termination of the contract by the board of education under this provision.

In case of default by the contractor, the board of education may procure the goods or services from other sources and hold the contractor responsible for excess cost.

Continuation of the terms of the contract beyond the fiscal year is contingent on availability of funds in the following year's budget. In the event of unavailability of such funds, the board of education reserves the right to cancel the contract.

It is understood by all parties that if, during the life of the contract, the contractor dispose of his/her business concern by acquisition, novation, merger, sale and/or transfer or by any means convey his/her interest(s) to another party, all obligations are transferred to that new party. In this event, the new owner(s) will be required to submit all documentation/legal instruments that were required in the original bid/contract. Any change shall be approved by the board of education.

The contractor will not assign any interest in the contract and shall not transfer any interest in the same without the prior written consent of the board of education.

The contractor shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

For contracts that exceed one year, each fiscal year payment obligation of the board of education is conditioned upon the availability of board of education funds appropriated or allocated for the payment of such an obligation. If funds are not allocated and available for the continuance of any services performed by

the bidder awarded the contract (contractor) hereunder, whether in whole or in part, the board of education at the end of any particular fiscal year may terminate such services. The board of education will notify the contractor in writing immediately of any services that will be affected by a shortage of appropriated funds. This provision shall not be construed so as to permit the board of education to terminate the contract during the term, or any service hereunder, merely in order to acquire identical services from another contractor.

Neither party shall be responsible for an resulting loss or obligation to fulfill duties as specified in any of the terms or provisions of a contract if the fulfillment of any term or provision of the contract is delayed or prevented by any revolutions, insurrections, riots, wars, acts of enemies, national emergencies, strikes, floods, acts of God, or by any cause not within control of the party whose performance is interfered with which by the exercise of reasonable diligence such party is unable to prevent. Additionally, if the fulfillment of any of the terms and provisions of the contract is delayed or prevented by a court order, or action or injunction or other such agreement, the contract shall become voidable by the owner by notice to the parties.

G. Purchase Order Required

No contractor shall commence any public works project until he/she is in receipt of an approved Purchase Order authorizing work to begin and the contract has been duly executed by the Board of Education and all contract documents have been duly received by the Board of Education.

H. Alterations of Contract

The Board of Education reserves the right to alter or amend the contract by adding to or subtracting from the work herein specified such additions or omissions being done under the general conditions of these specifications and the terms of the Contract. No changes shall be permitted from the specifications except that the same is in writing and the amount of the extra compensation or credit stipulated therein. **Change orders are subject to N.J.A.C. 6A:26-4; it is the district's procedure to have all change orders submitted to the Board of Education for review and approval.**

The provision/performance of additional goods/services that will result in an increase in the dollar amount of the purchase order **shall not** be provided/performed unless approved by the district's facilities manager, business administrator, or superintendent of schools.

I. Open-End Contract (Estimated Quantities) *If Applicable*

The Atlantic City Board of Education has attempted to identify the item(s) and the estimated amounts of each item bid to cover its requirement; however, past experience shows that the amount ordered may be different than that submitted for bidding. The right is reserved to decrease or increase the quantities specified in the specifications pursuant to N.J.A.C. 5:30-11.2 and 11.10. **NO MINIMUM PURCHASE IS IMPLIED OR GUARANTEED.**

24. CONTRACTOR'S QUALIFICATION STATEMENT (AIA)

If the Board of Education so chooses to include the American Institute of Architects Contractor Qualification Statement in the bid specification, said document shall be completed in ink or typed and be duly signed and notarized. This document shall be submitted with the bid. **N/A FOR THIS BID.**

25. CONTRACTOR/VENDOR REQUIREMENTS—OFFICE OF THE NEW JERSEY STATE COMPTROLLER

A. Access to Relevant Documents and Information – N.J.S.A. 52:15C-14(d)

Private vendors or other persons contracting with or receiving funds from a unit in the Executive branch of State government, including an entity exercising executive branch authority, independent State authority, public institution of higher education, or unit of local government or board of education shall upon request by the State Comptroller provide the State Comptroller with prompt access to all relevant documents and information as a condition of the contract and receipt of public monies. The State Comptroller shall not disclose any document or information to which access is provided that is confidential or proprietary. If the State Comptroller finds that any person receiving funds from a unit in the Executive branch of State government, including an entity exercising executive branch authority, independent State authority, public institution of higher education, or unit of local government or board of education refuses to provide information upon the request of the State Comptroller, or otherwise impedes or fails to cooperate with any audit or performance review, the State Comptroller may recommend to the contracting unit that the person be subject to termination of their contract, or temporarily or permanently debarred from contracting with the contracting unit.

B. Maintenance of Contract Records – N.J.A.C. 17:44-2.2

Relevant records of private vendors or other persons entering into contracts with covered entities are subject to audit or review by the New Jersey Office of the State Comptroller pursuant to N.J.S.A. 52:15C-14(d).

The contractor/vendor to whom a contract has been awarded, shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

26. CRIMINAL HISTORY BACKGROUND CHECK— N.J.S.A. 18A:6-7.1 REQUIREMENT

The contractor and all subcontractors for the project shall provide to the school district (Director of Facilities or School Business Administrator/Board Secretary) evidence or proof that each worker assigned to the project that comes in regular contact with students, has had a criminal history background check, and that said check indicates that no criminal history record information exists on file for that worker.

The determination of "contact with students" will be made by the school district. Failure to provide proof of a criminal history background check for any contractor or subcontractor employee coming in regular contact with students may be cause for breach of contract.

If it is discovered during the course of the contract that a contractor or subcontractor employee has a disqualifying criminal history or the employee has not had a criminal history background check, that employee is to be removed from the project immediately.

27. DEBARMENT, SUSPENSION, OR DISQUALIFICATION – N.J.A.C. 17:19-1.1

The Atlantic City Board of Education will not enter into a contract for work with any person, company or firm that is on the State Department of Labor and Workforce Development; Prevailing Wage Debarment List, or the State of New Jersey Consolidated Debarment Report (www.state.nj.us/treasury/debarred) or the Federal System for Award—SAM.gov.

All bidders are required to submit a sworn statement indicating whether or not the bidder is, at the time of the bid, included on the State Department of Labor and Workforce Development; Prevailing Wage Debarment List or the State of New Jersey Consolidated Debarment Report, or the Federal Debarred Vendor List--Excluded Parties List System, through the System for Award Management portal—SAM.gov.

28. DELIVERIES (if applicable)

All deliveries shall be made to the locations designated on the purchase orders. Deliveries will be made on week days (Monday through Friday) during the hours of 8:30AM and 3:30PM. ALL DELIVERIES MUST BE FOB Destination, Freight PREPAID. NO C.O.D. DELIVERIES WILL BE ACCEPTED. The successful bidder retains title and control of goods and selects the carrier and is responsible for risk of transportation; title passes to the Atlantic City Board of Education upon delivery and ownership by the Board; the successful bidder pays and bears the cost of all freight and delivery charges listed below. The Board of Education recognizes three types of delivery:

Platform Delivery

Items are delivered to a platform or loading dock area and are taken off the truck by transportation carrier personnel and placed on a platform or loading dock area. Board of Education personnel will bring items in the school or building storage area.

Inside Delivery

Items are to be delivered to a Board of Education location and taken off the truck by transportation carrier personnel and brought to a destination inside the school or office building.

Spotted Delivery

Items are to be delivered to a Board of Education location and taken off the truck by transportation carrier personnel and brought to a designated area inside the school or office. Transportation carrier personnel are responsible to then uncrate, setup, assemble items to determine good working order and remove all debris to the satisfaction of the Atlantic City Board of Education. If a specialized person is needed to setup, assemble, or erect item, such assembly shall be completed within 5 days of the actual delivery date.

Failure to setup, assemble, or erect item within the stated time may result in a \$100.00 per day assessment against the bidder for each day the items are not assembled, setup, or erected.

An itemized delivery form, ticket or slip MUST accompany each delivery or must be mailed and be on hand at the receiving point previous to the time of delivery. This form need not be priced.

Material and or workmanship of inferior quality will be rejected and must be replaced immediately with an article in strict accordance with the specifications, or it will be considered as not delivered and will be bought on the open market as hereinafter agreed. All materials are to be delivered in a first class condition and to the complete satisfaction of the Board of Education.

DAMAGE REPLACEMENT/REPAIRS

All damages incurred to the existing facilities by the Contractor's operation, as solely determined by the Board of Education shall be repaired or replaced at the Contractor's expense.

DROP SHIPMENTS

It is preferred that all items ordered are delivered by the vendor to whom award is made. If said vendor has items "drop-shipped," it will be that vendor's responsibility to have the shipper label each carton with the name of the vendor on record as well as the Board of Education's purchase order number. The Board of Education will not be held responsible for late payments as the result of the vendor's failure to provide the above information on "drop-shipped" items.

29. DISCRIMINATION IN EMPLOYMENT ON PUBLIC WORKS CONTRACTS

Every contract for or on behalf of the State or any county, or municipality or other political subdivision the State, or any agency or authority created by any of the foregoing, for the construction, alteration or repair of any public building or public work or for the acquisition of materials, equipment, supplies or services shall contain provisions by which the contractor agrees that:

- A.** In the hiring of persons for the performance of work under this contract or any subcontractor hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, age, marital status, sex, national origin, ancestry or affectional or sexual orientation, discriminate against any person who is qualified and available to perform the work to which the employment relates;
- B.** No contractor, subcontractor, nor any person on his behalf shall in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, age, marital status, sex, national origin, ancestry, or affectional or sexual orientation;
- C.** There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of \$50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and
- D.** This contract may be cancelled or terminated by the contracting agency and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

30. DOCUMENTS, MISSING/ILLEGIBLE

The bidder shall familiarize himself with all forms provided by the Board that are to be returned with the bid. If there are any forms the Board is to provide that are either missing or illegible, it is the responsibility of the bidder to contact the purchasing administrator via email at abyngs@acboe.org during regular business hours for duplicate copies of the forms. This must be done before the bid date and time. The Board accepts no responsibility for duplicate forms that were not received by the bidder in time for the bidder to submit with his bid.

All documents returned to the Board shall be signed in ink with an original signature. Failure to sign and return all required documents with the bid package may be cause for disqualification and for the bid to be rejected pursuant to N.J.S.A. 18A:18A-2(y) (non-responsive). The Board will not accept facsimile or rubber stamp signatures.

31. EMERGENT MATERIALS, SUPPLIES, EQUIPMENT, ETC.

The Board of Education reserves the right to require any or all of the successful bidders to both quote on and supply emergent any materials, supplies, equipment, etc. which are consistent with the items listed but not specifically set forth in this document during the term of this contract. Emergent requirements include, but are not limited to, those currently undefined, unanticipated and otherwise non-routine requirements which could not have been included at solicitation as specified requirements.

32. EQUIPMENT CERTIFICATION (N.J.S.A. 18A:18A-23)

Each bidder shall provide a certification showing that he owns leases or controls all the necessary equipment required by the specifications. If the bidder is not the actual owner or lessee of any such equipment, he shall submit a certificate stating the source from which the equipment will be obtained and shall obtain a certificate from the owner and person in control of the equipment, definitely granting to the bidder the control of the equipment required during such time as may be necessary for the completion of that portion of the contract for which it is necessary. The certificates are to be submitted with the bid. If the contract involves the installation of a manufactured system which requires the contractor to have special knowledge or training, or to be specifically certified by the manufacturer to install their system, this form is used to submit such required evidence of the bidder's approval from the manufacturer.

33. EXAMINATION OF SPECIFICATIONS, ACKNOWLEDGEMENT

The bidder, by submitting a proposal, acknowledges that he has carefully examined the bid specifications, documents, addenda (if any), and the site; and that from his investigation, he has satisfied himself as to the nature and location of the work, the general and local conditions and all matters which may in any way affect the work or its performance, and that as a result of such examination, he fully understands the intent and purpose thereof, his obligations thereunder, and that he will not make any claim for, or have any right to damages, because of the lack of any information.

Each bidder submitting a bid for a service contract shall include in his bid price all labor, materials, equipment, services, and other requirements necessary, or incidental to, the completion of the work, and other pertinent work as hereinafter described, in accordance with the bid specifications and documents.

34. FEDERAL NON-DEBARMENT CERTIFICATION (N.J.S.A. 52:32-44.1)

A contractor that is debarred from contracting with a federal government agency, along with any affiliates of the debarred contractor, is prohibited from contracting with state or local government entity. Before a board of education can award a contract for public work, the contractor must provide written a certification to the board of education that neither the contractor nor the contractor's affiliates are debarred by the federal government from contracting with a federal agency. The term "affiliate" means any entity that directly, indirectly, or constructively controls the contractor, or any entity that the contractor directly, indirectly, or constructively controls, or is subject to the control of a common entity. An entity is considered to be in control of another entity if it owns, directly or indirectly, more than 50% of the ownership interest in that entity. A contractor must not directly or indirectly own or be owned by an entity debarred from contracting on the federal level.

35. INSURANCE AND INDEMNIFICATION

The insurance documents indicated by an **(X)** shall include but are not limited to the following coverages. The successful bidder(s) shall provide coverage so that all insurance coverage must be in effect no later than 12:01 A.M. EST at the start of the day of the contract and remain in effect for the duration of the contract, including any extensions.

A. INSURANCE REQUIREMENTS

X Worker's Compensation Insurance shall be maintained in full force during the life of the contract, covering all employees engaged in performance of the contract pursuant to N.J.S.A. 34:15-12(a) and N.J.A.C. 12:235-1.6. Part One shall be the statutory limits of liability. Unless a greater amount is required by law, the minimum employer's liability limits for Part Two shall be **\$500,000** each accident for bodily injury by accident, **\$500,000** policy limit for bodily injury by disease, **\$500,000** each employee for bodily injury by disease, and contract liability shall be the same as general liability requirements.

X General Liability Insurance shall be provided with limits of not less than **\$2,000,000** general aggregate, **\$1,000,000** products, **\$1,000,000** bodily injury, property damage and personal injury combined, **\$1,000,000** each occurrence, **\$100,000** pollution cleanup, **\$50,000** fire damage, and **\$5,000** medical expense.

X Excess Umbrella Liability shall be provided with limits of not less than **\$2,000,000** and **\$2,000,000** sexual harassment.

X Automotive Liability Insurance covering contractor for claims arising from owned, hired and non-owned vehicles with limits of not less than **\$1,000,000** combined single limit bodily injury/property damage, shall be maintained in full force during the life of the contract.

Builders Risk. The contractor shall obtain and pay for within their bid, a Builder's Risk Policy providing coverage for all risk of physical loss or damage to the property in an amount equal to the total project value, less excavations and foundations.

The policy must be maintained for the duration of the project from the beginning of construction until:

- (i) written acceptance by architect, or substantial completion; and
- (ii) a temporary certificate of occupancy or certificate of occupancy has been issued.

A copy of the policy must be delivered to the Board of Education before construction begins. All of the contractor's policies, with the exception of workers' compensation, shall be endorsed naming the Board of Education, its elected and appointed officials, and employees as additional insured. The contractor must also name the state of New Jersey, the NJSOA, the NJDOE, and the architect and staff as additional insured with respect to the work.

B. CERTIFICATES OF THE REQUIRED INSURANCE

Certificates of Insurance for those policies required above shall be submitted with the contract. Such coverage shall be with an insurance company authorized to do business in the state of New Jersey and shall name the Atlantic City Board of Education as an additional insured. The insurance company shall have an AM Best rating of at least A, and shall be a New Jersey admitted carrier.

C. INDEMNIFICATION

The contractor shall indemnify and hold harmless the Board of Education, its officers, servants, and employees from any and all claims, demands, suits or actions, recoveries, damages or costs of every name and description (including, but not limited to, attorney's fees) to which the owner may be subjected or put by reason of injury to the person or property of another, or the property of the Board of Education, resulting from:

- (a) negligent acts or omissions on the part of the contractor, the contractor's agents, servants or subcontractors in the delivery of goods and services, or in the performance of the work under the contract; and
- (b) the use of any copyrighted or copyrighted composition, valid trademark, secret process, patented or unpatented invention or article furnished or used in the performance of this contract.

36. INTERPRETATIONS AND ADDENDA (N.J.S.A. 18A:18A-21(c-2))

No interpretation of the meaning of the specifications will be made to any bidder orally. Every request for such interpretations shall be made in writing to the purchasing administrator at abyngs@acboe.org and to be given consideration must be received at least ten (10) business days prior to the date fixed for the opening of bids.

Any and all interpretations and any supplemental instructions will be in the form of written addenda to the specifications, will be provided in accordance with N.J.S.A. 18A:18A-21(c-2) to the bidder by certified mail or certified fax no later than seven (7) days, Saturdays, Sundays, or holidays excepted prior to the date for acceptance of the bids. All addenda so issued shall become part of the contract document.

If addenda are issued, the bidder shall submit a form acknowledging receipt. The Board shall not be bound by any representations whether oral or written, made at any meeting, phone conversation, e-mail, fax, etc., unless the representations are incorporated in writing and become part of the bid specifications and/or any addenda. All bidders shall acknowledge all addenda received through the appropriate form.

37. IRAN DISCLOSURE OF INVESTMENT ACTIVITIES (N.J.S.A 18A:18A-49.4)

The Atlantic City Board of Education, pursuant to N.J.S.A. 18A:18A-49.4, shall implement and comply with Public Law 2012, c.25, and 2021, c.4 Disclosure of Investment Activities in Iran—N.J.S.A. 52:32-55 et seq.

Pursuant to N.J.S.A. 52:32-5, et seq. (P.L. 2012, c.25 and P.L 2021, c.4) any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract, must certify that neither person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the New Jersey Department of Treasury's Chapter 25 List as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at: <https://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>.

Vendors/bidders must review this list prior to completing the certification. If the Board determines that a person or entity has submitted a false certification concerning its engagement in investment activities in Iran under section 4 of P.L.2012, c.25 (C.52:32-58), the board shall report to the New Jersey Attorney General the name of that person or entity, and the Attorney General shall determine whether to bring a civil action against the person to collect the penalty prescribed in paragraph (1) of subsection a. of section 5 of P.L.2012, c.25 (C.52:32-59).

In addition, bidders must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes on the lower portion of the enclosed form.

The Board has provided within the specifications, a Disclosure of Investments Activities certification form for all persons or entities, that plan to submit a bid, respond to a proposal, or renew a contract with the board, to complete, sign and submit prior to the contract award.

38. LIQUIDATED DAMAGES

The contractor agrees to substantially complete this public works project to the complete satisfaction of the Atlantic City Board of Education by the stated contract completion date or within the number of working days so specified in the contract.

Failure to complete the project within the specified time frame or contract completion date shall lead to the Board of Education assessing liquidated damages against the contractor in accordance with and pursuant to N.J.S.A. 18A:18A-41 and 18A:18A-19.

For each calendar day thereafter that the work included under this contract remains uncompleted in accordance with the provision of the contract, the Board of Education shall assess liquidated damages in the amount of **\$1,500.00 per calendar day**. The Board shall assess liquidated damages by deducting the amount from monies which are due or may become due on the contract.

The Board shall also assess the contractor additional damages for costs the Board may incur because of each day the project remains uncompleted. These costs include, but are not limited to:

- Construction management fees
- Architect/Engineer fees
- District administrative costs

- Any inspector or inspectors necessarily employed by the Board of Education on the work, for any number of days in excess of the number allowed in the specifications.

The Board of Education shall also assess against all monies owed to the contractor, liquidated damages for the violation of any terms and conditions of the contract or agreement by the contractor or the failure to perform said contract or agreement in accordance with its terms and conditions or the terms and conditions of the "Public School Contracts Law", in accordance with and pursuant to N.J.S.A. 18A:18A-19 and 18A:18A-41.

39. MAINTENANCE BONDS (**X**) Required () Not Required

When required by the Atlantic City Board of Education, the successful contractor shall furnish a Maintenance Bond for the total sum of the contract/bid price, indemnifying the Board of Education against defects in construction for a period of **two (2) years** after the completion of the work, general wear and tear excepted.

The condition of this obligation is such that if the successful contractor shall indemnify and hold harmless the Atlantic City Board of Education from and against all losses, costs, damages and expenses, whatsoever, which the Board may suffer or be compelled to pay by reason of the failure of the successful contractor to indemnify the Board against defects in systems/installation for a period of **two (2) years** after the completion of the work.

40. NON-COLLUSION AFFIDAVIT (N.J.S.A. 2A:93-6)

A notarized Non-Collusion Affidavit must be submitted with the bid.

41. NOTICE (AUTHORIZATION) TO PROCEED (N.J.S.A. 18A:18A-36(b))

The Contractor shall not perform any work, or provide any services, materials, supplies until a Notice (Authorization) to Proceed is received from the Atlantic City Board of Education. The Atlantic City Board of Education only recognizes the receipt by the contractor of an approved signed purchase order as a Notice to Proceed. No word of mouth, phone, fax, e-mail, letter or other form of communication to proceed is a valid Notice to Proceed.

42. PAYMENT

- Prompt payment of goods and services contracts, P.L. 2018, c.127.** Upon receipt of a properly executed invoice, the school district shall make payments the later of (a) 90 calendar days from receipt of properly executed invoice; or (b) 90 calendar days from the date the goods or services were received (as certified by an officer or duly designated district employee). All payments are subject to approval by the Board of Education at a public meeting and will be made in accordance with the Board of Education's policy and procedures.
- Properly executed invoice.** All invoices shall contain sufficient detail for the payment to be made. All invoices shall include the district's purchase order number. All invoices for services shall specify, in detail, the period for which payment is claimed, the services performed during the prescribed period, the work order/service ticket number (if applicable), the number of hours worked (if applicable), the hourly rate (if applicable), the amount claimed and correlation between the services claimed and this proposal. All invoices for goods shall include, but not limited to, the quantity, item number, product name, product description, unit cost, and the total cost.

The following are necessary components of a properly executed invoice:

- Affidavit or signed declaration stating that the claims and demands are correct in all particulars
 - Certified payroll records for public work projects that meet or exceed \$2,000 threshold
- Goods delivered or services rendered.** Public funds may be used to pay only for goods delivered or services rendered. Payment will be issued upon completion of services or delivery of full order to the satisfaction of the Board of Education, unless otherwise agreed to by written contract or mandated by state law. The Board may, at its discretion, make partial payments.
 - Rejection and challenge of invoices.** The Board shall act accordingly to accept or reject all or portions of an invoice. Undisputed portions of the invoice will be paid based on the original date the Board received the properly executed invoice. Prompt and timely notice will be provided to the vendor as to why the invoice was rejected and what is necessary to cure the defect. The Board will not make payments prior to the receipt of

goods and/or services. The Board will not make payments for good and/or services provided as a result of unauthorized change orders.

E. **Prompt payment of construction contracts, P.L. 2006, c.96.** Pursuant to N.J.S.A. 2A:30A-1, effective September 1, 2006, requiring school boards to pay the amount due to the prime contractor for each periodic payment, final payment or retainage monies not more than 30 calendar days after each billing date, please note the following:

1. The billing date is the first day of every month. If that day falls on a holiday or weekend, the next business day would be the billing date.
2. All required documentation must be received by the School Business Administrator on or before the bill date described above.
3. Billing information provided on the billing date shall include but not be limited to the following:
 - a. Properly signed Declaration and Certification of requested payment on a form provided by the board.
 - b. Properly signed and executed authorization from the Architect and/or Construction Manager.
 - c. Certified Payrolls
 - d. A copy of monthly affirmative action reports.
 - e. Any other documentation required by the district.
4. The payment date ("Payment Cycle") for acceptable and approved billing will occur on or before the last day of the month.

43. PAYMENT, PARTIAL AND WITHHOLDING FOR CONSTRUCTION CONTRACTS

Pursuant to N.J.S.A. 18A:18A-40.1, if a construction contract exceeds \$100,000, partial payment shall be made to the contractor at least once per month. As per N.J.S.A. 18A:18A-40.3 Percentage to be Withheld, the Atlantic City Board of Education shall withhold two (2) percent of the amount due on each partial payment pending completion of the contract when the outstanding balance exceeds \$500,000 and five (5) percent of the amount due when the outstanding balance is \$500,000 or less. Contracts under \$100,000 shall be paid as a lump sum upon completing project to the complete satisfaction of the Board of Education.

44. PERFORMANCE REVIEW

Pursuant to N.J.S.A. 18A:18A-15, the Atlantic City Board of Education, through its designee, upon completion of every contract for public work that exceeds \$20,000, shall report to the department as to the contractor's performance, and shall also furnish such report from time to time during performance if the contractor is then in default.

45. POLITICAL CONTRIBUTIONS DISCLOSURE—REQUIREMENTS

Annual Disclosure

A business entity as defined by law is advised of its responsibility to file an annual disclosure statement on political contributions with the New Jersey Election Law Enforcement Commission pursuant to N.J.S.A. 19:44A-20.27 (P.L. 2005 c.271 s.3) if the business entity receives contracts in excess of \$50,000 from public entities in a calendar year. It is the business entity's responsibility to determine if filing is necessary. Additional information on this requirement is available from the New Jersey Election Law Enforcement commission at 1-888-313-3532 or at www.elec.nj.us.

Chapter 271 Political Contribution Disclosure Form

Business entities (excluding those that are not non-profit organizations) receiving contracts in excess of \$17,500 from a board of education, are subject to the provisions of N.J.S.A. 19:44A-20.26. The law and rule provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
 - of the public entity awarding the contract
 - of that county in which that public entity is located

of another public entity within that county
or of a legislative district in which that public entity is located or, when the public entity is a county, of
any legislative district which includes all or part of the county.

The disclosure must list reportable contributions to any of the committees that exceed \$300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

The Atlantic City Board of Education has provided a Chapter 271 Political Contribution Disclosure Form within the specifications package for use by the business entity. The Board has also provided a list of agencies to assist the contractor. The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor's responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed Chapter 271 Political Contribution Disclosure form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor's submission and is subject to disclosure to the public under the Open Public Records Act.

POLITICAL CONTRIBUTIONS/AWARD OF CONTRACTS

Pursuant to N.J.A.C. 6A:23A-6.3 (a) (1-4) please note the following:

Award of Contract -- Reportable Contributions -- N.J.A.C. 6A:23A-6.3 (a) (1)

"No board of education will vote upon or award any contract in the amount of \$17,500 or greater to any business entity which has made a contribution reportable by the recipient under N.J.S.A. 19:44A-1 et seq. to a member of the board of education during the preceding one-year period.

Contributions During Term of Contract – Prohibited -- N.J.A.C. 6A:23A-6.3 (a) (2-3)

"Contributions reportable by the recipient under P.L. 1973, c.83 N.J.S.A. 19:44A-1 et seq. to any member of the school board from any business entity doing business with the school district are prohibited during the term of the contract."

"When a business entity referred in (a) (2) above is a natural person, contribution by that person's spouse or child that resides therewith, shall be deemed to be a contribution by the business entity. When a business entity is other than a natural person, a contribution by any person or other business entity having an interest therein shall be deemed to be a contribution by the business entity."

Chapter 271 Political Contribution Disclosure Form – Required -- N.J.A.C. 6A:23A-6.3 (a)

All business entities shall submit with their bid/proposal package a completed and signed Chapter 271 Political Contribution Disclosure Form. The Chapter 271 form will be reviewed by the Board to determine whether the business entity is in compliance with the aforementioned N.J.A.C. 6A:23A-6.3 (a) (2) Award of Contract.

It is noted that the disclosure requirements set forth in Section 2 of P.L. 2005 c. 271 (N.J.S.A. 19:44A-20.26) also shall apply when the contract is required by law to be publicly advertised for bids.

46. PRE-BID MEETING and WALKTHROUGH

A voluntary pre-bid meeting/walkthrough is an important part of the bidding process. It allows all bidders to have an equal understanding of the scope of work involved and to view the project worksite. **ATTENDANCE IS NOT MANDATORY.**

_____ A pre-bid meeting will not be held.

 X _____ A pre-bid meeting and walkthrough of the project worksite will be held November 18, 2021 at 9:30am at the 1400 Albany Avenue, Atlantic City, NJ 08401. Please contact the school district's facilities manager, Kurt Austin, at kaustin@acboe.org, if you would like to attend.

47. PRE-QUALIFICATION OF BIDDERS

- A. Pursuant to N.J.S.A. 18A:18A-26, 27 et seq., all bidders on any contract for public work(s) which the entire cost of the contract exceeds \$20,000.00, must be pre-qualified by the Department of Treasury, Division of Property Management and Construction, (DPMC) as to character and amount of public work on which they may submit bids. No person shall be qualified to bid on any public work contract with the Board if he has not submitted a statement to the Department of Treasury, Division of Property Management and Construction which fully develops the financial ability, adequacy of plant and equipment, organization and prior experience of the prospective bidder, and such other pertinent and material facts, within a period of one year preceding the date of opening of the bids for such contract.
- B. **Prequalification Affidavit—No Material Adverse Change**
Every pre-qualified bidder shall submit with his proposal, a notarized affidavit setting forth the type of work and the amount of work for which he has been qualified, that there has been no material adverse change in his qualification information, the total amount of completed work on contracts at the time and date of the classification. **Any bid not including a copy of this affidavit shall be rejected as being non-responsive to bid requirements.** (N.J.S.A. 18A:18A-32)
- C. All bidders shall furnish satisfactory evidence that he and his subcontractors have sufficient means and experience in the type of work to complete the project in accordance with the bid specifications. A subcontractor listing and bidder's personnel and experience sheet shall be submitted to the Board as part of the bidding documents. Where the bidder intends to subcontract any portion of the project, the cost of which will exceed \$20,000.00, the sub-contractor shall be pre-qualified to perform the work and the bidder shall submit the requisite documentation pertaining to the sub-contractor in accordance with Paragraphs A and B above. The Board may make such additional investigations as it deems necessary to determine the ability, competence and financial responsibility of the bidder to perform the work. The bidder shall furnish the Board with the information and data for this purpose upon request. The Board reserves the right to reject any bid if the information fails to establish to the Board's satisfaction that the bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated here.
- D. Notice of Classification (For Contracts exceeding \$20,000) (N.J.S.A. 18A:18A-27 et. seq.)
Each bidder shall submit with his/her bid a copy of a valid and active Notice of Classification letter issued by the Department of Transportation or the Department of Treasury, Division of Property Management and Construction as appropriate to the nature of the bid. **Any bid submitted to a school board under the terms of New Jersey Statutes not including a copy of a valid and active classification letter shall be rejected as being non-responsive to bid requirements.**
- "The Board of Education, through its authorized agent, shall upon completion of the contract report to the State agency listed on the pre-qualification/classification letter as to the contractor's performance and shall furnish such report from time to time during performance if the contractor is then in default."
- E. Uncompleted Contracts (For Contracts exceeding \$20,000) (N.J.A.C. 17:19-2.13)
The Board also requires that each bidder submit with his bid a certified Total Amount of Uncompleted Contracts form as prescribed by law (Form DPMC 701). **Failure to submit this document shall lead to having the bid being rejected as non-responsive.**

48. PREVAILING WAGES: CONSTRUCTION, ALTERATIONS, REPAIRS

The State of New Jersey Prevailing Wage Act, Chapter 150 Laws of 1963 with applicable statewide wage rates and for the wage rates for the county of the location of the school district, as published by the Department of Labor and Workforce Development in conformance with N.J.S.A. 34:11-56.25 et seq., may be included in these bid contract documents. Copies of these wage rates may be obtained from the State Department of Labor and Workforce Development, and/or viewed at <http://lwd.dol.state.nj.us/> the Prevailing Wages Determination Section.

Compliance with New Jersey Prevailing Wage Act

Every contractor and subcontractor performing services in connection with this project, shall pay all workers a wage rate not less than the published prevailing wage rates, for the locality the work is being performed, as designated by the New Jersey Department of Labor and Workforce Development.

Certified Payrolls

Every contractor agrees to submit to the Board of Education a certified payroll for each payroll period within ten (10) days of the payment of wages. The contractor further agrees that no payments will be made to the Contractor by the Board of Education, if certified payrolls are not received by the board. It is the Contractor's responsibility to ensure timely receipt by the district of certified payrolls.

Submission of Affidavit

Before final payment, the contractor shall furnish the Board of Education with an affidavit stating that all workers have been paid the prevailing rate of wages in accordance with State of New Jersey requirements. The contractor shall keep an accurate record showing the name, craft, or trade and actual hourly rate of wages paid to each workman employed by him in connection with this work. Upon request, the Contractor(s) and each Subcontractor shall file written statements certifying to the amounts then due and owing to any and all workmen for wages due on account of the work. The statements shall be verified by the oaths of the Contractor or Subcontractor, as the case may be.

Posting of Prevailing Wages

The contractor and subcontractor shall post the prevailing wage rates for each craft and classification involved in the work, including the effective date of any changes thereof, in prominent and easily accessible places at the Site of the work and in such place or places as used to pay workmen their wages. Ref. 18A:7G-23 and N.J.S.A. 34:11-56.32.

Prevailing Wages Certification—Submission with Bid

The bidder shall submit a Prevailing Wages Certification with its bid package.

Non-compliance Statement

If it is found that any worker, employed by the contractor or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wage required to be paid by such contract, the Board of Education, may begin proceedings to terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The contractor and his sureties shall be liable for any excess costs occasioned thereby to the public body.

49. QUALIFICATION OF BIDDERS – Contractor Questionnaire Certification Form

The Atlantic City Board of Education may make such investigations as it seems necessary to determine the ability of the bidder to perform the terms of the contract. The bidder shall complete a Contractor Questionnaire Certification Form and return same with the bid and shall furnish all information to the Board as the Board may require to determine the contractor's ability to perform the duties and obligations as outlined in these specifications. All bidders are reminded that bids may be rejected as not being responsive pursuant to N.J.S.A. 18A:18A-2(y) and therefore bidders are asked to complete the Questionnaire and to provide any supporting documentation with the bid package.

50. RESIDENT CITIZENS; PREFERRED IN EMPLOYMENT OF PUBLIC WORKS CONTRACTS

All bidders are to familiarize themselves with N.J.S.A. 34:9-2, which requires the contractor of any public works project to give preference in employment on the project, to citizens of the state of New Jersey. If the terms and conditions of N.J.S.A. 34:9-2 are not complied with, the contract shall be voidable. The Atlantic City Board of Education is obligated to file with the Commissioner of Labor, the names and addresses of all contractors holding contracts with this project.

51. RIGHT TO KNOW: MATERIAL SAFETY DATA SHEETS

All potentially hazardous materials or substances must be properly labeled in full accordance with the New Jersey Right to Know Law - N.J.S.A. 34:5A-1 et seq. All contractors or vendors who need additional information about the New Jersey Right to Know Law are to contact the following department:

New Jersey Department of Health and Senior Services
Right to Know Program
CN 368

Trenton, New Jersey 08625-0368

www.nj.gov/health/workplacehealthandsafety/right-to-know/

NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT

The manufacturer or supplier of chemical substances or mixtures shall label them in accordance with the N.J. Worker and Community Right to Know Law (N.J.S.A. 34:5A-1 et seq., and N.J.A.C 8:59-2 et seq.,). All direct use containers shall bear a label indicating the chemical name(s) and Chemical Abstracts Service number(s) of all hazardous substances in the container, and all other substances which are among the five most predominant substances in the container, or their trade secret registry number(s) pursuant to N.J.A.C. 8:59-5. "Container" means a receptacle used to hold a liquid, solid or gaseous substance such as bottles, bags, barrels, cans, cylinders, drums and cartons. (N.J.A.C. 8:59-1.3). Further, all applicable Material Safety Data Sheets (MSDS) - hazardous substance fact sheet - must be furnished. All containers which are stored at owner facilities by subcontractors shall display RTK labeling. Vendors with questions concerning labeling should contact the New Jersey Department of Health and Senior Services Right to Know Program for assistance in developing proper labels.

Further, all applicable Material Safety Data Sheets (MSDS) also known as hazardous substance fact sheet must be furnished to the Board of Education of Atlantic City, NJ.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE SURE THAT ALL CHEMICALS ARE PACKAGED IN CONTAINERS LABELED WITH THE COMPONENTS OF THE MIXTURE OR SUBSTANCE ALONG WITH ALL PRECAUTIONARY STATEMENTS, WARNINGS, AND DIRECTIONS FOR USE. ITEMS NOT SO MARKED WILL NOT BE ACCEPTED.

52. STATEMENT OF OWNERSHIP (N.J.S.A. 52:25-24.2)

No corporation, partnership or limited liability company shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any material or supplies, the cost of which is to be paid with or out of any public funds, by the State of New Jersey, or any county, municipality or school district, or any subsidiary or agency of the State, or of any county, municipality or school district, or by any authority, board, or commission which exercised governmental functions, unless prior to the receipt of the bid, accompanying bid, proposal, of said corporation, said partnership, or said limited liability corporation, there is submitted a statement setting forth the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. If one or more such stockholder or partner or member is itself a corporation or partnership, or limited liability company, the stockholders holding 10 percent or more of that corporation's stock, or the individual partners owning 10 percent or greater interest in that partnership, or the members owning 10 percent or greater interest in that limited liability company, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every non corporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established in this act, has been listed.

To comply with this section, a bidder or respondent with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the website containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information one each person that holds a 10 percent or greater beneficial interest. N.J.S.A. 52:25-24.2—as amended P.L. 2016 c.43.

The Atlantic City Board of Education has provided within the specifications, a two (2) page form titled:

STOCKHOLDER/PARTNERSHIP DISCLOSURE AND STATEMENT OF OWNERSHIP

All bidders/respondents are to complete, sign, and submit both pages of the form. **Failure to complete, sign, and submit the form with the bid/proposal, shall be cause for the disqualification of the bid/proposal.**

53. SUBCONTRACTING: Subcontractor Disclosure Statement

Pursuant to N.J.S.A. 18A:18A-18(b) any bidder who bids for the overall contract shall identify the subcontractor that will be used, on the form provided, if the following work is to be subcontracted:

- Plumbing and gas fitting work;
- Refrigeration, heating and ventilating systems and equipment;
- Electrical work, tele-data, fire alarm or security systems; and
- Structural steel and ornamental iron work;

Qualified Subcontractors

If the cost of the work done by the subcontractor exceeds \$20,000, then said contractor shall be qualified in accordance with Article 6, N.J.S.A. 18A:18A-27 et. seq. The bidder shall supply proof that the subcontractor is qualified by submitting with the bid the subcontractor’s:

- Notice of Classification Form
- Total Amount of Uncompleted Contractor’s Form—Certified (Form DPMC 701)

For all other subcontractors who will perform work valued in excess of \$20,000.00, the bidder shall submit the evidence of the subcontractor’s qualifications listed above within ten (10) days of receipt of notice of the award of contract.

Documents to be Submitted: All Subcontractors

The prime contractor (bidders) who will be using a subcontractor on any part of this bid, shall identify the subcontractor(s) on the appropriate form and submit with the bid package the following subcontractor documents at the time indicated in the box below:

SUBCONTRACTOR DOCUMENT SUBMISSIONS		
Estimated Value of Contract – Subcontractor	For Subcontractors in the four major branches listed above: <i>Submit With Bid</i>	For all other Subcontractors: <i>Submit Within ten (10 Days of Receipt of Notice of Award</i>
\$2,000 through \$5,999	Contractor’s Registration Certificate	
\$6,000 through \$17,499	Contractor’s Registration Certificate New Jersey Business Registration Certificate	
\$17,500 through \$19,999	Contractor’s Registration Certificate New Jersey Business Registration Certificate Chapter 271 Political Contribution Disclosure Form	
\$20,000 or more	Contractor’s Registration Certificate New Jersey Business Registration Certificate Chapter 271 Political Contribution Disclosure Form Notice of Classification Total Amount of Uncompleted Contracts -- Certified	

Failure to identify in the Subcontractor’s Disclosure Statement the names and addresses of any or all subcontractors required to be named in the bid, or to submit with the bid the appropriate documents for each such subcontractor, may be cause for the bid to be rejected as being non-responsive.

Contractors are reminded that the subcontractors listed on the forms provided by the school district may not be changed later, except in the case of failure in performance or other contract breach where a change is needed to protect the school district.

54. SUBCONTRACTING; PROHIBITIONS; HOLD HARMLESS

Prime contractors, with whom the Board of Education have an executed contract, may not subcontract any part of any work done for the Board without first receiving written approval. Contractors seeking to use subcontractors must first complete the Request to Subcontract Form as provided.

Subcontractors Prohibited to Subcontract

It is the responsibility of the prime contractor to ensure that no subcontractor who has received written permission to do work for the Board of Education subcontracts any of its/their work without first receiving written approval from the prime contractor **and** the Board of Education.

The prime contractor assumes all responsibility for work performed by subcontractors. The prime contractor must also provide to the Board Business Office the following documents secured from all approved subcontractors:

- Insurance Certificate as outlined in the bid specifications;
- Affirmative Action Evidence as outlined in the bid specifications;
- Written certification that the subcontractor shall adhere to prevailing wages as provided through New Jersey State Law;
- Evidence of Performance Security

In cases of subcontracting, the Atlantic City Board of Education shall only pay the prime contractor. It is the sole responsibility of the prime contractor to ensure that all subcontractors are paid. The Atlantic City Board of Education shall not be responsible for payments to subcontractors and shall be held harmless against any or all claims generated against prime contractors for non-payment to subcontractors.

The Board of Education shall pay subcontractors directly only when the following conditions are met:

- A. The prime contractor has been awarded the bid for all the work and materials required to complete the building in a single overall contract.
- B. The prime contractor identified in letter (A) submits to the Board of Education:
 - Certification that all materials, supplies have been supplied and all work has been completed by the subcontractor;
 - Certification of the amount due to the subcontractor

Penalties - The Board of Education shall deduct the amount of \$1,000.00 (one thousand dollars) per day as a penalty, for each day a prime contractor uses a subcontractor without first receiving **written** permission from Board of Education.

55. SWORN CONTRACTOR CERTIFICATION; QUALIFICATIONS AND CREDENTIALS

Pursuant to N.J.S.A. 18A:7G-37, a pre-qualified contractor seeking to bid school facilities projects, and any subcontractors, that are required to be named under N.J.S.A. 18A:7G-1 et seq. shall, as a condition of bidding, submit the Sworn Contractor Certification regarding qualifications and credentials. Failure to complete, sign and submit the certification may lead to the bid being rejected.

56. TAXES, PERMITS, AND FEES

Respective contractors shall secure and pay for all necessary permits required by any local, County, State or Federal ordinances, laws, rules or regulations.

For the term of the contract, the contractor and each of its affiliates and a subcontractor and each of its affiliates [N.J.S.A. 52:32-44(g)(3)] shall collect and remit to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State, regardless of whether the tangible personal property is intended for a contract with a contracting agency.

The respective contractors shall make notification and coordinate the inspections required by governing agencies, paying all fees connected therewith, deposits and/or payments for services, including the costs and installation of utility meters, connecting equipment, etc.

As a New Jersey governmental entity, the Atlantic City Board of Education is exempt from the requirements under New Jersey state sales and use tax (N.J.S.A. 54:32B-1 et seq.), and does not pay any sales or use taxes. Bidders should note that they are expected to comply with the provisions of said statute and the rules and regulations promulgated thereto to qualify them for examinations and reference to any and all labor, services, materials and supplies furnished to the Board of Education. Contractors **may not** use the Board's tax identification number to purchase supplies, materials, service or equipment, for this project.

A contractor may qualify for a New Jersey Sales Tax Exemption on the purchase of materials, supplies and services when these purchases are used exclusively to fulfill the terms and conditions of the contract with the Board of Education. All contractors are referred to New Jersey Division of Taxation–Tax Bulletin S&U-3 and in particular, Contractor's Exempt Purchase Certificate (Form ST-13). Again, contractors are not permitted to use the Board's tax identification number to purchase supplies, materials, services of equipment.

57. TRUTH IN CONTRACTING (False Claims and Representations)

A person commits a crime if the person knowingly submits to the Board of Education any claim for payment for performance of a contract knowing such claim to be false, fictitious, or fraudulent. If the claim is for \$25,000.00 or above, the offender is guilty of a crime of the second degree; the penalty for which is 5-10 years in prison and \$150,000.00 fine. If the claim exceeds \$2,500.00 but is less than \$25,000.00, the offender is guilty of a crime of the third degree; the penalty for which is 3-5 years in prison and \$15,000.00 fine. If the contract amount is for \$2,500.00 or less, the offender is guilty of a crime of the fourth degree; the penalty for which is up to 18 months in prison and \$10,000.00 fine. N.J.S.A. 2C:21-33.

Bidders should be aware that the Attorney General of the state of New Jersey can bring civil suit for treble damages and can criminally prosecute anyone involved in "Bid Rigging." The penalties for Bid Rigging include 5-10-year prison term, individual fines – minimum \$50,000.00--\$300,000.00 and corporate fine of \$250,000.00 - \$1,000,000.00.

58. WARRANTY REQUIREMENTS

All materials shall carry the manufacturer's standard warranty and/or guarantee. The warranty and/or guarantee shall accompany the materials when delivered.

If any item supplied fails to perform satisfactorily within the first thirty (30) days, it shall be replaced by a new one of the same make and model. Temporary equipment shall be provided within twenty-four (24) hours while replacement is being processed.

If a product must be returned during the warranty period due to a defect, malfunction or dead on arrival, the contractor shall pay the shipping/freight charges.

59. WITHDRAWAL OF BIDS

BEFORE THE BID OPENING

The Board of Education will consider a written request to withdraw a bid if the written request is received by the School Business Administrator and/or the Board Secretary or the Purchasing Administrator before the advertised time for opening of bids. **Any withdrawn bid cannot be resubmitted.**

AFTER THE BID OPENING

A bidder who discovers a mistake or omission after bids have been opened may request to withdraw the bid provided the bidder gives immediate written notice to the Purchasing Administrator of the mistake and/or omission and certification supported by clear evidence that he or she exercised reasonable care in the examination of the specifications and preparation of the bid. Any bidder granted permission by the Board of Education to withdraw the bid under this clause is subject to forfeit any bid guarantee.

Atlantic City High School Distance Learning Lab

BID DOCUMENTS AND REQUIRED DOCUMENTATION

All documents in this section shall be completed, signed and submitted with the bidder's bid package. Failure to submit the required bid documents and other documents so specified shall be cause to reject the bid for being non-responsive (N.J.S.A. 18A:18A-2(y)). In order for your bid to be considered responsive, all documents must be completed and returned intact.

SPECIFICATIONS/SCOPE OF WORK SIGNATURE SHEET

ACHS DISTANCE LEARNING LAB

Bid #22-021

IN ORDER FOR YOUR BID TO BE CONSIDERED RESPONSIVE, ALL FORMS MUST BE COMPLETED AND THE ENTIRE BID PACKAGE RETURNED INTACT.

BIDDERS, COMPLETE THE FOLLOWING STATEMENTS:

Can you meet the Board of Education's specified delivery time?

YES

NO

Do you have any deviations or exceptions to the terms, conditions or specifications?

YES

NO

If yes, list any and all exceptions or deviations in the spaces provided below. If there are no exceptions or deviations, state "**NONE.**"

The undersigned hereby agrees to provide and perform all goods and services in accordance to all terms, conditions, and specifications outlined in this bid package. The undersigned understands and agrees to abide by the board of education's terms regarding change orders, purchase order requirements, and payments.

Company Name _____

Name of Bidder _____

Title of Bidder _____

Signature of Bidder _____

City _____ State _____ Zip Code _____

Telephone _____ Fax _____

Email _____

Date: _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

ACKNOWLEDGMENT OF RECEIPT OF ADDENDA

ACHS DISTANCE LEARNING LAB

Bid #22-021

The undersigned Bidder hereby acknowledges receipt of the following Addenda:

<u>Addendum Number</u>	<u>Dated</u>	<u>Acknowledge Receipt</u> (Initial)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Acknowledged for: _____
Company Name

By: _____
Name of Authorized Representative Signature of Authorized Representative

_____ _____
Title Date

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID ONLY IF ADDENDA ISSUED

AFFIRMATIVE ACTION—Construction Contracts Acknowledgement

ACHS DISTANCE LEARNING LAB

Bid #22-021

The undersigned acknowledges and agrees to comply with the following:

AFFIRMATIVE ACTION—EQUAL EMPLOYMENT OPPORTUNITY IN PUBLIC CONTRACTS—EEO

The construction contractor shall complete and submit an Initial Project Workforce Report, Form AA-201 upon notification of award by the board of education. Proper completion and submission of this Report shall constitute evidence of the contractor's compliance with the regulations. Failure to submit this form may result in the contract being terminated. The contractor also agrees to submit a copy of the Monthly Project Workforce Report, Form AA-202 once a month thereafter for the duration of the contract to the Department of Labor Workforce and Development and the board of education Public Agency Compliance Officer.

All bidders should familiarize themselves with N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1.1 et seq. MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE—EXHIBIT B. If awarded a contract, your company/firm will be required to comply with the above requirements.

Contractors and vendors are to familiarize themselves with the following document:

Vendor/Contractor Guidelines for Awarded Public Contracts

The document may be obtained from the New Jersey Division of Purchase and Property, Contract Compliance and Audit Unit, Equal Employment Opportunity (EEO) Program website or by visiting the following link.

[NJ Department of the Treasury Contract Compliance \(state.nj.us\)](http://state.nj.us)

Name of Company: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Name of Authorized Representative: _____

Signature: _____ Date: _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

EXHIBIT A

MANDATORY EQUAL OPPORTUNITY LANGUAGE

N.J.S.A. 10:5-31 et seq. (P.L. 1975, C.127)

N.J.A.C. 17:27-1.1 et seq.

CONSTRUCTION CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in the recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor, where applicable, will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with the standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

- A. If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as supplemented and amended from time to time and the American with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and

women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

- B. If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:
1. To notify the Public Agency Compliance Officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;
 2. To notify any minority and women workers who have been listed with it as awaiting available vacancies;
 3. Prior to commencement of work, to request that the local construction trade union refer minority and women workers fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
 4. To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;
 5. If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and nondiscrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;
 6. To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:
 - i. The contractor or subcontractor shall interview the referred minority or women worker.
 - ii. If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriated qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provision of (C) below.
 - iii. The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.
 - iv. If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.

7. To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

C. The contractor or subcontractor agrees that nothing contained in (B) preceding provision shall preclude the contractor or subcontractor from complying with the hiring hall or apprenticeship policies in any applicable collective bargaining agreement or hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in number which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ration established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program, and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

D. The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposed of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

Company Name

Authorized Signature

Date

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

EXHIBIT B

**AMERICANS WITH DISABILITIES ACT OF 1990
Equal Opportunity for Individuals with Disability**

The contractor and the Atlantic City Board of Education, (hereafter "owner") do hereby agree that the provisions of Title 11 of the Americans with Disabilities Act of 1990 (the "Act") (42 U.S.C. S121 01 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant there unto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event that the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the owner's grievance procedure, the contractor agrees to abide by any decision of the owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the owner, or if the owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the owner or any of its agents, servants, and employees, the *owner shall* expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or other process received by the owner or its representatives.

It is expressly agreed and understood that any approval by the owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the owner pursuant to this paragraph.

It is further agreed and understood that the owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the owner from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

Company Name

Authorized Signature

Date

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

Contractor Questionnaire/Certification (pg. 1)

ACHS DISTANCE LEARNING LAB

Bid #22-021

Name of Company _____

Street Address _____ P.O. Box _____

City, State, Zip _____

Business Phone Number (____) _____ Extension _____ Emergency Phone Number (____) _____

FAX NO. (____) _____ E-Mail _____

1. How many years have you been engaged in the contracting business under your present firm or trading name?

Answer____

2. Have you ever failed to complete any work awarded to your company? Answer____

If yes, when, where and with whom? _____

3. Have you ever defaulted on a contract? Answer____

If yes, when, where and with whom? _____

4. Have you or other principals of your company been debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in any public works projects by any federal, state or local agencies, including any "prior negative experience" disqualification pursuant to N.J.S.A. 18A:18A-4 (b) (c)?

Answer____ If yes, when, where and with whom? _____

References

Architects--List names of architects that you have worked on projects within the last five (5) years:

<u>Firm</u>	<u>Principal</u>	<u>Phone Number</u>
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____

List name of principal bank with which your company does business:

<u>Bank</u>	<u>Officer</u>	<u>Phone Number</u>
_____	_____	_____

Contractor Questionnaire/Certification (pg. 2)

ACHS DISTANCE LEARNING LAB

Bid #22-021

School Districts--List names of school districts with which your company has completed projects similar to the one outlined in this bid:

	<u>School District</u>	<u>Official</u>	<u>Phone Number</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

Trade--List names of companies within your trade with which your company does business:

	<u>Firm</u>	<u>Principal</u>	<u>Phone Number</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

Certification

I declare and certify that I and the company, of which I am the agent, are not presently included on the following:

- New Jersey Department of Treasury – Consolidation Debarment Report
- NJ Department of Labor and Workforce Development – Prevailing Wage Debarment List
- Federal Debarred Vendor List – System for Award Management (SAM.gov)

I further declare and certify that no member of the Atlantic City Board of Education, nor any officer or employee or person whose salary is payable in whole or in part by said Board of Education is directly or indirectly interested in this bid or in the supplies, materials, equipment, work or services to which it relates, or in any portion of profits thereof. If a situation so exists where a Board member, employee, officer of the board has an interest in the bid, etc., then please attach a letter of explanation to this document, duly signed by the president of the firm or company.

Name of Company _____

President/Authorized Agent _____

(Print Name)

Signature of Authorized Agent

THIS FORM (2 Pages) MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

Subcontractor's Disclosure Statement (pg. 1)

ACHS DISTANCE LEARNING LAB

Bid #22-021

The _____
(Name of Bidding Company)

PLEASE CHECK ONE _____ will subcontract a portion of this project.

_____ will not subcontract any portion of this project.

Authorized Agent _____ **Title** _____

Signature of Bidder _____ **Date** _____

If the bidder **IS NOT** going to subcontract any portion of this project, the bidder need not complete any further part of this document.

If the bidder **WILL** subcontract a portion of this project, the bidder must do the following:

- Identify the contract number and type of work he intends to subcontract.
- Provide the name, address and other pertinent information about the subcontractor.
- If the cost of the work by the subcontractor shall exceed \$20,000, the bidder shall provide in the bid package subcontractors (N.J.S.A. 18A:18A-18).
 - * Notice of Classification
 - * Total Amount of Uncompleted Contracts
 - * Contractor's Registration Certificate (Projects over \$2,000.00)

Please list subcontractor(s) on the following pages.

Bidders may make extra copies of the following pages.

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

Subcontractor's Disclosure Statement (pg. 2)

ACHS DISTANCE LEARNING LAB

Bid #22-021

1. Subcontractor for: _____
(Type of Work)

Name of Subcontracting Company _____

Address _____

City, State, Zip _____

Telephone _____ Fax _____

Authorized Agent _____ Title _____

Will the cost of subcontract exceed \$20,000?

_____ Yes Estimated Value of Contract \$ _____

_____ No Estimated Value of Contract \$ _____

If checked **YES**, the subcontractor must be pre-qualified to perform the work. The bidder must provide in the bid package the following:

- The subcontractor's Notice of Classification
- The subcontractor's Total Amount of Uncompleted Contracts
- The subcontractor's Contractor's Registration Certificate (Projects over \$2,000.00).

Certification of Equipment; Performance Security, etc.

The _____ hereby certifies the above named

Name of Bidding Company

subcontractor has the personnel, equipment, experience, financial and sufficient means to complete their portion of the contract in full accordance with the bid specifications.

Name of Bidding Company _____

Name of Authorized Agent _____

Signature of Authorized Agent _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID, IF APPLICABLE

Subcontractor's Disclosure Statement (pg. 3)

ACHS DISTANCE LEARNING LAB

Bid #22-021

2. Subcontractor for: _____
(Type of Work)

Name of Subcontracting Company _____

Address _____

City, State, Zip _____

Telephone _____ Fax _____

Authorized Agent _____ Title _____

Will the cost of subcontract exceed \$20,000?

_____ Yes Estimated Value of Contract \$ _____

_____ No Estimated Value of Contract \$ _____

If checked **yes**, the subcontractor must be pre-qualified to perform the work. The bidder must provide in the bid package the following:

- The subcontractor's Notice of Classification
- The subcontractor's Total Amount of Uncompleted Contracts
- The subcontractor's Contractor's Registration Certificate (Projects over \$2,000.00).

Certification of Equipment; Performance Security, etc.

The _____ hereby certifies the above named
Name of Bidding Company

subcontractor has the personnel, equipment, experience, financial and sufficient means to complete their portion of the contract in full accordance with the bid specifications.

Name of Bidding Company _____

Name of Authorized Agent _____

Signature of Authorized Agent _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID, IF APPLICABLE

Subcontractor's Disclosure Statement (pg. 4)

ACHS DISTANCE LEARNING LAB

Bid #22-021

3. Subcontractor for: _____
(Type of Work)

Name of Subcontracting Company _____

Address _____

City, State, Zip _____

Telephone _____ Fax _____

Authorized Agent _____ Title _____

Will the cost of subcontract exceed \$20,000?

_____ Yes Estimated Value of Contract \$ _____

_____ No Estimated Value of Contract \$ _____

If checked **yes**, the subcontractor must be pre-qualified to perform the work. The bidder must provide in the bid package the following:

- The subcontractor's Notice of Classification
- The subcontractor's Total Amount of Uncompleted Contracts
- The subcontractor's Contractor's Registration Certificate (Projects over \$2,000.00).

Certification of Equipment; Performance Security, etc.

The _____ hereby certifies the above named
Name of Bidding Company

subcontractor has the personnel, equipment, experience, financial and sufficient means to complete their portion of the contract in full accordance with the bid specifications.

Name of Bidding Company _____

Name of Authorized Agent _____

Signature of Authorized Agent _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID, IF APPLICABLE

Subcontractor's Disclosure Statement (pg. 5)

ACHS DISTANCE LEARNING LAB

Bid #22-021

4. Subcontractor for: _____
(Type of Work)

Name of Subcontracting Company _____

Address _____

City, State, Zip _____

Telephone _____ Fax _____

Authorized Agent _____ Title _____

Will the cost of subcontract exceed \$20,000?

____ Yes Estimated Value of Contract \$ _____

____ No Estimated Value of Contract \$ _____

If checked **yes**, the subcontractor must be pre-qualified to perform the work. The bidder must provide in the bid package the following:

- The subcontractor's Notice of Classification
- The subcontractor's Total Amount of Uncompleted Contracts
- The subcontractor's Contractor's Registration Certificate (Projects over \$2,000.00).

Certification of Equipment; Performance Security, etc.

The _____ hereby certifies the above named
Name of Bidding Company

subcontractor has the personnel, equipment, experience, financial and sufficient means to complete their portion of the contract in full accordance with the bid specifications.

Name of Bidding Company _____

Name of Authorized Agent _____

Signature of Authorized Agent _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID, IF APPLICABLE

Subcontractor's Disclosure Statement (pg. 6)

ACHS DISTANCE LEARNING LAB

Bid #22-021

(Other Trades)

A. Name of Trade/Type of Work _____
Name of Subcontracting Company _____
Address _____
City, State, Zip _____
Telephone _____ Fax _____
Authorized Agent _____ Title _____
Value of Contract \$ _____

Bid Submittals from Subcontractor

____ Notice of Classification ____ Contractor's Registration Certificate ____ Uncompleted Contracts

B. Name of Trade/Type of Work _____
Name of Subcontracting Company _____
Address _____
City, State, Zip _____
Telephone _____ Fax _____
Authorized Agent _____ Title _____
Value of Contract \$ _____

Bid Submittals from Subcontractor

____ Notice of Classification ____ Contractor's Registration Certificate ____ Uncompleted Contracts

C. Name of Trade/Type of Work _____
Name of Subcontracting Company _____
Address _____
City, State, Zip _____
Telephone _____ Fax _____
Authorized Agent _____ Title _____
Value of Contract \$ _____

Bid Submittals from Subcontractor

____ Notice of Classification ____ Contractor's Registration Certificate ____ Uncompleted Contracts

Signature of Authorized Agent

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID, IF APPLICABLE

STOCKHOLDER/PARTNERSHIP DISCLOSURE AND STATEMENT OF OWNERSHIP

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

ACHS DISTANCE LEARNING LAB

Bid #22-021

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: _____

Organization Address: _____

Part I Check the box that represents the type of business organization:

- Sole Proprietorship (skip Parts II and III, execute certification in Part IV)
- Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- For-Profit Corporation (any type) Limited Liability Company (LLC)
- Partnership Limited Partnership Limited Liability Partnership (LLP)
- Other (be specific): _____

Part II

- The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (**COMPLETE THE LIST BELOW IN THIS SECTION**)

OR

- No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART IV**)

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Business Address

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed.**

STOCKHOLDER/PARTNERSHIP DISCLOSURE AND STATEMENT OF OWNERSHIP (continued)

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

ACHS DISTANCE LEARNING LAB

Bid #22-021

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above**. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Business Address

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the **Atlantic City Board of Education** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with the **Atlantic City Board of Education** to notify the **Atlantic City Board of Education** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the **Atlantic City Board of Education** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

THIS FORM (2 pages) MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

EQUIPMENT CERTIFICATION

ACHS DISTANCE LEARNING LAB

Bid #22-021

In accordance with N.J.S.A. 18A:18A-23, I hereby certify that:

A) _____ owns all the necessary equipment as required by the
(Name of Company)
specifications and to complete the specified public work project.

OR

B) _____ leases or controls all the necessary equipment as required
(Name of Company)
by the specifications, and to complete the specified public work project.

PLEASE NOTE:

If your company is not the actual owner of the equipment, **you shall submit with the bid:**

1. A certificate stating the source from which the equipment will be obtained, and
2. Obtain and submit with the bid a certificate from the owner and person in control of the equipment, definitely granting to the bidder the control of the equipment required during such time it may be necessary for the completion of that portion of the contract for which said equipment will be necessary.

Name of Company _____

Address _____

City, State, Zip _____

Authorized Agent _____ **Title** _____

Signature of Authorized Agent

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

NON-COLLUSION AFFIDAVIT

ACHS DISTANCE LEARNING LAB

Bid #22-021

STATE OF : _____)

COUNTY OF: _____)

I, _____, of _____ in the County

of _____, State of _____, of full age, being duly sworn according to the law on my oath, depose and say that:

I am _____ of the firm of _____, the bidder making the bid for the herein project, and that I executed said bid with full authority to do so, that said bidder has not 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 the project named in this bid, and that all statements contained in said bid and in this Affidavit are true and correct, and made with full knowledge that the ATLANTIC CITY BOARD OF EDUCATION relies upon the truth of the statement contained in said bid and in the statements contained in this Affidavit in awarding the contract for said project.

I warrant that no requirement or commitment was made in reference to any political contribution to any party, person or elected official, and that no undisclosed benefits of any kind were promised to anyone connected with the ATLANTIC CITY BOARD OF EDUCATION or any political party in reference hereto.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, **EXCEPT** bona fide employees or bona fide established commercial or selling agencies maintained by:

(Name of Contractor)

I further warrant and represent that I have never been convicted of or acknowledged or admitted to any payment of kickbacks or unlawful gifts to any government official, school board official or employee for which conduct the ATLANTIC CITY BOARD OF EDUCATION deems me disqualified from doing business with them under such circumstances.

I also understand that the above disqualification does not apply to any vendor who cooperates with the prosecution and gives supporting testimony on behalf of the prosecution in the course of a judicial inquiry.

SWORN AND SUBSCRIBED TO BEFORE ME

THIS _____ **DAY OF** _____, **20** _____

(Signature of NOTARY PUBLIC)

Signature of Affiant

NOTARY PUBLIC OF: _____

Print/type name of Affiant

My Commission Expires: _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

PREQUALIFICATION AFFIDAVIT

ACHS DISTANCE LEARNING LAB

Bid #22-021

The below affidavit must be submitted with your bid for projects over \$20,000.00 pursuant to N.J.S.A. 18A:18A-32:

STATE OF NEW JERSEY)
) ss
COUNTY OF)

I, _____ of the City of _____ in the County of _____
and the State of _____ of full age, being duly sworn according to law on my oath depose and say that:

No Material Adverse Change in Qualification

I am _____ (*Position in Company*), and the bidder for the above named project. The answers to the following statements are true and correct and that there has been no material adverse change in the qualification information subsequent to the latest statement submitted as required (N.J.S.A. 18A:18A-32 et seq.) as amended, except as set forth herewith. I further certify that there is not now pending any litigation or other action that may jeopardize my rating, status or contract limits from their current limits.

Notice of Classification (DPMC 27)

_____ (*Name of Company*) is classified by the State of New Jersey under Chapter 105, Laws of 1962, as amended. This Classification became effective _____ (*Date*)

Type of Contract/Trade Classified: _____

Classification Approved Amount \$ _____

A copy of my valid and active prequalification/classification certificate from the Department of Treasury, Division of Property Management and Construction has been submitted with this bid.

Total Amount of Uncompleted Contracts (DPMC 701); EXACT AMOUNT REQUIRED

The total amount of uncompleted work is \$ _____ as of _____ (*Date*).

A copy of the company's Total Amount of Uncompleted Contracts form listing the **exact** amount is required to be submitted with the bid.

Signature of Authorized Representative Date

Sworn and subscribed to before me this _____ day of _____ in the Year _____.

Signature of Notary Print Name of Notary Notary Public of _____

My Commission Expires: _____ **-SEAL-**
Month Day Year

This affidavit does not take the place of the "Notice of Classification" or the "Total Amount of Uncompleted Contracts" issued by the State of New Jersey, both of which must be submitted with the bid package of each bidder.

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

CONTRACTOR REGISTRATION CERTIFICATION

ACHS DISTANCE LEARNING LAB
Bid #22-021

It is the determination of the Atlantic City Board of Education that this is a public works project which contract amount in total will exceed \$2,000.00 (two thousand dollars), therefore, pursuant to the Public Works Contractor Registration Act -- N.J.S.A. 34:11-56.48 et seq., contractors are to be aware of the following:

No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (C.34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.

I certify that our company understands that the project of the Atlantic City Board of Education requires that all contractors and subcontractors listed in this proposal possess a valid Contractor Registration Certificate or submit with its bid a copy of the registration application (contractors and subcontractors) at the time the proposal is received by the Board and furthermore certify that I will provide copies of the valid certificates prior to the award of contract.

Name of Company _____

Authorized Agent _____ Title _____

Authorized Signature _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

PREVAILING WAGE CERTIFICATION

ACHS DISTANCE LEARNING LAB

Bid #22-021

It is the determination of the Atlantic City Board of Education that this is a public works project that in total will exceed \$2,000.00 (two thousand dollars), therefore prevailing wages rules and regulations apply as promulgated by the New Jersey Prevailing Wage Act and in conformance with N.J.S.A. 34:11-56:25 et seq.

Certification

1. I certify that our company understands that this project of the Board of Education requires prevailing wages to be paid in full accordance with the law.
2. I further certify that all subcontractors named in this bid understand that this project requires the subcontractor to pay prevailing wages in full accordance with the law.

Non-compliance Statement

If it is found that any worker, employed by the contractor or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wage required to be paid by such contract, the Board of Education, may begin proceedings to terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The contractor and his sureties shall be liable for any excess costs occasioned thereby to the public body.

NOTIFICATION OF VIOLATIONS – New Jersey Department of Labor and Workforce Development

Has the bidder or any person having an "interest" with the bidder, been notified by the New Jersey Department of Labor and Workforce Development by notice issued pursuant to N.J.S.A. 34:11-56:37 that he/she has been in violation for failure to pay prevailing wages as required by the New Jersey Prevailing Wage Act within the last five (5) years?

* Yes _____

No _____

*If yes, please attach a signed document explaining any/or all administrative proceedings with the Department within the last five (5) years. Please include any pending administrative proceedings with the Department if any.

Submission of Certified Payroll Records

All certified payroll records are to be submitted to the person named below who is coordinating the activities for the project:

Name of Company _____

Authorized Agent _____

Authorized Signature _____

Date _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

VENDOR'S AFFIDAVIT
ACHS DISTANCE LEARNING LAB
Bid #22-021

STATE OF : _____)

COUNTY OF : _____)

I, _____, of full age, being duly sworn according to the law on my oath, depose and say that:

I am _____, (Officer/Partner/Owner) of the firm of:

the Bidder making the bid for the herein project, and that I executed said bid with full authority to do so, and that all statements contained in said bid and in this Affidavit are true and correct and made with full knowledge that the ATLANTIC CITY BOARD OF EDUCATION relies upon the truth of the statement contained in said Bid and in the statements contained in this Affidavit in awarding the contract for said project.

I understand that this affidavit is being provided to the ATLANTIC CITY BOARD OF EDUCATION in compliance with the provisions of NJSA 18A:12-2 and NJSA 18A:6-8 which prohibit persons having a conflict of interest in entering into contracts or selling textbooks, apparatus or supplies to the Board of Education.

No person who is a shareholder, officer, director, partner or owner of the above vendor is officially connected with or employed in the ATLANTIC CITY PUBLIC SCHOOLS DISTRICT or is in any way pecuniarily or beneficially interested in or receives compensation or reward of any kind in connection with the sales of the vendor to the ATLANTIC CITY BOARD OF EDUCATION.

No member of the ATLANTIC CITY BOARD OF EDUCATION is employed or interested directly in the above vendor.

I further declare and certify that I and the company of which I am the agent, are not included on the State Treasurer's **List of Debarred, Suspended or Disqualified Bidders.**

I understand that if any statements made herein are false, I am subject to punishment and that any person who may be interested in my company while employed by the ATLANTIC CITY BOARD OF EDUCATION is subject to removal from office and to revocation of his/her certificate to teach or administer, direct or supervise instruction or educational guidance in the public school system.

SWORN AND SUBSCRIBED TO BEFORE ME

THIS _____ **DAY OF** _____, **20** _____

(Signature of NOTARY PUBLIC)

Signature of Affiant

NOTARY PUBLIC OF: _____

Print/type name of Affiant

My Commission Expires: _____

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

Sworn Contractor Certification - Qualifications and Credentials

ACHS DISTANCE LEARNING LAB

Bid #22-021

Pursuant to N.J.S.A. 18A:7G-37, a pre-qualified contractor seeking to bid school facilities projects, and any subcontractors, that are required to be named under N.J.S.A. 18A:7G-1 et seq. shall, as a condition of bidding, submit this Sworn Contractor Certification regarding qualifications and credentials.

I, the principal owner or officer of the company, certify that the forging statements are true and our firm has the following qualifications and credentials:

1. A current, valid certificate of registration issued pursuant to "The Public Works Contractor Registration Act," N.J.S.A. 34:11-56:48 et seq. A copy of which is submitted with its bid;
2. A current, valid Certificate of Authority (Business Registration) to perform work in New Jersey issued by the Department of Treasury, a copy of which is submitted with its bid;
3. A current valid contractor trade license required under applicable New Jersey Law for any specialty trade or specialty area in which the firm seeks to perform work, a copy of which is submitted with its bid;
4. During the term of the school facilities project, I as principal owner or officer of the company or corporation, as contractor, will have in place a suitable quality control and quality assurance program and an appropriate safety and health plan.
5. Certify that, at the time of bidding, the amount of the bid proposal and value of all of its outstanding incomplete contracts does not exceed the firm's existing aggregate rating limit.

Name of Company _____

Name of Owner or Officer _____

Signature of Owner or Officer _____

Notarized before me this _____ day of _____, _____
Month Year

NOTARY PUBLIC SIGNATURE

Print Name of Notary Public

My commission expires _____
Month Day Year

-SEAL-

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

**Atlantic City Board of Education
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN**

BID/RFP SOLICITATION #: 22-021

VENDOR/BIDDER: _____

**PART 1:
CHECK THE APPROPRIATE BOX**

Pursuant to N.J.S.A. 52:32-5, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4) any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract, must certify that neither person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the New Jersey Department of Treasury's Chapter 25 List as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at: <https://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>. Vendors/Bidders must review this list prior to completing the below certification. If the board of education finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

A. I certify, pursuant to N.J.S.A. 52:32-5, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4) that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the N.J. Department of the Treasury's Chapter 25 List of entities determined to be engaged in prohibited activities in Iran. SKIP PART 2.

OR

B. I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below.

PART 2:

PLEASE PROVIDE ADDITIONAL LANGUAGE INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

If you checked Box "B" above, provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, engaged in the investment activities in Iran by completing the boxes below.

ENTITY NAME: _____
RELATIONSHIP TO VENDOR/BIDDER: _____
DESCRIPTION OF ACTIVITIES: _____
DURATION OF ENGAGEMENT: _____
ANTICIPATED CESSATION DATE: _____
VENDOR/BIDDER CONTACT NAME: _____
VENDOR/BIDDER CONTACT PHONE NO.: _____

Attach Additional Sheets if Necessary.

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the board of education is relying on the information contained herein, and that the Vendor/Bidder is under a **continuing obligation** from the date of this certification through the completion of any Contract (s) with the board of education to notify the board of education in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to **criminal prosecution** under the law, and it will constitute a material breach of my agreement(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

Signature

Date

Print Name and Title

THIS FORM MUST BE COMPLETED, SIGNED, AND SUBMITTED PRIOR TO CONTRACT AWARD

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a “fair and open” process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
 - of the public entity awarding the contract
 - of that county in which that public entity is located
 - of another public entity within that county
 - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed \$300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 19:44A-20.26 itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an “interest” ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, “a contribution by that person’s spouse or child, residing therewith, shall be deemed to be a contribution by the business entity.” [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor’s responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor’s submission and is disclosable to the public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law. **NOTE: This section does not apply to Board of Education contracts.**

N.J.S.A. 19:44A-3(s): “The term “legislative leadership committee” means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures.”

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant to N.J.S.A. 19:44A-20.26

This form or its permitted facsimile must be submitted to the local unit no later than 10 days prior to the award of the contract.

Part I - Vendor Information

Vendor Name:			
Address:			
City:	State:	Zip:	

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

Signature

Printed Name

Title

I. Part II - Contribution Disclosure

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than \$300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

Check here if disclosure is provided in electronic form.

Contributor Name	Recipient Name	Date	Dollar Amount
			\$

Check here if the information is continued on subsequent page(s)

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

Continuation Page
C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM
 Required Pursuant to N.J.S.A. 19:44A-20.26

Page ___ of _____

Vendor Name:

Contributor Name	Recipient Name	Date	Dollar Amount
			\$

Check here if the information is continued on subsequent page(s)

THIS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

List of Agencies with Elected Officials Required for Political Contribution Disclosure

County Name: Atlantic

State: Governor, and Legislative Leadership Committees

Legislative District #: 2

State Senator and two members of the General Assembly per district.

County:

Freeholders
Surrogate

County Clerk
Registrar of Deeds

Sheriff

Municipalities (Mayor and members of governing body, regardless of title):

Absecon City	Estell Manor City	Mullica Township
Atlantic City	Folsom Borough	Northfield City
Brigantine City	Galloway Township	Pleasantville City
Buena Vista Township	Hammonton Town	Somers Point City
Corbin City	Linwood City	Ventnor City
Egg Harbor City	Longport Borough	Weymouth Township
Egg Harbor Township	Margate City	

Boards of Education (Members of the Board):

Absecon City	Folsom Borough	Mainland Regional
Atlantic City	Galloway Township	Mullica Township
Buena Regional	Greater Egg Harbor Regional	Northfield City
Egg Harbor City	Hamilton Township	Pleasantville City
Egg Harbor Township	Hammonton Town	Somers Point City
Estell Manor City	Longport	Weymouth Township

Fire Districts (Board of Fire Commissioners):

- Buena Borough Fire District No. 1
- Buena Borough Fire District No. 2
- Buena Vista Township Fire District No. 1
- Buena Vista Township Fire District No. 2
- Buena Vista Township Fire District No. 3
- Buena Vista Township Fire District No. 4

**CERTIFICATION OF NON-DEBARMENT
FOR FEDERAL GOVERNMENT CONTRACTS**

N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)

ACHS DISTANCE LEARNING LAB

Bid #22-021

This certification shall be completed, certified to, and submitted to the contracting unit prior to contract award, except for emergency contracts where submission is required prior to payment.

PART I: VENDOR INFORMATION	
Individual or Organization Name	
Address of Individual or Organization	
DUNS Code (if applicable)	
CAGE Code (if applicable)	
Check the box that represents the type of business organization:	

- Sole Proprietorship (skip Parts III and IV) Non-Profit Corporation (skip Parts III and IV)
 For-Profit Corporation (any type) Limited Liability Company (LLC)
 Partnership Limited Partnership Limited Liability Partnership (LLP)
 Other (be specific): _____

PART II – CERTIFICATION OF NON-DEBARMENT: Individual or Organization			
I hereby certify that the individual or organization listed above in Part I is not debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the Atlantic City Board of Education is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by board of education to notify the board of education in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the board of education , permitting the board of education to declare any contract(s) resulting from this certification void and unenforceable.			
Full Name (Print):		Title:	
Signature:		Date:	

THIS FORM (4 PAGES) MUST BE COMPLETED, SIGNED, AND RETURNED PRIOR TO CONTRACT AWARD

**CERTIFICATION OF NON-DEBARMENT
FOR FEDERAL GOVERNMENT CONTRACTS (continued)**

N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)

ACHS DISTANCE LEARNING LAB

Bid #22-021

PART III – CERTIFICATION OF NON-DEBARMENT: Individual or Entity Owning Greater than 50 Percent of Organization

Section A (Check the Box that applies)

<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of its voting stock, or of the partner in the partnership who owns more than 50 percent interest therein, or of the member of the limited liability company owning more than 50 percent interest therein, as the case may be.
--------------------------	---

Name of Individual or Organization	
---	--

Home Address (for Individual) or Business Address	
--	--

OR

<input type="checkbox"/>	No one stockholder in the corporation owns more than 50 percent of its voting stock, or no partner in the partnership owns more than 50 percent interest therein, or no member in the limited liability company owns more than 50 percent interest therein, as the case may be.
--------------------------	---

Section B (Skip if no Business entity is listed in Section A above)

<input type="checkbox"/>	Below is the name and address of the stockholder in the corporation who owns more than 50 percent of the voting stock of the organization's parent entity, or of the partner in the partnership who owns more than 50 percent interest in the organization's parent entity, or of the member of the limited liability company owning more than 50 percent interest in organization's parent entity, as the case may be.
--------------------------	---

Stockholder/Partner/Member Owning Greater Than 50 Percent of Parent Entity	
---	--

Home Address (for Individual) or Business Address	
--	--

OR

<input type="checkbox"/>	No one stockholder in the parent entity corporation owns more than 50 percent of its voting stock, no partner in the parent entity partnership owns more than 50 percent interest therein, or no member in the parent entity limited liability company owns more than 50 percent interest therein, as the case may be.
--------------------------	--

THIS FORM (4 PAGES) MUST BE COMPLETED, SIGNED, AND RETURNED PRIOR TO CONTRACT AWARD

**CERTIFICATION OF NON-DEBARMENT
FOR FEDERAL GOVERNMENT CONTRACTS (continued)**

N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)

ACHS DISTANCE LEARNING LAB

Bid #22-021

Section C – Part III Certification

I hereby certify that no individual or organization that is debarred by the federal government from contracting with a federal agency owns greater than 50 percent of the **Organization listed above in Part I** or, if applicable, owns greater than 50 percent of a parent entity of **Atlantic City Board of Education**. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the **Atlantic City Board of Education** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award **board of education** to notify the **board of education** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the **board of education**, permitting the **board of education** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

Part IV – CERTIFICATION OF NON-DEBARMENT: Contractor – Controlled Entities

Section A

Below is the name and address of the corporation(s) in which the **Organization listed in Part I** owns more than 50 percent of voting stock, or of the partnership(s) in which the **Organization listed in Part I** owns more than 50 percent interest therein, or of the limited liability company or companies in which the **Organization listed above in Part I** owns more than 50 percent interest therein, as the case may be.

Name of Business Entity

Business Address

****Add additional sheets if necessary****

OR

The **Organization listed above in Part I** does not own greater than 50 percent of the voting stock in any corporation and does not own greater than 50 percent interest in any partnership or any limited liability company.

THIS FORM (4 PAGES) MUST BE COMPLETED, SIGNED, AND RETURNED PRIOR TO CONTRACT AWARD

**CERTIFICATION OF NON-DEBARMENT
FOR FEDERAL GOVERNMENT CONTRACTS (continued)**

N.J.S.A. 52:32-44.1 (P.L. 2019, c.406)

ACHS DISTANCE LEARNING LAB

Bid #22-021

Section B (skip if no business entities are listed in Section A of Part IV)			
<input type="checkbox"/>	Below are the names and addresses of any entities in which an entity listed in Part III A owns greater than 50 percent of the voting stock (corporation) or owns greater than 50 percent interest (partnership or limited liability company).		
Name of Business Entity Controlled by Entity Listed in Section A of Part IV	Business Address		
Add additional Sheets if necessary			
OR			
<input type="checkbox"/>	No entity listed in Part III A owns greater than 50 percent of the voting stock in any corporation or owns greater than 50 percent interest in any partnership or limited liability company.		
Section C – Part IV Certification			
I hereby certify that the Organization listed above in Part I does not own greater than 50 percent of any entity that that is debarred by the federal government from contracting with a federal agency and, if applicable, does not own greater than 50 percent of any entity that in turns owns greater than 50 percent of any entity debarred by the federal government from contracting with a federal agency. I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the Atlantic City Board of Education is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the date of contract award by board of education to notify the board of education in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the board of education , permitting the board of education to declare any contract(s) resulting from this certification void and unenforceable.			
Full Name (Print):		Title:	
Signature:		Date:	

THIS FORM (4 PAGES) MUST BE COMPLETED, SIGNED, AND RETURNED PRIOR TO CONTRACT AWARD

SAMPLE DOCUMENT ONLY

A CURRENT IRS FORM MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

Form W-9 (Rev. August 2013) Department of the Treasury Internal Revenue Service	Request for Taxpayer Identification Number and Certification	Give Form to the requester. Do not send to the IRS.
---	---	---

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ <input type="checkbox"/> Other (see instructions) ▶ _____	Exemptions (see instructions): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____
	Address (number, street, and apt. or suite no.)	Requestor's name and address (optional)
	City, state, and ZIP code	
List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN) Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I Instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see <i>How to get a TIN</i> on page 3. Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.	<table border="1"><tr><td colspan="9">Social security number</td></tr><tr><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></tr></table> <table border="1"><tr><td colspan="9">Employer identification number</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	Social security number													-					Employer identification number																	
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Employer identification number																																					

Part II Certification Under penalties of perjury, I certify that: 1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and 2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and 3. I am a U.S. citizen or other U.S. person (defined below), and 4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct. Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3. Sign Here Signature of U.S. person ▶ _____ Date ▶ _____
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General Instructions Section references are to the Internal Revenue Code unless otherwise noted. Future developments. The IRS has created a page on irs.gov for information about Form W-9, at www.irs.gov/w9 . Information about any future developments affecting Form W-9 (such as legislation enacted after we release it) will be posted on that page. Purpose of Form A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, payments made to you in settlement of payment card and third party network transactions, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA. Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to: 1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued), 2. Certify that you are not subject to backup withholding, or 3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the	withholding tax on foreign partners' share of effectively connected income, and 4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. Note. If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9. Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are: • An individual who is a U.S. citizen or U.S. resident alien, • A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States, • An estate (other than a foreign estate), or • A domestic trust (as defined in Regulations section 301.7701-7). Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.
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Cat. No. 10231X

Form **W-9** (Rev. 8-2013)

District Locations

Administrative Building
1300 Atlantic Avenue

Atlantic City High School
1400 Albany Avenue

Atlantic City HS Boathouse
3300 Fairmount Avenue

Brighton Avenue School
30 N. Brighton Avenue

Chelsea Heights School
4101 Filbert Avenue

Dr. Martin Luther King School
1700 Marmora Avenue

New Jersey Avenue School
35 N. New Jersey Avenue

Pennsylvania Avenue School
201 N. Pennsylvania Avenue

New York Avenue School
411 North New York Avenue

Richmond Avenue School
4115 Ventnor Avenue

Sovereign Avenue School
3205 Arctic Avenue

Texas Avenue School
2523 Arctic Avenue

Uptown Complex
323 Madison Avenue

Venice Park
1601 N. Penrose Avenue

Indiana Avenue School
117 N. Indiana Avenue

All Locations are in Atlantic City, NJ 08401 and subject to change.

BID FORM (PAGE 1 OF 3)
ACHS DISTANCE LEARNING LAB
Bid #22-021

BIDDERS SHOULD NOT AMEND THIS FORM IN ANY WAY
ANY QUESTIONS SHOULD BE RESOLVED PRIOR TO SUBMITTING BIDS

The undersigned hereby declares that he/she has carefully examined the specifications, plans and form of contract for this project; that he/she has carefully examined the site of the project; and that he/she will contract to carry out and complete said project as specified and delineated at the price per unit measure or lump sum for each scheduled item of work stated on this Bid Form. Pricing shall be expressed in both words and figures, and in case of discrepancy, the written price shall govern over the price stated in figures.

The undersigned proposes to furnish all labor, materials, supplies, and equipment required to construct and complete the structures and do other work complete in every detail, in accordance with plans, specifications and other contract documents for the following Lump Sum Prices:

BASE BID
ITEM NO.

1. LUMP SUM PRICE Mobilization including Performance, Payment, and Maintenance Bonds

_____ Dollars and _____ Cents \$ _____

2. LUMP SUM PRICE Selective Demolition.

_____ Dollars and _____ Cents \$ _____

3. LUMP SUM PRICE Structure Concrete Floor

_____ Dollars and _____ Cents \$ _____

4. LUMP SUM PRICE Structure Wall Construction

_____ Dollars and _____ Cents \$ _____

5. LUMP SUM PRICE Handrails

_____ Dollars and _____ Cents \$ _____

6. LUMP SUM PRICE Interior Finishes – Carpet, Base

_____ Dollars and _____ Cents \$ _____

7. LUMP SUM PRICE Electrical, Lighting and Audio Visual Conduit System

_____ Dollars and _____ Cents \$ _____

BID FORM (PAGE 2 OF 3)
ACHS DISTANCE LEARNING LAB
Bid #22-021

BIDDERS SHOULD NOT AMEND THIS FORM IN ANY WAY
ANY QUESTIONS SHOULD BE RESOLVED PRIOR TO SUBMITTING BID

8. LUMP SUM PRICE Equipment – Wheelchair Lift
_____ Dollars and _____ Cents \$ _____

9. LUMP SUM PRICE Testing of Asbestos Containing Material
_____ Dollars and _____ Cents \$ _____

10. Removal of Asbestos Containing Material
Ten Thousand Dollars and Zero Cents \$10,000.00

11. Contingency Allowance
Ten Thousand Dollars and Zero Cents \$10,000.00

12. Contract Closeout Documentation Allowance
Five Thousand Dollars and Zero Cents \$5,000.00

GRAND TOTAL FOR ABOVE BID ITEMS 1 THROUGH 12

_____ Dollars and _____ Cents \$ _____

BID FORM (PAGE 3 OF 3)
ACHS DISTANCE LEARNING LAB
Bid #22-021

BIDDERS SHOULD NOT AMEND THIS FORM IN ANY WAY
ANY QUESTIONS SHOULD BE RESOLVED PRIOR TO SUBMITTING BID

ALTERNATES

The BOARD OF EDUCATION reserves the right to award this contract based on the lowest price bid for the items of work delineated under the Bid Form Items 1 through 12. However, the BOARD OF EDUCATION further reserves the right to award the contract on an expanded scope of work by accepting alternate item listed below.

ALTERNATE "A" – REPLACEMENT OF EXISTING FLUORESCENT TUBE LAMPS

ITEM NO.

A-1 LUMP SUM PRICE Tube Lamp Replacement

_____ Dollars and _____ Cents \$ _____

Company Name: _____ **Taxpayer ID Number:** _____

Address: _____

City: _____ **State:** _____ **Zip:** _____

Name of Bidder: _____ **Title:** _____

Signature of Bidder: _____ **Date:** _____

Phone: _____ **Fax:** _____

Email: _____

THIS FORM (3 TOTAL PAGES) MUST BE COMPLETED, SIGNED, AND RETURNED WITH YOUR BID

Atlantic City High School Distance Learning Lab

Technical Specifications

SECTION 01 11 00 (01010)
STATEMENT OF WORK

ATLANTIC CITY BOARD OF EDUCATION ATLANTIC CITY
HIGH SCHOOL DISTANCE LEARNING LAB RENOVATIONS

1.01 IN GENERAL, the work of this project consists of interior renovations at the Atlantic City High School Distance Learning Lab located on 1400 Albany Avenue in Atlantic City, Atlantic County, New Jersey complete as specified within these Contract Documents and shown on the Drawings entitled, "Atlantic City High School Distance Learning Lab Renovations, Bid No. 22-021" prepared by the Alaimo Group, and consisting of ten (10) drawings as listed at the end of this Statement of Work. **The Drawings are appended to these Specifications and may be obtained by contacting Kurt Austin at kaustin@acboe.org.**

1.02 DESCRIPTION OF WORK

A. The work for this project includes, but is not limited to, the following items:

1. Selective demolition
2. Concrete floor topping
3. Drywall construction
4. Interior finished, carpet, base and paint
5. Metal handrails
6. Electrical and lighting
7. Replacement of wheelchair lift system
8. ADA Compliance and As-Built Certification: The Contractor shall provide to the *ENGINEER* for record purposes as-built drawings and a certification that the ramps, doors, hardware, millwork and operable devices are constructed and installed according to the applicable accessibility code requirements and do not exceed the compliance specifications as stated in ANSI 117.1.209. Examples are, but not limited to:
 - a. Door opening force requirements
 - b. Closing speed of the door closer system
 - c. Threshold height limitations
 - d. Accessible route clearances
 - e. Reach ranges
 - f. Knee and toe clearance

B. Alternates: This Contract contains an alternate for providing the replacement of tube lamps in the existing light fixtures with new LED tubes as designated on the Plans in addition to work described above.

1.03 COORDINATION

A. Contractor shall coordinate his operations with those of other Contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work. The Contractors, including their subcontractors, shall keep informed of the progress and the detail work of other Contractors and Subcontractors, and shall notify the *ENGINEER* immediately of lack of progress or defective workmanship on the part of others. Failure of a Contractor to keep informed of the work progressing on the site and failure to give notice of lack of progress or defective workmanship by others

shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

- B. All prime Contractors shall coordinate their work with adjacent work and with other trades so as to facilitate general progress of the work and assure correctness.
- C. Each Contractor shall lay out and install his work at such time or times and in such manner as to facilitate general progress of the project.
- D. Coordinate all work as further described in the General Conditions of the *Contract Documents*.

1.04 DRAWINGS

- A. The following Drawings prepared by the Alaimo Group are appended hereto and are a part of these Contract Documents:
 - 1. Title Sheet
 - 2. Accessibility Standards
 - 3. Schedules and Details
 - 4. Building Orientation and Egress Plan
 - 5. Code Analysis
 - 6. Demolition and Architectural Plans
 - 7. Electrical and Reflected Ceiling Plans
 - 8. Interior Elevations
 - 9. Electrical Plan
 - 10. Electrical Schedules

- 1.05 The above Statement of Work outlines the general items and distribution of work, and should not be construed as being all-inclusive.

****END OF STATEMENT OF WORK****

SECTION 01 21 00
(01021)
CASH ALLOWANCES

PART 1 - GENERAL

1.01 SUMMARY

- A. To provide adequate budget and bonding to cover items not precisely determined or foreseen by the *OWNER* prior to bidding, allow within the proposed Contract Sum the amounts described in this Section.
- B. Related work:
 - 1. Other provisions concerning Cash Allowances may be stated in other Sections of these *Specifications*.

1.02 DESCRIPTION

- A. *CONTRACTOR* shall include in the Contract Price all allowances named and shall cause the Work so covered to be done for such sums within the limit of the allowances as may be acceptable to the *ENGINEER*.
- B. *CONTRACTOR* agrees that the allowances include the cost to *CONTRACTOR* less any applicable trade discounts) of materials, equipment and labor required by the allowances to be delivered to the site, less applicable taxes; and *CONTRACTOR'S* costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances. No demand for additional payment on account of any thereof will be valid.
- C. Prior to work being performed, an appropriate Change Order will be issued as recommended by *ENGINEER* to reflect actual amounts due *CONTRACTOR* on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted. Funds remaining in any Allowance at closeout of Contract will be credited to the *OWNER* by Change Order.

1.03 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Submit cost proposals for purchase of products included in the allowances.
- C. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for each allowance.

1.04 COORDINATION

- A. *ENGINEER* will consult with Contractor for consideration and selection of products and materials and consult with *OWNER* for final selection. *ENGINEER* will notify Contractor of final selection and prepare a Change Order.
- B. Contractor shall assist the *ARCHITECT/ENGINEER* in selection of products and materials, obtain proposals from suppliers and offer recommendations.
- C. Upon notification of selection by *ENGINEER/OWNER*, Contractor shall execute purchase agreement with designated supplier/installer and process shop drawings, product data, and samples.
- D. Contractor shall inspect products and materials upon delivery for completeness, damage, and defects and resolve any claims for damage.

1.05 SPECIFIC CASH ALLOWANCES

- A. Contingency Allowances: There is included in the Contract price a Contingency Allowance in an amount sufficient to account for any unforeseen costs in the project that are not included in the original work. The Contingency Allowance shall be used to cover the cost(s) of work performed under an authorized Change Order. The Change Order shall be prepared in accordance with the General Conditions and shall include all costs associated with the Change.

- B. Removal and Disposal Of Asbestos Containing Material: There is included in the Contract price an Allowance in an amount sufficient to cover the costs for removal and disposal of asbestos containing materials if they are found to be present as a result of testing performed by the Contractor. The allowance shall be used to cover the costs of work performed under an authorized Change Order. The Change Order shall be prepared in accordance with the General Conditions and shall include all costs associated with the Change.

****END OF SECTION****

SECTION 01 22 00
(01025)
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Requirements for determining measurement and payment of work specified on Unit basis or Lump Sum basis.
2. Requirements for a Schedule of Values.
3. Mobilization.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Bid Form*

1.02 DESCRIPTION

A. Unit price items:

1. Measurement of units of work for which payment will be made by unit prices are defined herein.
2. Payment for the units of work will be determined by multiplying the unit prices stated within the bid, times the quantity of the unit of work as determined by the measurement provisions stated herein. Payment for the units of work shall fully compensate the *CONTRACTOR* for furnishing all materials, labor, equipment, services, tools and all else incidental and necessary to complete the work.

B. Lump sum items:

1. Measurement of quantities of work will be estimated based on the accepted schedule of values as specified herein.
2. Payment for the quantities of work indicated in the accepted schedule of values will be at the prices stated in the accepted schedule of values, not to exceed the lump sum stated within the bid. Payment for the work to be performed under the lump sum shall fully compensate the *CONTRACTOR* for furnishing all material, labor, equipment, services, tools and all else incidental and necessary to complete the work.

C. No specific measurement and payment will be made herein for work having no separate payment, but the costs thereof shall be included in the prices bid for the various other items of related work listed herein and in the *PROPOSAL*.

1.03 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Schedule of values:
 - 1. Submit a Schedule of Values for the work at the Pre-Construction Conference. Schedule shall reflect the specified construction stages if any, and the component parts of each stage.
 - 2. Upon request, support the values with data, which will substantiate their correctness.
 - 3. The Schedule of Values, unless objected to by the *ENGINEER*, shall be used only as the basis for the Contractor's Applications for Payments.
- C. Form and content of Schedule of Values:
 - 1. Type Schedule on 8½ x 11 in. white paper *CONTRACTOR'S* standard forms and automated printout will be considered for approval by *ENGINEER* upon *CONTRACTORS* request. Identify schedule with:
 - a. Title of project and location.
 - b. *ENGINEER* and project number.
 - c. Name and address of *CONTRACTOR*.
 - d. Contract designation.
 - e. Item designation as listed in the *PROPOSAL*.
 - f. Date of submission.
- D. Schedule shall list the installed value of each of the items listed in the Proposal for all of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.
- E. In the case of Lump Sum items, each item shall be divided into its component parts and be shown on a subschedule.
- F. Follow the 48 Division Construction Specification Institute (CSI) format for listing component items of each payment item listed in the *PROPOSAL*.
- G. The sum of all values listed in the schedule shall equal the total Contract Price.

PART 2 - PAYMENT

2.01 GENERAL

- A. The *CONTRACTOR* shall receive and accept the compensation provided for in the Contract as full payment for furnishing all labor, materials, tools, equipment and incidentals necessary to the completed work, and for performing all work contemplated and embraced under the Contract in a complete and acceptable manner; also, except where specifically provided elsewhere in the *Contract Documents*, for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, or for the action of the elements, or for any unforeseen difficulties which may be encountered during the prosecution of the work until acceptance by the *OWNER*; also, except where specifically provided elsewhere in the *Contract Documents*, for all expenses incurred in consequence of the suspension or discontinuance of the work as provided in the Contract.

- B. If the payment clause relates to any unit price in the *PROPOSAL* and requires that the said unit price cover and be considered compensation for certain work or material essential to the item, this same work or material will not also be measured or paid for under any other Pay Item which may appear elsewhere in the *Contract Documents*.
- C. The *CONTRACTOR* shall receive payments in accordance with the completion of work as identified by the *Construction Schedules, Section 01 32 16*.

2.02 MOBILIZATION

- A. Mobilization shall consist of the cost of initiating the Contract and include such portions of the following as are required at the beginning of the Project: setting up the *CONTRACTOR'S* general plant, offices, shops, storage areas, sanitary and other temporary utilities, including but not limited to water, sewer, gas and electric including connections and appropriate metering from local utility and other facilities as required by the *Specifications*, by local or State law or by regulation; providing access to the Project site; obtaining necessary permits, grants and licenses, and payment of fees; protecting existing utilities; lighting work areas; providing shop drawings; sampling and testing of materials; but not including providing the required insurance and bonds. Payment for mobilization will be made at the lump sum price bid for this item in the *PROPOSAL*, which price shall include the cost of initiating the Contract.
- B. The provisions for payment for the item mobilization supersede any provisions elsewhere in the *Specifications* for including the cost of these initial services and facilities in the prices bid for the various items scheduled in the *PROPOSAL*. The lump sum price bid for mobilization shall be payable to the *CONTRACTOR* whenever he shall have completed 10 percent of the work of the Contract. For the purposes of this item, 10 percent of the work shall be considered completed when the total of payments earned, exclusive of the amount bid for this item, shown on the monthly certificates of the approximate quantities of work done, shall exceed 10 percent of the total price bid for the Contract.
- C. The lump sum price bid for mobilization is limited to the following maximum amounts:

Contract From More Than =====	Amount To and Including =====	Maximum Amount for Item of Mobilization =====
0	\$ 100,000	\$ 3,000
100,000	500,000	15,000
500,000	1,000,000	30,000
1,000,000	2,000,000	60,000
2,000,000	3,000,000	90,000
3,000,000	4,000,000	120,000
4,000,000	5,000,000	125,000
5,000,000	6,000,000	150,000
6,000,000	7,000,000	175,000
7,000,000	10,000,000	200,000
10,000,000	2.5% of amount bid	

- D. Payment for mobilization as hereinbefore specified will be made for the lump sum price bid therefore, regardless of the fact that the *CONTRACTOR* may have, for any reason, shut down his work on the project or moved equipment away from the project and back again.
- E. In the event the amount bid for the item "Mobilization" exceeds the limits specified above, the portion exceeding the limits specified above will be paid after all the work has been completed and accepted.

2.03 LIQUIDATED DAMAGES

- A. The *OWNER* will suffer significant financial loss if the project, or each stage thereof, is not substantially complete on the date(s) set forth in the *Contract Documents*. The *CONTRACTOR* and his surety shall be liable for and shall pay to the *OWNER* the sum stipulated, as fixed and agreed, as liquidated damages for each calendar day of delay until the project, or each stage thereof, is substantially complete.
- B. Liquidated damages in the amounts specified in the *PROPOSAL* will be assessed as required by the General Provisions and the Contract and collected through Current Estimate/Voucher deduct items implemented at completion of the various stages of construction specified.

2.04 PERFORMANCE, PAYMENT AND MAINTENANCE BOND

- A. The *OWNER* will pay the *CONTRACTOR* for the actual invoiced cost of the Performance, Payment, and Maintenance Bond from the Bond Company for a bond in the full amount of the Contract for this project and for the Contract Period established in the Contract.
- B. Payment will be made as described above for the lump sum price bid in the Proposal for the item *PERFORMANCE, PAYMENT AND MAINTENANCE BOND* and shall be included in the first payment processed to the *CONTRACTOR*. IF the lump sum price bid in the Proposal is less than the actual invoiced cost for the Bond the *OWNER* will pay for the lump sum price bid and the *CONTRACTOR* shall not be entitled to any increase in compensation above the lump sum price bid.

****END OF SECTION****

SECTION 01 23 00
(01030)
ALTERNATES

1.01 DESCRIPTION

- A. This section identifies each Alternate by number, and describes the basic changes to be incorporated into the Work, only when that Alternate is made a part of the Work by specific provisions in the Contract.
- B. Related requirements specified elsewhere:
 - 1. Method of quotation of the cost of each Alternate, and the basis of the Owner's acceptance of Alternates: Proposal Section.
 - 2. Incorporation of alternates into the Work:
 - a. Statement of work.
 - b. Proposal Section.
 - c. Contract.
- C. Related requirements specified in other sections:
 - 1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
 - 2. Sections of the Specifications as listed under the respective Alternates.
 - 3. *Section 01 11 00: Statement of Work*
 - 4. *Section 01 25 13: Substitutions*
 - 5. *Section 01 33 23: Shop Drawings, Product Data and Samples*
 - 6. *Section 01 78 36: Guarantees*
- D. Referenced sections of specifications stipulate pertinent requirements for products and methods to achieve the work stipulated under each Alternate.
- E. Coordinate pertinent related work and modify surrounding work as required to properly integrate the work under each Alternate, and to provide the complete construction required by *Contract Documents*.

1.02 DESCRIPTION OF ALTERNATES

- A. Alternate No. 1:
 - 1. Replacement of all existing fluorescent tube lamps in the existing lay-in ceiling light fixtures.
 - a. Minimum of twenty-three (23) light fixtures containing two (2) tube lamps per fixture.
 - b. LED lamp specification: See Electrical Plan E-2.
 - 2. Pertinent work specified elsewhere:
 - a. *Section 26 05 00: Basic Electrical Requirements*

****END OF SECTION****

SECTION 01 25 13
(01640)
SUBSTITUTIONS

1.01 GENERAL

- A. Work included:
 - 1. Procedures for requesting use of products, materials or methods in place of those specified.
- B. Related requirements:
 - 1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
 - 2. *Section 01 33 23: Shop Drawings, Product Data and Samples*

1.02 SUBSTITUTIONS

- A. After Notice to Proceed, *ENGINEER* will consider formal request from *CONTRACTOR* for products, materials or methods in place of those specified.
- B. Submit six (6) copies of Request for Substitution together with Submittal Transmittal Form contained in *Section 01 33 23*. Include in request as applicable:
 - 1. Complete data substantiating compliance of proposed substitution with *Contract Documents*.
 - 2. For products:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer literature:
 - (1) Product description.
 - (2) Performance and test data.
 - (3) Reference standards.
 - c. Samples.
 - d. Name and address of 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. Names of facilities at which the substitute material or product has been successfully used in a similar situation.
 - 6. Relation to separate contracts.

- C. In making requests for substitution, *CONTRACTOR* represents:
1. He has personally investigated proposed product or method, 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 as may be required for work to be completed in all respects.
 4. In the event the *CONTRACTOR* chooses to furnish and install a system or item of equipment of different arrangement from that shown or specified, and receives approval to do so, he shall furnish and install any additional wiring, conduit or other materials required by the system at no additional cost to the *OWNER*.
 5. He waives all claims for additional costs related to substitutions which consequently become apparent.
 6. Cost data is complete and includes all related costs under this contract.
 7. Redesign due to *CONTRACTOR'S* substitution shall be accomplished by a registered professional engineer in the State of New Jersey and will be subject to review and approval by the *ENGINEER* before implementation. Whether or not the *ENGINEER* accepts a proposed substitute, *CONTRACTOR* shall be responsible for all costs incurred for any redesign required as a result of any requested substitution. *ENGINEER* shall record time required for review of *CONTRACTOR'S* submitted redesign and *OWNER* will deduct from *CONTRACTOR'S* payments all costs of the *OWNER'S ENGINEER* in performing said review. *ENGINEER* shall bill the *OWNER* at the billing rates current at the time of review.
- D. Substitutions will not be considered if:
1. They are indicated or implied on shop drawings of product data submittals without formal request submitted in accordance with Paragraph 1.02.
 2. Acceptance will require substantial revision of *Contract Documents*.
 3. *OWNER* or *ENGINEER* determines that the substitutions will cause operational issues.
- E. If accepted, the *ENGINEER* will approve the substitution in writing.

****END OF SECTION****

REQUEST FOR SUBSTITUTION

Date of Request Contract # Project Title

SPECIFIED ITEM:

Specification Section #: _____ Paragraph # _____ Drawing # _____ Detail/Section # _____

Description: _____

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: _____

REASON for REQUEST FOR SUBSTITUTION:

Cost savings to accrue to OWNER in amount of: \$ _____.

Specified product no
longer manufactured

Specified product not
available for _____ weeks

Specified item does not
comply with Building Code

Manufacturer declares product not suitable for intended use and will not warrant its installation

Other (EXPLAIN) _____

In making requests for substitution, *CONTRACTOR* certifies that:

1. He has personally investigated proposed product or method 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. Redesign due to substitution shall be subject to the provisions of the contract documents.
4. He will coordinate installation of accepted substitution into work making such changes as may be required for work to be completed in all respects.
5. He shall furnish and install any additional wiring, conduit or other materials required by the system at no additional cost to the *OWNER*.
6. He waives all claims for additional costs related to substitutions that consequently become apparent.
7. Cost data is complete and includes all related costs under this contract.

Submitted by:

For Use By A/E:

Signature

No Exceptions Taken

Note Markings, No Further
Submissions Required

CONTRACTOR

Note Markings, Further
Submission Required

Rejected

By: _____ Date: _____

SECTION 01 31 19
(01200)
PROJECT MEETINGS

1.01 DESCRIPTION

- A. *CONTRACTOR* shall attend pre-construction meeting, periodic progress meetings, and special meetings called throughout the progress of the work.
- B. Representatives of *CONTRACTORS*, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. *ENGINEER* may attend meetings to ascertain that work is expedited consistent with *Contract Documents* and the construction schedules.

1.02 PRECONSTRUCTION MEETING

- A. Will be scheduled by the *ENGINEER* within fifteen (15) days after date of Notice to Proceed.
- B. Location: A central site, convenient for all parties.
- C. Attendance:
 - 1. Owner's Representative
 - 2. *ENGINEER* and his professional consultants
 - 3. Resident Project Representative
 - 4. Contractor's Superintendent
 - 5. Major Subcontractors
 - 6. Major Suppliers
 - 7. Others as appropriate.
- D. Suggested agenda:
 - 1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected construction schedules.
 - 2. Critical work sequencing.
 - 3. Major equipment deliveries and priorities.
 - 4. Project coordination: Designation of responsible personnel.
 - 5. Procedures and processing of:
 - a. Field decisions
 - b. Proposal requests

- c. Submittals
 - d. Change orders
 - e. Applications for payment, including vouchers and current cost estimates.
6. Adequacy of distribution of *Contract Documents*.
 7. Procedures for maintaining Record Documents.
 8. Use of premises:
 - a. Office, work and storage areas
 - b. *OWNER'S* requirements.
 5. Construction facilities, controls and construction aids.
 6. Maintenance and Protection of Traffic.
 7. Temporary utilities.
 8. Safety and first-aid procedures.
 9. Security procedures.
 10. Housekeeping procedures.

1.03 PROGRESS MEETINGS

- A. Will be scheduled on a regular periodic basis, as required, by the *ENGINEER*.
- B. Additional meetings will be held as required by progress of the work.
- C. Location of the meetings: The project field office of the *CONTRACTOR*.
- D. Attendance:
 1. *ENGINEER*, and his professional consultants as needed.
 2. Contractor's Superintendent.
 3. Subcontractors as appropriate to the agenda.
 4. Suppliers as appropriate to the agenda.
 5. Others.
- E. Suggested agenda:
 1. Review, approval of minutes of previous meetings.
 2. Review of work progress since previous meeting.
 3. Field observations, problems, conflicts, and recommendations.

4. Problems that impede Construction Schedule.
5. Review of off-site fabrication, delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to Construction Schedule.
8. Plan progress, schedule, during succeeding work period.
9. Coordination of schedules.
10. Review submittal schedules, expedite as required.
11. Maintenance of quality standards.
12. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date.
 - b. Effect on other contracts of the Project.
13. Maintenance and Protection of Traffic.
14. Other business.

****END OF SECTION****

SECTION 01 32 16
(01310)
CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Promptly after award of the contract, the *CONTRACTOR* shall prepare and submit to the *ENGINEER* estimated construction progress schedules for the work, with subschedules of related activities, which are essential to its progress.
2. Submit revised progress schedules monthly.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 11 00: Statement of Work*
3. *Section 01 33 23: Shop Drawings, Product Data and Samples*

1.02 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

1.03 FORM OF SCHEDULES

A. Prepare schedules in the form of a horizontal bar chart.

1. Provide separate horizontal bar for each trade or operation.
2. Horizontal time scale: Identify the first workday of each week.
3. Scale and spacing: To allow space for notation and future revisions.
4. Minimum sheet size: 18-inch by 24-inch.

B. Format of listings: The chronological order of the start of each item of work.

C. Identification of listings: By major specification section numbers.

1.04 CONTENT OF SCHEDULES

A. Construction progress schedule:

1. Show the complete sequence of construction by activity.
2. Show the dates for the beginning, and completion of each element of construction.
3. Show projected percentage of completion for each item, as of the first day of each month.

- B. Provide subschedules to define critical portions of prime schedules.

1.05 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission.
- B. Show changes occurring since previous submission of schedule:
 - 1. Major changes in scope.
 - 2. Activities modified since previous submission.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended, and its effect.
 - 3. The effect of changes on schedules of other prime contractors.

1.06 SUBMISSIONS

- A. Submit initial schedules within five (5) days after Notice to Proceed.
 - 1. *ENGINEER* will review schedules and return review copy within ten (10) days after receipt.
 - 2. If required, resubmit within seven (7) days after return of review copy.
- B. Submit revised progress schedules with each application for payment.
- C. Submit one (1) reproducible transparency and one (1) opaque reproduction.

1.07 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
 - 1. Job site file.
 - 2. Subcontractors.
 - 3. Other concerned parties.
- B. Instruct recipients to report promptly to the *CONTRACTOR*, in writing, any problems anticipated by the projection shown in the schedules.

PART 4 - PAYMENT

4.01 CONSTRUCTION SCHEDULES

- A. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
- B. Include all costs for the *CONSTRUCTION SCHEDULES* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 01 32 33
(01380)
CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Provide Preconstruction Photographs prior to beginning of construction activities including site and access clearing.
2. Provide weekly Construction Progress Photographs.
3. Provide post Construction Photographs.

B. Related Work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 32 16: Construction Schedules*
3. *Section 01 33 23: Shop Drawings, Product Data and Samples*
4. *Section 01 71 23: Field Engineering*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Samples:

1. Submit three (3) representative samples of photographs to be provided, two of which will be retained by the *ENGINEER*.
2. Except as otherwise directed and paid for submit three (3) prints of each photograph taken.

C. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same label information as corresponding set of photographs.

D. Obtain and transfer copyright usage rights from photographer to OWNER for unlimited reproduction of photographic documentation.

E. Submit name and address of photographer.

1.03 QUALITY ASSURANCE

A. Secure the services of a professional photographer who is skilled and experienced in construction photography and whose work samples are acceptable to the *ENGINEER*.

B. Do not replace the photographer without the *ENGINEER'S* written approval.

C. Acceptable Photographers:

1. JMS Visual Communications
Vincentown, NJ 08088
609-859-8400
<http://jmsco.com>
2. Protec Documentation Services
Rancocas, NJ 08073
609-267-2666
<http://www.protecservices.com>
3. GP Visual
Browns Mills, NJ 08015
856-439-1494
4. Rainbow Photographic Documentation Co.
Coopersburg, PA 18036
215-538-0707
800-538-0909
www.progressphotos.com
5. Or equivalent

PART 2 - PRODUCTS

2.01 PHOTOGRAPHS

- A. All photographs shall be color digital photographs stored on CD-ROM, DVD or approved other media. Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 1600 by 1200 pixels and 400 dpi.
- B. Identification:
 1. Provide the date the photograph was taken on the face of each photograph in the lower right corner, printed integrally with the photograph during processing.
 2. Identify each print with an applied label or stamp on the back with the following:
 - a. Name of Project.
 - b. Orientation of view (Approximate station and direction or provide photo location map).
 - c. Name and address of photographer.
 - d. Name of *ENGINEER*.
 - e. Name of Contractor.
 - f. Date and time of exposure.
 - g. Photographer's numbered identification of exposure.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prior to the work of this section verify that the work of other trades is complete to the point where this work may properly commence.

3.02 PHOTOGRAPHY

A. Photography required:

1. Consult with *ENGINEER* prior to photography for instructions concerning views required.
2. Provide Preconstruction Photos of environmentally critical areas including construction areas within tidal regions. [N.J.A.C. 7:22-10.11(q)]
3. Provide Preconstruction Photos of site.
4. Provide monthly photos of all construction activities including environmental critical areas.
5. Provide post construction photographs of all work and site and environmentally critical areas at final acceptance of project and prior to final payment.
6. Provide three (3) prints of each photograph taken.

B. Views:

1. Continuous coverage of existing conditions.
2. Photographs shall particularly address driveways; mailboxes; trees, shrubs, landscaping; existing pavement conditions; existing structures to include curbs, sidewalks, inlets, manholes, utility poles, signs and environmentally critical areas.
3. Photographs shall be labeled by station so that subsequent photographs can be taken from the same control points. [N.J.A.C. 7:22-10.11(q)]

C. Technique:

1. Factual presentation.
2. Correct exposure and focus:
 - a. High resolution and sharpness.
 - b. Maximum depth of field.
 - c. Minimum distortion.

D. Negatives:

1. Remain property of photographer.
2. Photographer shall maintain negatives for a period of two (2) years from acceptance of project by *OWNER*.

3. Photographer shall agree to furnish additional prints to *ENGINEER* at commercial rates applicable at time of purchase.

3.03 DELIVERY

- A. Deliver photographs to *ENGINEER* within fourteen (14) calendar days after they are taken.
- B. Digital images shall be provided on CD-ROM labeled to show date, project, contract number and location.

PART 4 - PAYMENT

4.01 CONSTRUCTION PHOTOGRAPHS

- A. Include all costs for construction photographs in the overall contract price.
- B. Parties requiring additional prints will pay photographer directly.

****END OF SECTION****

SECTION 01 33 23
(01340)
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Prepare and submit to the *ENGINEER* a Schedule of Submittals showing all submittals required by the Specification sections or the Drawings.
2. Prepare and submit to *ENGINEER* shop drawings, product data and samples required by the Specification sections.
3. Prepare and submit to the *ENGINEER* engineering drawings and calculations for items indicated on the Plans or as otherwise required by the contract specifications.

B. Related Requirements:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 25 13: Substitutions*

C. Payment:

1. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
2. Include all costs for the *SHOP DRAWINGS, PRODUCT DATA AND SAMPLES* in the prices bid for the various related items of work as designated in the *PROPOSAL*.
3. Shop drawings, product data and samples, engineering drawings and calculations are an integral part of the construction process and are required as part of the construction contract. *CONTRACTOR'S* failure to provide shop drawings, product data and samples, engineering drawings and calculations in a complete and timely manner may affect his payment and/or completion schedule. No extension of time will be granted due to untimely or incomplete submittals.

1.02 DEFINITIONS

- A. Shop drawings are original drawings, diagrams, schedules and other data specifically prepared for the work by the *CONTRACTOR* or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the work.
- B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information prepared by the manufacturer and furnished by the *CONTRACTOR* to illustrate materials or equipment for some portion of the work. All such data shall be the manufacturer's current materials.
- C. Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the work will be judged.

- D. Engineering drawings and calculations are documents prepared for the work by a properly licensed design professional to assure and demonstrate compliance with specified design and performance criteria.

1.03 SCHEDULING

- A. Schedule submission for shop drawings, product data and samples, engineering drawings and calculations at least twenty-one (21) days before dates reviewed submittals will be needed.
- B. Shop drawings, engineering drawings and calculations for equipment foundations will not be reviewed by the *ENGINEER* until shop drawings for equipment have been submitted and approved.

1.04 PRESENTATION

- A. Present drawings, calculations and product data in a clear and thorough manner.
- B. Drawings, calculations and product data shall be clear, concise, readable and legible.
- C. Second, third, fourth, etc., generation photocopies are frequently illegible and may not be accepted as a required submission.
- D. Drawings, calculations and product data sent via facsimile (fax) machine are frequently illegible and may not be accepted as a required submission.
- E. *ENGINEER* will notify *CONTRACTOR* in the event submittals are illegible. No time extensions shall be allowed as a result of resubmittals due to illegibility.

1.05 SUBMITTALS

- A. Schedule of Submittals:
 - 1. Prepare and submit for approval a schedule showing each and every submittal required by the Contract Documents and their initial submittal dates required for coordination of the work.
 - 2. Organize the schedule by the applicable specification Section number.
 - 3. Submit the schedule within fourteen (14) days after Notice to Proceed.
 - 4. The schedule shall reflect the overall job schedule sequence so as to cause no delay in the Work of other Contractors, if any.
 - 5. Revise and resubmit the schedule for approval when requested.
 - 6. Prepare and transmit each submittal sufficiently in advance of scheduled performance to allow for adequate review and processing time, including time for re-submittal if necessary.
 - 7. If processing time for a particular submittal will be critical to progress of the work, so advise on the submittal.
 - 8. No extension of time will be authorized because of the contractor's failure to transmit submittals sufficiently in advance of the work.

B. Shop drawings:

1. Original drawings, prepared by *CONTRACTOR*, subcontractor, supplier or distributor, that illustrate some portion of the work; showing fabrication, layout, setting or erection details.
2. Present drawings in a clear and thorough manner: Details shall be identified by reference to sheet and detail, schedule or room numbers shown on *Contract Drawings*.
3. Minimum sheet size: 11 inches by 17 inches.

C. Product data:

1. Preparation:
 - a. Clearly mark each copy to identify pertinent products or models.
 - b. Show performance characteristics and capacities.
 - c. Show dimensions and clearances required.
 - d. Show wiring or piping diagrams and controls.
2. Manufacturer's standard schematic drawings and diagrams:
 - a. Modify drawings and diagrams to delete information not applicable to the work.
 - b. Supplement standard information to provide information specifically applicable to the work.
3. Manufacturer's catalog sheets, brochures, diagrams, illustrations and other standard descriptive data:
 - a. Clearly mark each copy to identify pertinent materials, products or models.
 - b. Show dimensions and clearances required.
 - c. Show compliance with referenced standards.

D. Color selections:

1. All colors for all finished surfaces and materials will be selected or approved by the *OWNER*. The exterior color selections will be made at one time and the interior color selections will be made at one time to provide a complete and coordinated color schedule that, upon acceptance of the *OWNER*, will be provided to the *CONTRACTOR*.
2. The Contractor shall submit all exterior color selections/samples within thirty (30) days and all interior color selections/samples within forty-five (45) days after "Notice to Proceed."
3. It is imperative that all color information be submitted to, the *ENGINEER* by the *CONTRACTOR* before color selections can be made. If any color selection information is not available when colors are needed to meet the project schedule, the *ENGINEER* will select colors from one of the named manufacturers in the specifications, and the *CONTRACTOR* will be required to exactly match that color. A claim for delay will not be accepted if the color schedule is late due to the failure of the *CONTRACTOR* to provide the *ENGINEER* with all required color information, nor will an adjustment in price be entertained if the selected color is not available from the manufacturer the *CONTRACTOR* intended to use, but neglected to submit.

E. Samples:

1. Office samples will be of sufficient size and quantity to clearly illustrate:
 - a. Functional characteristics of product or material with integrally related parts and attachment devices.
 - b. Full range of color, texture, and pattern.
 - c. After review samples will be retained by *ENGINEER*. Upon completion of the work, *CONTRACTOR* may submit written request for return of samples.

F. Engineering drawings:

1. Engineering drawings shall provide sufficient data regarding member sizes, arrangement, connection and joint details and material properties that fully substantiates the assembly or item involved can safely withstand the specified design loads and/or meet the performance criteria.
2. Engineering drawings shall be done in conformance with the appropriate material code as referenced in the currently adopted International Building Code – New Jersey Edition or, when applicable, the specified industry standard.
3. All engineering drawings shall be done to scale, shall state the design loads and/or performance criteria and shall be signed and sealed by a Professional Engineer licensed in the State of New Jersey.

G. Engineering calculations:

1. Engineering calculations shall, in an orderly and thorough manner, provide sufficient analytical data that fully substantiates that the assembly or items addressed can safely withstand the specified design loads and/or meet the performance criteria.
2. Unless otherwise specified or indicated on the plans, all engineering design shall be done in accordance with the currently adopted Codes and Subcodes adopted and referenced in the Uniform Construction Code of the State of New Jersey; N.J.A.C. 5:23-1 et seq.
3. All engineering calculations shall state the design loads and/or performance criteria and shall be signed and sealed by a Professional Engineer licensed in the State of New Jersey.

1.06 CONTRACTOR'S RESPONSIBILITIES

- A. Review shop drawings, product data, samples, engineering drawings and calculations prior to submission.
- B. Determine and verify:
 1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
 4. Conformance with specifications.

- C. Coordinate each submittal with requirements of the work and of the *Contract Documents*.
- D. **All copies of all** shop drawings, product data and samples, engineering drawings and calculations shall be accompanied by a transmittal containing Contractor Certification that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and that he has checked and coordinated each item with other related submittals and all other contract requirements. **A copy of the required Submittal Form is included at the end of this specification section.**
- E. *CONTRACTOR'S* responsibility for errors and omissions in submittals is not relieved by *ENGINEER'S* review of submittals.
- F. *CONTRACTOR'S* responsibility for deviations in submittals from requirements of *Contract Documents* is not relieved by *ENGINEER'S* review of submittals, unless *ENGINEER* gives written acceptance of specific deviations.
- G. Notify *ENGINEER*, in writing at time of submission, of deviations in submittals from requirements of *Contract Documents*.
- H. Begin no fabrication or work that requires submittals until return of submittals with *ENGINEER'S* stamp and initials or signature indicating review and that no further submissions are required. Any manufacturing done, shipment made, workmanship performed, or work installed before the required shop drawings, product data, samples, engineering drawings, or engineering calculations are returned indicating that no further submissions are required will be at the sole expense and responsibility of the *CONTRACTOR* and subject to rejection.

1.07 ENGINEERS RESPONSIBILITIES

- A. Engineering duties:
 - 1. Review submittals with reasonable promptness.
 - 2. Review for:
 - a. Design concept of project.
 - b. 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 initials or signature certifying to review of submittal.
 - 5. Return submittals to *CONTRACTOR* for distribution or resubmission.
- B. The *ENGINEER* shall review all shop drawings, product data, samples, engineering drawings and calculations. The submittal shall be marked as follows:
 - 1. No exceptions taken; no further submission required.
 - 2. Note markings; no further submission required.
 - 3. Note markings; further submission required.
 - 4. Rejected.

- C. The *ENGINEER* will review the original submittal and one resubmittal at no additional cost to the *CONTRACTOR*.
- D. In the event there are more than two (2) submittals for the given product, the *ENGINEER* shall record the time required for the subsequent reviews. The *ENGINEER* shall deduct the cost of said review(s) from the current estimate, defining amounts due the *CONTRACTOR*. The costs shall be based upon the same rates paid to the *ENGINEER* by the *OWNER* for similar work.
- E. In the event that any submittal is rejected and a new submittal is prepared that must be resubmitted for review by the *CONTRACTOR*, the resubmittal shall be counted as the third submittal for the purposes of determining review costs(s).
- F. When professional certification of performance or design criteria of materials, systems or equipment is required by the Contract Documents, the *ENGINEER* shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

1.08 SUBMISSION REQUIREMENTS

- A. Make submittals so as to cause no delay in the work or in the work of any other *CONTRACTOR*.
- B. Number of submittals required:
 - 1. Shop drawings, engineering drawings and calculations: Submit six (6) opaque reproductions, two (2) copies of which will be retained by *ENGINEER*.
 - 2. Product data: Submit six (6) copies, two (2) copies of which will be retained by *ENGINEER*.
 - 3. Samples: Submit number stated in each specification section.
- C. Accompany submittals with Submittal Transmittal Form contained herein, in duplicate containing:
 - 1. Date of submission and dates of any previous submissions.
 - 2. Project title and contract number.
 - 3. *CONTRACTOR'S* name.
 - 4. The number of each shop drawing, product data and sample submitted.
 - 5. Notification of deviations from *Contract Documents*.
 - 6. Other pertinent data.
- D. Submittals shall include:
 - 1. Date and revision date.
 - 2. Project title and number.
 - 3. The names of:
 - a. *ENGINEER*
 - b. *CONTRACTOR*

- c. Subcontractor
 - d. Supplier
 - e. Manufacturer
 - f. Separate details when pertinent.
4. Identification of product or materials.
 5. Field dimensions, clearly identified as such.
 6. Specification Section number.
 7. Relation to adjacent or critical features of the work or materials.
 8. Applicable standards, such as ASTM or Federal Specification numbers.
 9. Identification of deviations from *Contract Documents*.
 10. Identification of revisions on resubmittals.
 11. An 8-inch by 3-inch blank space for *CONTRACTOR* and *ENGINEER* stamps.
 12. *CONTRACTOR'S* stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the work and of *Contract Documents*.
 13. Engineering drawings and calculations must be signed and sealed by a Professional Engineer licensed in the State of New Jersey.

1.09 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by the *ENGINEER* and resubmit until no further submissions are required.
- B. Shop drawings, engineering drawings, calculations and product data:
 1. Revise initial drawings, calculations or data, and resubmit as specified for the initial submittal.
 2. Clearly indicate any and all changes made to the submittal.
- C. Samples: Submit new samples as required for initial submittals.

1.10 DISTRIBUTION

- A. Distribute reproductions of shop drawings, engineering drawings, calculations and copies of Product data that carry the *ENGINEER* stamp to:
 1. Subcontractors.
 2. Supplier.
 3. Contractor's file.
- B. Distribute samples that carry the *ENGINEER* stamp as directed by *ENGINEER*.

****END OF SECTION****

SUBMITTAL TRANSMITTAL FORM

CONTRACTOR NAME Contract # Project Title

 Date of this Submission Date of Prior Submission Submittal Number

Specification Section #: _____ Paragraph #: _____ Drawing #: _____ Detail/Section #: _____

TYPE OF SUBMITTAL:

___ Shop Drawings ___ Product Data ___ Sample ___ Test Report ___ Color Charts ___ O&M Manuals
 ___ Engineering Drawings ___ Engineering Calculations ___ Other

IS THIS A:

___ Complete Submission ___ Partial Submission ___ Resubmission ___ Substitution

(Substitutions must be identified and accompanied by a Request for Substitution in accordance with Section 01 25 13)

LIST EACH ITEM SUBMITTED

List and describe any deviations from the Contract Documents (attach additional sheets as required)

CONTRACTOR CERTIFICATION

By this submittal, the Contractor named above hereby represents that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and has checked and coordinated each item with other applicable shop drawings and all contract requirements, except for the specific deviations noted.

 Signature of Contractor's Authorized Representative Date

SECTION 01 45 29
(01410)
TESTING LABORATORY SERVICES

1.01 GENERAL

- A. *CONTRACTOR* shall employ and pay for the services of an Independent Testing Laboratory to perform specified testing. Include such costs in overall contract price.
 - 1. Employment of the laboratory shall in no way relieve *CONTRACTOR'S* obligations to perform the work of the contract.
- B. Related requirements specified elsewhere:
 - 1. Inspections and testing required by law, ordinances, rules, regulations, orders or approval of public authorities: General Conditions.
 - 2. Certification of products. The respective sections of these *Specifications*.
 - 3. Test, adjust and balance equipment. The respective sections of these *Specifications*.
 - 4. Laboratory testing, sampling required, and standards for testing: See each Specification Section listed below:
 - a. *Section 03 30 00: Concrete*

1.02 QUALIFICATION OF LABORATORY

- A. Meet “Recommended Requirements for Independent Laboratory Qualification”, published by American Council of Independent Laboratories.
- B. Meet basic requirements of ASTM E-329, “Standards of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.”
- C. Authorized to operate in the state in which the project is located, and acceptable to *OWNER*.
- D. Testing equipment: Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - 1. National Bureau of Standards.
 - 2. Accepted values of natural physical constants.
- E. If requested by *ENGINEER*, submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection.

1.03 LABORATORY DUTIES

- A. Cooperate with *ENGINEER* and *CONTRACTOR*. Provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing of materials.
 - 1. Comply with specified standards for testing.
 - 2. Ascertain compliance of materials with requirements of *Contract Documents*.
- C. Promptly notify *ENGINEER* and *CONTRACTOR* of observed irregularities or deficiencies of work or products.

- D. Promptly submit six (6) copies of written report of each test and/or inspection to *ENGINEER*. Each report shall include:
1. Date issued.
 2. Project title and number.
 3. Testing laboratory name, address and telephone number.
 4. Name and signature of laboratory inspector.
 5. Date and time of sampling or inspection.
 6. Record of temperature and weather condition.
 7. Date of test.
 8. Identification of product and specification section.
 9. Location of sample or test in the project.
 10. Type of inspection or test.
 11. Results of tests and compliance with *Contract Documents*.
 12. Interpretation of test results, when requested by *ENGINEER*.
- E. Perform additional tests as required by *ENGINEER* or the *OWNER*.

1.04 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
1. Release, revoke, alter or enlarge on requirements of *Contract Documents*.
 2. Approve or accept any portion of the work.
 3. Perform any duties of the *CONTRACTOR*.

1.05 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel, provide access to work.
- B. Secure and deliver to the laboratory adequate quantities of representative samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the design mix proposed to be used for concrete, and other material mixes, which require control by the testing laboratory.
- D. Furnish incidental labor and facilities:
1. To provide access to work to be tested.
 2. To obtain and handle samples at the project site or at the source of the product to be tested.
 3. To facilitate inspections and tests.

4. For storage and curing of test samples.
- E. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
- F. Make arrangements with laboratory and pay for additional samples and tests required for *CONTRACTOR'S* convenience.
- G. Employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional sampling and testing required when initial tests indicate work does not comply with *Contract Documents*.

****END OF SECTION****

SECTION 01 54 00
(01520)
CONSTRUCTION AIDS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Furnish, install and maintain required construction aids, remove on completion of work.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 11 00: Statement of Work*

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with Federal, State and local codes and regulations.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.

1. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions, as approved by the *ENGINEER*, will provide the basis for acceptance or rejection of the work performed under this section.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 CONSTRUCTION AIDS

- A. Provide construction aids and equipment required by personnel and to facilitate the execution of the work; scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes and other such facilities and equipment.
 - 1. Refer to respective sections for particular requirements for each trade.
- B. Maintain all facilities and equipment in a first-class condition.

2.03 TEMPORARY ENCLOSURES

- A. Provide temporary weathertight enclosure of exterior walls for successive areas of the building as work progresses, as necessary to provide acceptable working conditions, provide weather protection for interior materials, allow for effective temporary heating, and to prevent entry of unauthorized persons.
 - 1. Provide temporary exterior doors with self-closing hardware and padlocks.
 - 2. Other enclosures shall be removable as necessary for work and for handling of materials.
- B. Provide temporary enclosures to separate work areas from the areas of existing building occupied by *OWNER*; to prevent penetration of dust or moisture into occupied areas, to prevent damage to existing equipment, and to protect *OWNER'S* employees and operations from construction work.
 - 1. Temporary partition and ceiling enclosures: Framing and sheet materials, which comply with structural and fire rating requirements of applicable codes and standards.
 - a. Close joints between sheet materials, and seal edges and intersections with existing surfaces, to prevent penetration of dust or moisture.
 - b. In locations where fire protection is required, paint both sides of partitions and ceilings with fire-retardant paint to provide maximum flame spread of 25 when tested under ASTM E84, or as required by local fire regulations.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Consult with *ENGINEER*, review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of the work.

3.02 GENERAL

- A. Comply with applicable requirements specified in sections of Divisions 2 through 16.
- B. Relocate construction aids as required by progress of construction, by storage or work requirements, and to accommodate legitimate requirements of *OWNER* and other *CONTRACTORS* employed at the site.

3.03 REMOVAL

- A. Completely remove temporary materials, equipment and services:
 - 1. When construction needs can be met by use of permanent construction.
 - 2. At completion of the project.
- B. Clean, repair damage caused by installation or by use of temporary facilities.
 - 1. Remove foundations and underground installations for construction aids.
 - 2. Grade the areas of the site affected by temporary installations to required elevations and slopes, and clean the area.
- C. Restore existing facilities used for temporary purposes to be specified, or to original, condition.
- D. Restore permanent facilities used for temporary purposes to specified condition.

END OF SECTION

SECTION 01 56 00
(01530)
BARRIERS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide barriers to prevent unauthorized entry to construction areas [to allow for Owner's use of site,] and to protect existing facilities and adjacent properties from damage from construction operations [and demolition].
 - 1. Provide barricades and covered walkways required by authorities having jurisdiction for public rights-of-way [and for public access to existing building].
 - 2. Provide protection for plants designated to remain. Replace damaged plants.
 - 3. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.
 - 4. Remove when no longer needed, or at completion of work.
- B. Related work:
 - 1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
 - 2. *Section 01 11 00: Statement of Work*
 - 3. *Section 01 54 00: Construction Aids*
 - 4. *Section 01 58 00: Project Identification and Signs*

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with Federal, State and local codes and regulations.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 BARRIERS

- A. Materials to *CONTRACTOR'S* option, minimum fence height 6 feet.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for the required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by progress of construction.

3.02 BARRIERS

- A. Prior to the start of work at the project site, install enclosure fence with suitably locked entrance gates.
 - 1. Locate as required for work access and security of building. Coordinate with *OWNER*.
 - 2. Locate fence to enclose substantially the entire project site, or that portion the *CONTRACTOR* establishes as required to encompass the entire project construction operation.
- B. Construct open-mesh fence in accordance with industry standards.

3.03 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants at the site, which are designated to remain, and those adjacent to the site.
- B. Consult with *ARCHITECT/ENGINEER*, and remove agreed-on roots and branches, which interfere with construction.
 - 1. Employ qualified tree surgeon to remove, and to treat cuts.
- C. Provide temporary barriers to a height of 6 feet, around each, or around each group of trees and plants.
- D. Protect root zones of trees and plants:
 - 1. Do not allow vehicular traffic or parking.
 - 2. Do not store materials or products.
 - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 - 4. Prevent puddling or continuous running water.
- E. Carefully supervise excavating, grading and filling, and subsequent construction operations, to prevent damage.
- F. Replace, or suitably repair, trees and plants designated to remain which are damaged or destroyed due to construction operations.

3.04 REMOVAL

- A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by *ARCHITECT/ENGINEER*.
- B. Clean and repair damage caused by installation, fill and grade the areas of the site to required elevations and slopes, and clean the area.

PART 4 - PAYMENT

4.01 BARRIERS

- A. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
- B. Include all costs for *BARRIERS* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 01 56 19
(01564)
NOISE CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Requirements for controlling noise levels resulting from construction activities.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 74 00: Cleaning and Restorations*

1.02 SYSTEM DESCRIPTION

- A. The *CONTRACTOR* shall control the noise generated by his construction operations.

PART 2 – PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 PROJECT CONDITIONS

- A. Noise caused by construction activities shall not exceed the levels permitted by applicable federal, state or local regulations.
- B. All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler.
- C. Air compressors shall be operated in accordance with the manufacturer's instructions for proper noise abatement.
- D. Air-powered equipment shall be fitted with pneumatic exhaust silencers.
- E. Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise sensitive sites without temporary noise barriers placed between the equipment and the noise sensitive sites. Noise sensitive sites shall include residential buildings, motels, hotels, schools, churches, hospitals, nursing homes, libraries and public recreation areas. Temporary noise barrier shall be constructed of plywood or tongue and groove boards with a noise absorbent treatment on the interior surface (facing the equipment).
- F. Unless otherwise permitted, powered construction equipment shall not be operated before 7:00 A.M. or after 6:00 P.M. within 150 feet of a noise sensitive site. [NJAC 7:22-10.11(n)]
- G. No driving, pulling, or other operations entailing the use of vibratory hammers or compactors shall be permitted other than between the hours of 8:00 A.M. and 5:00 P.M. [NJAC 7:22-10.11(n)]

- H. The number of machines in operation at a given time shall be limited to the minimum practicable. [NJAC 7:22-10.11(n)]

PART 4 - PAYMENT

4.01 NOISE CONTROL

- A. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
- B. Include all costs for the *NOISE CONTROL* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 01 56 20
DUST PROTECTION AND CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Purpose:

1. Protect the Owner's employees, equipment and property/improvements against dust generated by the Contractor's operations.
2. Protect the Contractor's employees against dust generated by the Contractor.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 02 41 19: Selective Demolition*

PART 2 - PRODUCTS

2.01 DEFINITIONS

- A. Dust Collection System: A dust control system using ventilation principles to capture the dust filled air stream as it is generated and carry it away from the source through ductwork to a collector or other acceptable discharge point.
- B. Wet Dust Suppression: Wet dust suppression techniques use water sprays to wet the material so that it generates less dust.
- C. Airborne Dust Capture: Airborne dust capture involves a water spray technique where by airborne dust particles are sprayed with atomized water capturing the dust particles in water droplets.
- D. Housekeeping Dust Control: Housekeeping dust control includes dusting/cleaning/vacuuming of surfaces exposed to dust and installation of sheet plastic barriers to prevent the spread of dust beyond the immediate work area.

PART 3 – EXECUTION

3.01 EQUIPMENT / MATERIALS

- A. The Contractor shall submit to the *ENGINEER* a description of the system(s) to be employed and the equipment/materials to be used for dust control. The systems to be employed by the Contractor shall include a Dust Collection System, Wet Dust Suppression, Airborne Dust Capture and Housekeeping Dust Control.
- B. Respirators shall be used in the work area in addition to the Dust Control Systems and Practices.

3.02 COMPLIANCE

- A. Comply with United States Department of Labor, OSHA, Silica/Crystalline Dust Control Handbook, Chapter 3.
- B. Comply with OSHA Standard for Respiratory Crystalline Silica Maximum Exposure Limits (29 CFR 455, 1910.1000).
- C. If the *OWNER* determines that the Contractor means and methods for Dust Control are inadequate, the Contractor shall cease all work generating dust until additional dust control systems/methods are implemented.
- D. Conduct final clean-up of work area surfaces and areas adjacent to the work area.

PART 4 - PAYMENT

4.01 DUST CONTROL

- C. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
- D. Include all costs for the *DUST CONTROL* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 01 61 00
(01600)
MATERIALS AND EQUIPMENT

1.01 GENERAL

A. Material and equipment incorporated into the work:

1. Conform to applicable *Specifications* and standards.
2. Comply with size, make, type and quality specified, or as specifically approved in writing by the *ENGINEER*.
3. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

B. Related requirements in other parts of the Contract Documents: See the General Provisions.

1.02 REUSE OF EXISTING MATERIAL

- A. Except as specifically indicated or specified, materials and equipment removed from the existing structure shall not be used in the completed work.
- B. For material and equipment specifically indicated or specified to be reused in the work:
 1. Use special care in removal, handling, storage and reinstallation to assure proper function in the completed work.
 2. Arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation. Pay all costs for such work.

1.03 MANUFACTURER'S INSTRUCTIONS

- A. When *Contract Documents* require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two (2) copies to *ENGINEER*.

Maintain one (1) set of complete instructions at the job site during installation and until completion.

- B. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions consult with *ENGINEER* for further instructions.
 - 2. Do not proceed with work without clear instructions.
- C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by *Contract Documents*.

1.04 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements on *Contract Documents* and approved submittals, and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.05 STORAGE AND PROTECTION

- A. Store products in accord with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weathertight enclosures.
 - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- B. Exterior storage:
 - 1. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 - 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.
- D. Protection after installation: Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

1.06 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Products list: Within thirty (30) days after contract date, submit to *ENGINEER* a complete list of major products proposed to be used, with the name of the manufacturer and the installing subcontractor.
- B. Contractor's options:
 - 1. For products specified only by reference standard, select any product meeting that standard.
 - 2. For products specified by naming several products or manufacturers, select any one (1) of the products or manufacturers named, which complies with the *Specifications*.
 - 3. For products specified by naming one (1) or more products or manufacturers and "or equal," *CONTRACTOR* must submit a request as for substitutions for any product or manufacturer not specifically named.
- C. Substitutions: Submit requests for substitutions as specified in *Section 01 25 13*.

****END OF SECTION****

SECTION 01 66 00
(01620)
STORAGE AND PROTECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.
- B. Related work:
 - 1. Additional procedures also may be prescribed in other Sections of these *Specifications*.

1.02 QUALITY ASSURANCE

- A. Include within the *CONTRACTOR'S* quality assurance program such procedures as are required to assure full protection of work and materials.

1.03 MANUFACTURERS' RECOMMENDATIONS

- A. Except as otherwise approved by the *ENGINEER*, determine and comply with manufacturer's recommendations on product handling, storage, and protection.

1.04 PACKAGING

- A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
 - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
 - 2. Promptly remove damaged materials and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the *OWNER*.
 - 3. Leave all plugs and caps in place on equipment and machinery.
- B. The *ENGINEER* may reject as non-complying such material and products that do not bear identification satisfactory to the *ENGINEER* as to manufacturer, grade, quality, and other pertinent information.

1.05 PROTECTION

- A. Protect finished surfaces, including jambs and soffits of openings used as passageways, through which equipment and materials are handled.
- B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be removed over such surfaces.
- C. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the *OWNER*.
- D. During construction, properly cap all pipes and equipment nozzles so as to prevent the entrance of sand, dirt, etc.

1.06 REPAIRS AND REPLACEMENTS

- A. In event of damage, promptly make replacements and repairs to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- B. Additional time required to secure replacement and to make repairs will not be considered by the *ENGINEER* to justify an extension in the Contract Time of Completion.

END OF SECTION

SECTION 01 71 23
(01050)
FIELD ENGINEERING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Section includes:

1. Provide such field engineering services as are required for proper completion of the work including, but not necessarily limited to:
 - a. Construction Layout consisting of establishing and maintaining line, grade, and location for work to be performed under this contract.
 - b. Structural design of shores, forms, and similar items provided by the *CONTRACTOR* as part of his means and methods of construction.
 - c. As-built drawings and certifications as specified in *Section 01 11 00, Statement of Work* and *Section 01 78 39, Project Record Documents*.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 33 23: Shop Drawings, Product Data and Samples*

C. Payment:

1. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
2. Include all costs for *FIELD ENGINEERING* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

1.02 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Submit name and address of Surveyor to *ENGINEER*.
- C. Submit copies of forms proposed as use for cut sheets.
- D. Submit copies of cut sheets.
- E. On request of *ENGINEER*, submit documentation to verify accuracy of Construction Layout.
- F. Submit certificate signed by registered surveyor certifying that elevations and locations of improvements are in conformance or nonconformance with *Contract Documents*.
- G. Submit Record Plans in accordance with *Section 01 78 39*.
 1. Record Plans shall contain certification, signed by registered surveyor, certifying that elevations and locations of improvements are in conformance or nonconformance with *Contract Documents*.

2. ADA Compliance and As-Built Certification: The Contractor shall provide to the *ENGINEER* for record purposes as-built drawings and a certification that the doors, hardware, millwork and operable devices are constructed and installed according to the applicable accessibility code requirements and do not exceed the compliance specifications as stated in ANSI 117.1.209. Examples are, but not limited to:
 - a. Door opening force requirements
 - b. Closing speed of the door closer system
 - c. Threshold height limitations
 - d. Accessible route clearances
 - e. Reach ranges
 - f. Knee and to clearance

1.03 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. New Jersey Licensed Land Surveyor shall be employed by *CONTRACTOR* to perform, all Construction Layout.
- C. Professional Engineer shall be employed by, *CONTRACTOR* for design of shores, forms and similar items.

1.04 OWNER'S ENGINEER RESPONSIBILITIES

- A. Provide location and elevation of basic vertical control points for use by *CONTRACTOR'S* Surveyor for performing Construction Layout.
- B. Provide basic horizontal control points for use by *CONTRACTOR'S* Surveyor for performing Construction Layout.
- C. Existing basic horizontal and vertical control points for the project are those designated on drawings.

1.05 CONTRACTOR'S SURVEYOR RESPONSIBILITIES

- A. Construction layout:
 1. Establish lines and levels, locate and layout, by instrumentation and similar appropriate means, all work under this contract.
 2. All work shall be done using cut sheets unless otherwise authorized by the *ENGINEER*.
- B. Check all established lines and levels, locations and layout for all work under this contract both before and during construction.
- C. Furnish record documents as described in *Section 01 78 39*.

****END OF SECTION****

SECTION 01 73 29
(01045)
CUTTING AND PATCHING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. *CONTRACTOR* shall be responsible for all cutting, fitting and patching, including attendant excavation and backfill, required to complete the work or to:
1. Make its several parts fit together properly.
 2. Uncover portions of the work to provide for installation of ill-timed work.
 3. Remove and replace defective work.
 4. Remove and replace work not conforming to requirements of *Contract Documents*.
 5. Remove samples of installed work as specified for testing.
 6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
- B. Related work:
1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
 2. *Section 01 11 00: Statement of Work*
 3. *Section 01 25 13: Substitutions*
 4. *Section 02 41 19: Selective Demolition*

1.02 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Submit a written request to *ENGINEER* well in advance of executing any cutting or alteration which affects:
1. The work of the *OWNER* or any separate *CONTRACTOR*.
 2. The structural value or integrity of any element of the project.
 3. The integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 4. The efficiency, operational life, maintenance or safety of operational elements.
 5. The visual qualities of sight-exposed elements.

- C. The request shall include:
1. Identification of the project.
 2. Description of the affected work.
 3. The necessity for cutting, alteration or excavation.
 4. The effect on the work of the *OWNER* or any separate *CONTRACTOR*, or on the structural or weatherproof integrity of the project.
 5. Description of the proposed work:
 - a. The scope of cutting, patching, alteration, or excavation.
 - b. The trades who will execute the work.
 - c. Products proposed to be used.
 - d. The extent of refinishing to be done.
 6. Alternatives to cutting and patching.
 7. Cost proposal, when applicable.
 8. Written permission of any separate *CONTRACTOR* whose work will be affected.
- D. Should conditions of the work or the schedule indicate a change of products from the original installation, *CONTRACTOR* shall submit a request for substitution as specified in *Section 01 25 13*.
- E. Submit a written notice to *ENGINEER* designating the date and the time the work will be uncovered.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by, the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

- A. As selected by *CONTRACTOR* and approved by the *ENGINEER*.
- B. Materials selected shall, as a minimum, be equivalent to existing adjacent materials.

2.03 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of the project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect the conditions affecting the installation of products, or performance of the work.
- C. Report unsatisfactory or questionable conditions to the *ENGINEER* in writing; do not proceed with the work until the *ENGINEER* has provided further instructions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work.
- B. Provide devices and methods to protect other portions of the project from damage.
- C. Provide protection from the elements for that portion of the project, which may be exposed by cutting and patching work, and maintain excavations free from water.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods, which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.
- B. Execute excavating and backfilling by methods, which will prevent settlement or damage to other work.
- C. Employ the original installer or fabricator to perform cutting and patching for:
 - 1. Weather-exposed or moisture-resistant elements.
 - 2. Sight-exposed finished surfaces.
- D. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- E. Restore work, which has been cut or removed; install new products to provide completed work in accord with requirements of *Contract Documents*.
- F. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finish:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish the entire unit.

PART 4 - PAYMENT

4.01 CUTTING AND PATCHING

- A. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
- B. Include all costs for the *CUTTING AND PATCHING* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

END OF SECTION

SECTION 01 74 00
(01710)
CLEANING AND RESTORATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:

1. Maintain premises and public properties free from accumulations of waste, debris and rubbish caused by work operations.
2. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials; clean all sight exposed surfaces; leave project clean and ready for occupancy.
3. At completion of work, restore or replace, any public or private property disturbed or damaged by *CONTRACTOR'S* work operations to a condition at least equal to that existing prior to beginning work, or as otherwise specified. Materials, equipment and methods, shall be approved by the *ENGINEER*.
4. In landscaped areas, environmental features shall be replaced or restored to pre-disturbance conditions or better. This includes sodding, replacement of trees, shrubs, fences, drives and other landscape features in-kind. [N.J.A.C. 7:22-10.11(e) 5]
5. Final restoration shall be undertaken as soon as an area is no longer needed for construction, stockpiling or access. Excavated material unsuitable for backfill as set forth in N.J.A.C. 7:14-2.13 and considered to be solid waste pursuant to N.J.A.C. 7:26-1.6 shall be removed from the construction site and disposed of at a sanitary landfill approved and licensed by N.J.D.E.P. Excess excavated material which is not considered to solid waste pursuant to N.J.A.C. 7:26-1.6 shall be graded or removed in accordance with N.J.A.C. 7:22-10.11(l)3 and *Section 31 23 00, Excavating, Filling and Grading*. When access roads are no longer needed, road fill shall be removed and the access area shall be restored to pre-disturbance conditions. Care shall be taken to avoid damage to adjacent vegetation and to prevent the formation of depressions that would serve as mosquito pools. [N.J.A.C. 7:22-10.11(e) 1]

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. General requirements for cleaning and restorations: See the General Conditions.
3. In addition to standards described in the Section, comply with requirements for cleaning and restorations as described in pertinent other Sections of these *Specifications*.

C. References:

1. New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, 2007, and all amendments thereto (Standard Specifications).

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by, the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

- A. All materials shall comply with the Standard Specifications.
- B. Pavement restorations:
 - 1. Hot-Mix Asphalt Surface Course: Conforming to Subsection 902.02, Mix 9.5M64.
 - 2. Hot-Mix Asphalt Base Course: Conforming to Subsection 902.02, Mix 19M64.
- C. Restoration of Concrete structures:
 - 1. Concrete for curbs and islands shall conform to Section 607 of the Standard Specifications and shall be "Class B" as shown in Table 903.03.06-1 (NJDOT 2007).
 - 2. Concrete for sidewalks, curb ramps, driveways and aprons shall conform to Section 606 of the Standard Specifications and shall be Class "B" as shown in Table 903.03.06-1 (NJDOT 2007).
 - 3. Concrete for swales and gutters shall conform to the requirements of Section 405, Concrete Surface Course, of the Standard Specifications and shall be Class "B" as shown in Table 903.03.06-1 (NJDOT 2007)
- D. Restoration of other concrete structures: All materials shall comply with the applicable sections of the Standard Specifications.
- E. All other materials: As approved by the *ENGINEER* or authorities having jurisdiction.

PART 3 - EXECUTION

3.01 REQUIREMENTS OF REGULATORY AGENCIES

- A. Dispose of all non-recyclable solid waste materials in permanently established licensed OSWA (Office of Solid Waste Administration, New Jersey Department of Environmental Protection) landfills, or in temporary landfill sites approved by OSWA.
- B. Dispose of all recyclable materials such as concrete, asphalt, wood waste, yard waste and similar materials at a recycling facility properly licensed to accept such waste materials.
- C. Waste materials include, but are not limited to, concrete, blacktop, trees, stumps, lumber and timbers, unacceptable backfill material including heavy clay soils, organic materials, silts and rock.

3.02 SAFETY REQUIREMENTS

- A. Hazards control:
 - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
 - 2. Prevent accumulation of wastes, which create a hazardous condition.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws:
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

3.03 CLEANING DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish and windblown debris resulting from construction operations.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish.
- C. Remove waste materials, debris and rubbish from site periodically and legally dispose at location provided by *CONTRACTOR*.

3.04 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.
- C. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- D. Handle waste or surplus materials in a controlled manner with as few handlings as possible; do not drop or throw material from heights.
- E. The *CONTRACTOR* shall employ construction methods and means that will keep flying dust to the minimum. He shall provide for the laying of water on the Project, and on roads, streets and other areas immediately adjacent to the Project limits, wherever traffic, or buildings that are occupied or in use, are affected by such dust caused by his hauling or other operations. The *CONTRACTOR* shall control dust using water. The cost of carrying out the foregoing provisions shall be included in the prices bid for the various items in the Contract.
- F. The *CONTRACTOR* shall provide for prompt removal from existing roadways of all dirt and other materials that have been spilled, washed, tracked or otherwise deposited thereon by his hauling and other operations whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, damage pavements or create a traffic hazard.

- G. In order to control dust, as often as required during each working day, and particularly prior to the conclusion of each working day, areas under immediate construction (including access roads and other areas affected thereby) shall be swept and wet down with water sufficiently to lay dust. In addition, these areas shall be wet down during non-working hours (including weekends) as often as required to keep the dust under control. The use of calcium chloride or petroleum products or other chemicals for dust control is prohibited. [N.J.A.C. 7:22-10.11 (m)]

3.05 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- C. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- D. Remove all temporary buildings and structures built by *CONTRACTOR*, all temporary works; tools, machinery or other construction equipment furnished by him.
- E. Prior to final acceptance, *CONTRACTOR* shall conduct an inspection of all work areas to verify that the entire work is clean.

3.06 RESTORATIONS

- A. General:
 - 1. All existing structures, unpaved areas and paved areas disturbed or damaged during the work under this Contract shall be restored or replaced to a condition at least equal to that existing prior to beginning work, or as otherwise specified.
 - 2. The methods of conducting this work shall, as a minimum, conform to the Standard Specifications.
- B. Pavement restorations: Conform to Section 401.
- C. Restorations of Concrete Curbs & Islands: Conform to Section 607.
- D. Restoration of Sidewalks, Driveways, Curb Ramps and Aprons: Conform to Section 606.
- E. All other restorations: Restore in accordance with applicable Articles of the Standard Specifications, or as approved by the *ENGINEER* or authorities having jurisdiction.

PART 4 - PAYMENT

4.01 CLEANING AND RESTORATIONS

- A. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
 - 1. Include all other costs for cleaning and restorations in the prices bid for the various related items of work as designated in the Proposal and include those items which are considered to be an integral part of this work which may be specified elsewhere in these specifications.

****END OF SECTION****

SECTION 01 77 19
(01760)
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Comply with requirements stated in the *General Conditions* of the Contract and in the specifications for administrative procedures in closing out the work.
- B. Related requirements in other parts of the Project Manual:
 - 1. Fiscal provisions, legal submittals and additional administrative requirements: Conditions of the Contract.
- C. Related requirements specified in other sections:
 - 1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
 - 2. *Section 01 11 00: Statement of Work*
 - 3. *Section 01 21 00: Cash Allowances*
 - 4. *Section 01 74 00: Cleaning and Restorations*
 - 5. *Section 01 78 23: Operating and Maintenance Data*
 - 6. *Section 01 78 36: Guarantees*
 - 7. *Section 01 78 39: Project Record Documents*
 - 8. *Section 01 78 45: Spare Parts and Maintenance Materials*
 - 10. Closeout submittals required of trades: The respective sections of specifications.

1.02 COMPLETION

- A. When Contractor considers the work is complete and ready for acceptance by the *OWNER*, he shall submit to the *ENGINEER*:
 - 1. A written notice that the work or designated portion thereof is complete and ready for acceptance.
 - 2. Certification that equipment systems have been tested, in the presence of the *OWNER'S* representative and are operational.
 - 3. Operating and Maintenance Data, Instructions to *OWNER'S* Personnel: to requirements of Section 01 78 23.
 - 4. Guarantees: to requirement of Section 01 78 36.
 - 5. Project Record Documents: to requirements of Section 01 78 39.

6. ADA Compliance and As-Built Certification: to requirements of *Section 01 11 00 – Statement of Work* and *Section 01 71 23 – Field Engineering*.
 7. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, *ENGINEER* will make or cause an inspection to be made to determine the status of completion.
- C. Should *ENGINEER* determine that the work is not complete:
1. *ENGINEER* will promptly notify the Contractor in writing, giving the reasons therefore.
 2. Contractor shall remedy the deficiencies in the work, and send a second written notice of completion to the *ENGINEER*.
 3. *ENGINEER* will reinspect the work.
- D. When *ENGINEER* concurs that the work is complete, he will:
1. Prepare a Certificate of Completion, accompanied by Contractor's list of items to be completed or corrected, as verified and amended by the *ENGINEER*.
 2. Submit the Certificate to *OWNER* and Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

1.03 FINAL INSPECTION

- A. When Contractor considers the work is complete, he shall submit written certification that:
1. Contract documents have been reviewed.
 2. Work has been inspected for compliance with *Contract Documents*.
 3. Work has been completed in accordance with *Contract Documents*.
 4. Work is completed and ready for final inspection.
- B. *ENGINEER* will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should *ENGINEER* consider that the work is incomplete or defective:
1. *ENGINEER* will promptly notify the Contractor in writing, listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Construction Manager that the work is complete.
 3. *ENGINEER* will reinspect the work.
- D. When the *ENGINEER* finds that the work is acceptable under the *Contract Documents*, he shall request the Contractor to make closeout submittals.

1.04 REINSPECTION FEES

- A. Should *ENGINEER* perform reinspections due to failure of the work to comply with the claims of status of completion made by the Contractor:
 - 1. *OWNER* will compensate *ENGINEER* for such additional services.
 - 2. *OWNER* will deduct the amount of such compensation from the final payment to the Contractor.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO *ENGINEER*

- A. Evidence of compliance with requirements of governing authorities:
 - 1. Comply with the requirements of N.J.A.C. 5:23-2.23 for the Certificate of Occupancy.
 - 2. Certificates of Inspection.
- B. Evidence of payment and release of liens: to requirements of General and Supplementary Conditions.
- C. Certificate of Insurance for products and completed operations.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to *ENGINEER*.
- B. Statement shall reflect all adjustments to the Contract Sum:
 - 1. The original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous change orders.
 - b. Allowances.
 - c. Unit prices.
 - d. Deductions for uncorrected work.
 - e. Penalties and bonuses.
 - f. Deductions for liquidated damages.
 - g. Deductions for reinspection payments.
 - h. Other adjustments.
 - 3. Total Contract Sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.

- C. *ENGINEER* will prepare a final change order, reflecting approved adjustments to the Contract Sum that were not previously made by change orders.

1.07 PAYMENT

- A. Payment for contract closeout will be made for the Fixed Price stated in the Proposal under the item *CONTRACT CLOSEOUT DOCUMENTATION*, which shall include Contractor's notice that the work is complete and ready for acceptance; certification that equipment and systems have been tested, in the presence of the *OWNER'S* representative and are operational; ADA Compliance and As-Built Certification as specified in *Section 01 11 00 – Statement of Work* and *Section 01 71 23 – Field Engineering*. As-builts and Project Record Documents as specified in Section 01 78 39; O & M Data and Instruction of *OWNER'S* Personnel as specified in Section 01 78 23; Warranties and Bonds as specified in Section 01 78 36; spare parts and maintenance materials required under the various sections in accordance with Section 01 78 45; and all other required submittals.

1.08 FINAL APPLICATION FOR PAYMENT

- A. No separate measurement will be made for this work. Contractor shall submit the final application for payment in accordance with procedures and requirements stated in the *General Conditions* of the contract after he has submitted the required Closeout Submittals.

****END OF SECTION****

SECTION 01 78 23
(01730)
OPERATING AND MAINTENANCE DATA

1.01 GENERAL

- A. Compile product data and related information appropriate for *OWNER'S* maintenance and operation of products furnished under the contract.
- B. Prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of *Specifications*.
- C. Instruct *OWNER'S* personnel in the maintenance of products and in the operation of equipment and systems.

1.02 FORM OF SUBMITTALS

- A. Prepare data in the form of an instructional manual for use by *OWNER'S* personnel.
- B. Format:
 - 1. Size: 8½ inches by 11 inches.
 - 2. Paper: Twenty (20) pound minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten.
 - 4. Drawings:
 - a. Provide reinforced punch binder tab, bind in with text.
 - b. Fold larger drawings to the size of the text pages.
 - 5. Provide fly-leaf for each separate product, or each piece of operating equipment:
 - a. Provide typed description of product, and major component parts of equipment.
 - b. Provide indexed tabs.
 - 6. Cover: Identify each volume with typed or printed title: "OPERATING AND MAINTENANCE INSTRUCTIONS." List:
 - a. Title of project.
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
- C. Binders:
 - 1. Commercial quality 3-ring binders with durable and cleanable plastic covers.
 - 2. Maximum ring size: 1 inch.
 - 3. When multiple binders are used, correlate the data into related consistent groupings.

1.04 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in a systematic order.
 - 1. *CONTRACTOR*, name of responsible principal, address and telephone number.
 - 2. A list of each product required to be included, indexed to the content of the volume.
 - 3. List, with each product, the name, address and telephone number of:
 - a. Subcontractor or installer.
 - b. Maintenance contractor, as appropriate.
 - c. Identify the area of responsibility of each.
 - d. Local source of supply for parts and replacement.
 - 4. Identify each product-by-product name and other identifying symbols as set forth in *Contract Documents*.
- B. Product data:
 - 1. Include only those sheets, which are pertinent to the specific product.
 - 2. Annotate each sheet to:
 - a. Clearly identify the specific product or part installed.
 - b. Clearly identify the data applicable to the installation.
 - c. Delete references to inapplicable information.
- C. Drawings:
 - 1. Supplement product data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - b. Control and flow diagrams.
 - 2. Coordinate drawings with information in project record documents to assure correct illustration of completed installation.
 - 3. Do not use project record documents as maintenance drawings.
- D. Written text, as required to supplement product data for the particular installation:
 - 1. Organize in a consistent format under separate heading for different procedures.
 - 2. Provide a logical sequence of instructions for each procedure.
- E. Copy of each warranty, bond and service contract issued.

Provide information sheet for Owner's personnel, give:

1. Proper procedures in the event of failure.
2. Instances, which might affect the validity of warranties or bonds.

1.04 MANUAL FOR MATERIALS AND FINISHES

- A. Submit two (2) copies of complete manual in final form.
- B. Content, for architectural products, applied materials and finishes:
 1. Manufacturer's data, giving full information on products:
 - a. Catalog number, size, and composition.
 - b. Color and texture designations.
 - c. Information required for reordering special manufactured products.
 2. Instructions for care and maintenance:
 - a. Manufacturer's recommendation for types of cleaning agents and methods.
 - b. Cautions against cleaning agents and methods, which are detrimental to the product.
 - c. Recommended schedule for cleaning and maintenance.
- C. Content, for moisture-protection and weather-exposed products:
 1. Manufacturer's data, giving full information on products:
 - a. Applicable standards.
 - b. Chemical composition.
 - c. Details of installation.
 2. Instructions for inspection, maintenance and repair.
- D. Additional requirements for maintenance data: The respective sections of *Specifications*.
- E. Provide complete information for products specified in:
 1. *Section 07 21 00: Building Insulation*
 2. *Section 07 62 00: Flashing and Sheet Metal*
 3. *Section 07 92 13: Sealants and Caulking*
 4. *Section 08 41 13: Bullet-Resistant Entrances & Storefronts*
 5. *Section 0 56 53: Security Windows – Fixed Window & Curtain Wall*
 6. *Section 08 56 55: Security Windows at Transaction Station*
 7. *Section 08 71 00: Hardware*

8. *Section 09 24 23: Cement Plaster (Stucco)*
9. *Section 09 90 00: Painting (General)*

1.05 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit three (3) copies of complete manual in final form.
- B. Content, for each unit of equipment and system, as appropriate:
 1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of all replaceable parts.
 2. Operating procedures:
 - a. Start-up, break-in, routine, and normal operating instructions.
 - b. Regulation, control, stopping, shutdown and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Special operating instructions.
 3. Maintenance procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting."
 - c. Disassembly, repair and reassembly.
 - d. Alignment, adjusting and checking.
 4. Servicing and lubrication schedule: List of lubricants required.
 5. Manufacturer's printed operating and maintenance instructions.
 6. Description of sequence of operation by control manufacturer.
 7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 - a. Predicted life of parts subject to wear.
 - b. Items recommended to be stocked as spare parts.
 8. As-installed control diagrams by controls manufacturer.
 9. Each Contractor's coordination drawings.

10. Charts of valve tag numbers, with the location and function of each valve.
11. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
12. Other data as required under pertinent sections of *Specifications*.

C. Content, for each electric and electronic system, as appropriate:

1. Description of system and components parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
2. Circuit directories of panelboards:
 - a. Electrical service.
 - b. Controls.
 - c. Communications.
3. As-installed color coded wiring diagrams.
4. Operating procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
5. Maintenance procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting."
 - c. Disassembly, repair and reassembly.
 - d. Adjustment and checking.
6. Manufacturer's printed operating and maintenance instructions.
7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
8. Other data as required under pertinent sections of *Specifications*.

D. Prepare and include additional data when the need for such data becomes apparent during instruction of *OWNER'S* personnel.

E. Additional requirements for operating and maintenance data: The respective sections of *Specifications*.

F. Provide complete information for products specified in:

1. *Section 11 22 16: Bank and Vault Equipment*

1.06 SUBMITTAL SCHEDULE

A. Submit two (2) copies of preliminary draft of proposed formats and outlines of contents prior to start of work.

- ARCHITECT/ENGINEER* will review draft and return one (1) copy with comments.
- B. Submit one (1) copy of completed data in final form thirty (30) days prior to completion and acceptance as defined in the General Conditions.

Copy will be returned with comments.

- C. Before Contract closeout, transfer all Operation and Maintenance Data to electronic media. All documents shall be in Portable Document File (pdf) format. Scan all documents in their original size. Electronic media shall be archival quality compact disc (CD), Memorex "Pro Gold™ Archival CD-Rs" or equivalent.

- D. At Contract closeout, deliver 4 copies of original O&M data and CDs to the *ENGINEER*.

1. Each CD shall have a high gloss, laser printed label showing the following information:

Title: Project Title
Owner:
Contract #: 20__-__-__
Date:
Contents: Operation & Maintenance Data
Section ____ - (Section Title)
Section ____ - (Section Title)
Section ____ - (Section Title)
Section ____ - (Section Title)

2. Each CD shall contain a "Readme" file describing the contents.
3. All O & M Data relating to a specific specification section or piece of equipment shall be contained as separate files in the same folder.
4. Each CD shall be contained in a Jewel Case with an insert showing the CD contents or a sleeve showing the CD contents.

1.08 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to final completion and acceptance as previously defined, fully instruct *OWNER'S* designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction.

Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

****END OF SECTION****

SECTION 01 78 36
(01740)
GUARANTEES

1.01 GENERAL

- A. Compile specified warranties and bonds.
- B. Co-execute submittals.
- C. Review submittals to verify compliance with *Contract Documents*.
- D. Submit to *ENGINEER* for review and transmittal to *OWNER*.
- E. Related requirements in other parts of the *Contract Documents*:
 - 1. Bid or proposal bonds: See the *Instructions to Bidders*.
 - 2. Performance bond and maintenance bond: See the *General Conditions*.

1.02 SUBMITTAL REQUIREMENTS

- A. Assemble warranties and bonds executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Number of original signed copies required: Two (2) each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product or work item.
 - 2. Firm, with name of principal, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty or bond.
 - 5. Duration of warranty or bond.
 - 6. Provide information for *OWNER'S* personnel:
 - a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
 - 7. *CONTRACTOR*, name of responsible principal, address and telephone number.

1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size: 8½" by 11", punch sheets for 3-ring binder.

Fold larger sheets to fit into binders.

2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS." List:
 - a. Title of project.
 - b. Name of contractor.
- C. Binders: Commercial quality, 3-ring, D-type, with durable and cleanable plastic covers.

1.04 SUBMITTAL REQUIREMENTS

- A. Submit documents within ten (10) days after inspection and written acceptance by the *ENGINEER*
- B. Submit warranties by the manufacturers of all equipment furnished; or furnished and installed by the *CONTRACTOR*.
 1. Manufacturer shall issue warranties in the name of the *CONTRACTOR* and *OWNER*.
 2. Warranties shall be valid for a period of two (2) years from the date of acceptance by the *OWNER* of the structures and equipment, unless a longer period is specified.
 3. Warranties shall cover all costs for repairing or replacing defective materials and equipment.
- C. Submit warranties, service and maintenance contracts as specified in the respective sections of *Specifications*.
- D. In the event the equipment manufacturer's warranty does not comply with the conditions outlined above or are otherwise unavailable as required above, the *CONTRACTOR* may:
 1. Provide a dedicated security deposit in lieu of the specified warranties.
 2. Provide either a separate Maintenance Bond or certification of extended warranty coverage under the *CONTRACTOR'S* overall bonding to guarantee *OWNER* for warranty and deficiencies.

1.05 WARRANTY REPAIRS

- A. *CONTRACTOR* shall repair and/or replace as required all equipment which may be defective due to manufacturing errors or faulty installation, at his expense, during the maintenance period.
- B. The *CONTRACTOR* shall be responsible for all costs of the repair work including removal, shipping, reinstallation and start-up during the two (2) year maintenance period. The *OWNER* shall not incur any additional costs as a result of warranted equipment failure.

END OF SECTION

SECTION 01 78 39
(01720)
PROJECT RECORD DOCUMENTS

1.01 GENERAL

- A. Maintain for the *OWNER* one (1) record copy of:
1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the contract.
 5. Change Orders or written instructions.
 6. Approved shop drawings, product data and samples.
 7. Field test records.
 8. As-built record drawings.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- B. Make documents and samples available at all times for inspection by the *ENGINEER*.

1.03 MARKING DEVICES

- A. Provide felt-tip marking pens for recording information in the color code accepted by the *ENGINEER*.

1.04 RECORDING

- A. Label each document, "PROJECT RECORD" in neat large printed letters.
- B. Mark *CONTRACTOR* prints of working drawings to show the final horizontal and vertical locations of any revisions to the work. Record information concurrently with construction progress on a daily basis.
- C. Do not conceal any work until required information is recorded.
- D. Drawings: Legibly mark to record actual construction:
1. Elevations of various structure elements in relation to finish floor or grade.
 2. All underground piping with elevations and dimensions. Changes in piping location. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements. Actual installed pipe material, class, etc.

3. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
 4. Field changes of dimension and detail.
 5. Changes made by Field Order or by Change Order.
 6. Details not on original Contract Drawings.
 7. Equipment and piping relocations.
- E. Specifications and Addenda; legibly mark each Section to record:
1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
 2. Changes made by Field Order or by Change Order.

1.05 SUBMITTAL

- A. At contract closeout, deliver record information to the *OWNER*:
1. Record all information in electronic format and provide a disk or CD in AutoCAD or PDF format of the project record data.
 2. Submit the CD along with two (2) sets of blue/black line prints dated and with the words "Record Plan" above the title block and containing Contractor Certification as to the accuracy of the information shown. The plans must also be signed and sealed by a New Jersey licensed land surveyor.
 3. Submit original marked drawings, CDs and all other record documents to the *ENGINEER*.

****END OF SECTION****

SECTION 01 78 45
(01750)
SPARE PARTS AND MAINTENANCE MATERIALS

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Receipt, storage and maintenance of spare parts and maintenance materials.

B. Related work:

1. Other sections of the *Specifications* requiring spare parts and/or maintenance materials.
2. *Section 14 42 00: Wheelchair Lift*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Compile and submit inventory of spare parts and maintenance materials with first application for payment.

C. Submit updated inventory monthly with each application for payment.

D. Prior to completion and acceptance of the work as defined in the General Conditions, provide a complete inventory of all spare parts with the Operation and Maintenance manuals.

1.03 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Deliver materials in manufacturer's original packaging with all tags and labels intact.
2. Receive and inventory spare parts prior to placement in storage.

B. Storage:

1. Provide secure storage space in *CONTRACTOR'S* field office or provide separate secure storage trailer for storage of spare parts and maintenance materials.
2. Provide heated space for temperature sensitive materials.
3. Store spare parts and maintenance materials in groups related to the specific pieces of equipment for which they are intended.
4. Maintain current inventory of spare parts and maintenance materials and update monthly.

C. Handling:

1. Handle spare parts and maintenance materials carefully to avoid damage to materials or packaging.
2. Spare parts and maintenance materials shall be tagged to identify the equipment for which they are intended.

PART 2 – PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to delivery to *OWNER*, carefully inspect spare parts and maintenance materials and verify that all required parts and materials have arrived.
- B. Verify that all tags and labels are intact and legible.
- C. Correct all deficiencies.

3.02 DELIVERY TO OWNER

- A. At a time designated by *OWNER*, but not prior to completion, turn over all spare parts and maintenance materials to *OWNER*.
- B. If spare parts and maintenance materials are stored in a separate secure space, turn over keys to *OWNER*. *OWNER* shall have 10 working days to remove spare parts and maintenance materials to *OWNER'S* storage area.

PART 4 - PAYMENT

4.01 SPARE PARTS AND MAINTENANCE MATERIALS:

- A. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
- B. Include all costs for *SPARE PARTS AND MAINTENANCE MATERIALS* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 01 79 00
(01790)
DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Demonstration of the operation of systems, subsystems, and equipment.
2. Training in the operation and maintenance of systems, subsystems, and equipment.
3. Demonstration and training transcripts and videos (DVDs).

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 78 39: Project Record Documents*
3. *Section 01 78 23: Operation and Maintenance Manuals*
4. *Section 01 77 19: Contract Closeout*
5. *Section 14 42 00: Wheelchair Lift*

C. Payment:

1. Unless otherwise noted in the Proposal Section, no separate payment will be made for this item.
2. Include all costs for *DEMONSTRATION AND TRAINING* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Instruction Program: Submit two copies of an outline of the instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training session. Include learning objective and outline for each training session.

1. At completion of training, submit two (2) complete training manual(s) for Owner's use. Each manual shall include a copy of the demonstration and training videos (DVDs).

C. Submit qualification data for facilitator and instructor.

D. Demonstration and training transcripts:

1. Prepare and submit a transcript of each training session in the following format:
 - a. Paper: 8½ inches by 11 inches, 20-pound minimum, white, for typed pages.
 - b. Neatly typewritten text
 - c. Drawings and illustrations suitable to replace video.
 - d. Provide flyleaf for each separate product, or each piece of operating equipment:

- e. Provide typed description of product, and major component parts of equipment.
- f. Provide indexed tabs.
- g. Cover: Identify each volume with typed or printed title. List:
 - (1) Title of project.
 - (2) Identity of separate structure as applicable.
 - (3) Identity of general subject matter covered in the manual.

1.03 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements", experienced in operation and maintenance procedures and training.

1.04 COORDINATION

- A. Coordinate instruction schedule with *OWNER'S* operations. Adjust schedule as required to minimize disrupting *OWNER'S* operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training sessions with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by *ENGINEER*.

PART 2 - PRODUCTS

2.01 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training sessions for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:
 - 1. *Section 14 42 00: Wheelchair Lift*
- B. Training Sessions: Develop a learning objective and syllabus for each session. Include a description of specific skills and knowledge that participant is expected to master. For each session, include instruction for the following:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.

2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
3. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
4. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
5. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
6. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.

2.02 TRAINING AIDS AND MATERIALS

- A. Provide all training aids, materials, tools, appliances, devices, mock-ups, flip charts, markers, overhead projectors, and other equipment in sufficient quantities for training OWNERS personnel. Such materials shall become the property of the OWNER when no longer needed.

2.03 OTHER MATERIALS

- A. All other materials, not specifically described but required for complete and proper demonstration and training shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training session. Assemble training sessions into a combined training manual.
- B. Set up instructional equipment at instruction location.

3.02 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between *CONTRACTOR* and *OWNER* for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct *OWNER'S* personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. *ENGINEER* will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
 - 2. *OWNER* will furnish an instructor to describe *OWNER'S* operational philosophy.
 - 3. *OWNER* will furnish Contractor with names and positions of participants.
- C. Location: Project Site.
- D. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with *OWNER* with at least fourteen (14) days advance notice.

3.03 REPRODUCTION OF TRAINING MATERIALS

- A. The *OWNER* reserves the right to reproduce all training syllabuses, materials, and other such items for his own use in training his present or future personnel.

****END OF SECTION****

SECTION 02 41 19
(02070)
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Demolishing designated building equipment and fixtures.
2. Demolishing designated construction.
3. Cutting and alterations for completion of the Work.
4. Remove designated items for reuse Owner's retention.
5. Protecting items designated to remain.
6. Removing demolished materials.
7. Testing for the presence of any Asbestos Containing Material (ACM) and its removal and disposal, if and when directed.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 73 29: Cutting and Patching*

1.02 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Submit results of asbestos testing for structure.
- C. Submit documentation that the requirements of N.J.A.C. 5:23-2.17(e) have been or shall be met for each structure prior to demolition.

1.03 SCHEDULING

- A. Schedule Work to coincide with School schedule.
- B. Cooperate with *OWNER* in scheduling noisy operations and waste removal that may impact Owners operation and in adjoining spaces.
- C. Perform noisy, malodorous, dusty work:
- D. Coordinate utility and building service interruptions with *OWNER*.
 1. Do not disable or disrupt building fire or life safety systems without three (3) days prior written notice to *OWNER*.
 2. Schedule tie-ins to existing systems to minimize disruption.

3. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

1.04 QUALITY ASSURANCE

A. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.

B. Comply with the requirements of the Uniform Construction Code of the State of New Jersey.

1.05 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent [and occupied] building areas.
- B. Cease operations immediately if structure appears to be in danger and notify *ARCHITECT/ENGINEER*. Do not resume operations until directed.

PART 2 – PRODUCTS Not used

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 ASBESTOS ABATEMENT

- A. Inspect building and test as required for the presence of Asbestos Containing Material (ACM) in floor tile, roofing materials and elsewhere as required.
- B. Remove and dispose of Asbestos Containing Material (ACM) in accordance with N.J.A.C. 5:23-8, if and when directed.
- C. Before parts of a structure can be demolished or removed, the *CONTRACTOR* shall document that the requirements of USEPA 40 CFR 61 Subpart M have been or shall be met. A permit to demolish or remove the structure shall not be issued until *CONTRACTOR* notifies the enforcing agency that all friable asbestos or asbestos-containing material that will become friable during demolition or removal has been or will be properly abated prior to demolition. [N.J.A.C. 5:23-2.17(e)]

3.03 PREPARATION

- A. Notify affected utility companies before starting work and comply with their requirements.
- B. Mark location and termination of utilities.

- C. Erect, and maintain temporary barriers and security devices, including warning signs and lights, and similar measures, for protection of the public, *OWNER*, and existing improvements indicated to remain.
- D. Erect and maintain weatherproof closures for exterior openings.
- E. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued *OWNER* occupancy.
- F. Prevent movement of structure; provide temporary bracing and shoring required to ensure safety of existing structure.
- G. Provide appropriate temporary signage including signage for exit or building egress.
- H. Do not close or obstruct building egress path.
- I. Do not disable or disrupt building fire or life safety systems without three (3) days prior written notice to *OWNER*.

3.04 SALVAGE REQUIREMENTS

- A. Coordinate with *OWNER* to identify building components and equipment required to be removed and delivered to *OWNER*.
- B. Tag components and equipment *OWNER* designates for salvage.
- C. Protect designated salvage items from demolition operations until items can be removed.
- D. Carefully remove building components and equipment indicated to be salvaged.
- E. Disassemble as required to permit removal from building.
- F. Package small and loose parts to avoid loss.
- G. Mark equipment and packaged parts to permit identification and consolidation of components of each salvaged item.
- H. Prepare assembly instructions consistent with disassembled parts. Package assembly instructions in protective envelope and securely attach to each disassembled salvaged item.
- I. Deliver salvaged items to *OWNER*. Obtain signed receipt from *OWNER*.

3.05 DEMOLITION - GENERAL

- A. By careful study of the *Contract Documents*, determine the location and extent of selective demolition to be performed.
- B. In company with the *ENGINEER*, visit the site and verify the extent and location of selective demolition required.
 - 1. Carefully identify limits of selective demolition.
 - 2. Mark interface surfaces as required to, enable workmen also to identify items to be removed and items to be left in place intact.
- C. Prepare and follow an organized plan for demolition and removal of items.

- D. Conduct demolition to minimize interference with adjacent and occupied building areas. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.
- E. Maintain protected egress from and access to adjacent existing buildings at all times.
- F. Do not close or obstruct roadways or sidewalks without permits.
- G. Cease operations immediately when structure appears to be in danger and notify *ARCHITECT/ENGINEER* and *OWNER*.
- H. Disconnect and remove designated utilities within demolition areas.
- I. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.
- J. Demolish in orderly and careful manner. Protect existing improvements as required.
- K. Carefully remove building components indicated to be reused.
 - 1. Disassemble components as required to permit removal.
 - 2. Package small and loose parts to avoid loss.
 - 3. Mark components and packaged parts to permit reinstallation.
 - 4. Store components, protected from construction operations, until reinstalled.
- L. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- M. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- N. Remove temporary Work.

3.06 DEMOLITION - ELECTRICAL WORK

- A. Remove, relocate, and extend existing installations to accommodate new construction.
- B. Remove abandoned wiring to source of supply.
- C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
- E. Disconnect and remove abandoned panelboards and distribution equipment.
- F. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- G. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

- H. Disconnect and remove existing service equipment. Coordinate removal with the utility company. Do not enter the transformer yard until all utility-owned equipment has been de-energized and removed.
- I. Maintain access to existing electrical installations that remain active. Modify installation or provide access to panel as appropriate.
- J. Patch all abandoned wall openings using materials and finishes to match existing construction.

3.06 REPLACEMENTS

- A. In the event of demolition of items not so indicated to be demolished, promptly replace such items to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

PART 4 - PAYMENT

4.01 TESTING FOR ASBESTOS CONTAINING MATERIAL (ACM)

- A. Measurement: The quantity for which payment will be made will be for the number of tests actually made to determine the presence of Asbestos Containing Material (ACM), if and where directed by the *ENGINEER*.
- B. Payment: Payment will be made for the quantity as above determined, measured in units, at the unit price per test bid for the item *TESTING FOR ASBESTOS CONTAINING MATERIAL (ACM)* which price shall include obtaining access to the structure, inspection and testing of the interior and exterior (including roofing) of the structure for the presence of asbestos containing material, test reports and all else necessary or required.

4.02 REMOVAL OF ASBESTOS CONTAINING MATERIAL

- A. Quantity: No separate measurement will be made for this item..
- B. Payment: Payment will be made for the item *REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS* on a lump sum basis and in addition to the amounts bid for the other items listed in the proposal, which price shall be the incremental up-charge to handle and dispose of asbestos containing material (ACM) complete as specified, if and when directed by the *ENGINEER*. The amount bid for this item will not be paid unless there is asbestos in the existing materials as shown by actual testing paid for elsewhere

4.03 SELECTIVE DEMOLITION

- A. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
- B. Include all costs for *SELECTIVE DEMOLITION* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 03 01 30.71
(03730)
CONCRETE REPAIRS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included:

1. At locations designated by *ENGINEER*, remove all loose, unsound concrete and patch with concrete repair material.
2. A technical representative of the manufacturer shall be present on the site to provide guidance in the preparation and placement of repair products for prevailing weather and job site conditions the first time these products are used at the job site. The representative shall be present at least one complete cycle of the repair procedures.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 03 64 23: Concrete Crack Repair By Epoxy Injection*

C. Payment:

1. Unless otherwise noted in the Proposal section, no separate payment shall be made for this item.
2. Include all costs for *CONCRET REPAIRS* for the various related items of work as designated in the Proposal.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required to demonstrate compliance with the specified requirements.

C. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.05 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or product manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.
- C. The *CONTRACTOR* and/or product manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the warranty period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- C. All repair products shall be by a single manufacturer.

2.02 CLEANER/DEGREASER

- A. Acceptable Manufacturers:
1. Super-Krete International
1290 North Johnson Avenue, Suite 101
El Cajon, CA 92020
Tel: 619-401-8282
Tel: 800-995-1716
 2. Or equivalent.
- B. Concrete Cleaner/Degreaser: “Super-Krete Heavy Duty Degreaser,” or equivalent.

2.03 CONCRETE REPAIR MATERIAL

- A. Acceptable Manufacturers:
1. Sika Corporation
201 Polito Ave.
Lyndhurst, NJ 07071
800-933-7452
 2. Or equivalent.
- B. Hand applied to horizontal surfaces: Unless noted otherwise, use “SikaTop 122 Plus,” or equivalent.
- C. Hand applied to overhead and vertical repairs: Unless noted otherwise, use “SikaTop 123 Plus,” or equivalent.
- D. Machine applied to all surfaces: Unless noted otherwise, use “Sika Repair 224,” or equivalent.
- E. Formed to all surfaces: Unless noted otherwise, use “SikaTop 111 Plus,” or equivalent.

2.04 THREADED ROD ANCHORS

- A. Shall be 3/8" diameter threaded rod anchor installed in the concrete using the Hilti HIT HY200 Dowelling system manufactured by Hilti Corporation of Tulsa, Oklahoma, or equivalent.

2.05 REINFORCEMENT

- A. Shall be Grade 60 billet steel reinforcing bars; minimum size shall be #4 bars.

2.06 BONDING AGENTS

- A. Concrete or reinforcing steel: Sika “Armatec 110 EpoCem,” or equivalent.

2.07 AGGREGATE

- A. A 3/8" course aggregate, clean, well graded, low absorption and high density complying with ASTM C33, size number 8, per Table 2.
- B. Aggregate shall comply with either ASTM C1260, C227 or C289 for non-reactivity.
- C. Aggregate shall not contain limestone.

2.08 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

- A. Inspection: Verify that the work of this section may be installed in accordance with all pertinent codes and regulations, the original design, and the referenced standards.
- B. Discrepancies:
 - 1. In the event of discrepancy, immediately notify the *ENGINEER*.
 - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 PREPARATION

- A. Prior to any construction the *ENGINEER* shall physically mark out in the field the extent of loose, and spalled concrete required to be repaired.
- B. Removal of Unsound Concrete:
 - 1. Removal of unsound concrete shall be accomplished with any combination of hammer and chisel, chippers, bush hammers, hydro removal, pneumatic scabbler, rotary milling machine, or other suitable means to achieve the surface profile required by the concrete repair material instructions.
 - 2. All unsound concrete shall be removed to a minimum depth of 1". No feather-edges will be acceptable.
 - 3. If the Contractor discovers additional unsound concrete as the work progresses, he shall notify the *ENGINEER* for inspection. If directed by the *ENGINEER*, the Contractor shall then remove and replace this additional concrete. Removal of any concrete without the approval of the *ENGINEER* shall be replaced in accordance with these Specifications by the Contractor at no additional cost to the *OWNER*.
- C. Supplemental Reinforcing:
 - 1. Install supplemental reinforcing with anchors into sound concrete as indicated on contract drawings.
- D. Cleaning:
 - 1. Remove rust from exposed reinforcing bars by any combination of needle scalers, high pressure water cleaning, abrasive blast cleaning, power wire brush, and wire brush. Ensure the back side of the reinforcing is cleaned of rust.
 - 2. The concrete surfaces which are to receive the repair mortar shall be sound, free from laitance, oil, grease, dust, loose aggregate, paint and foreign matter.
 - 3. Cleaner/degreaser shall be used to remove any oil or grease deposits or stains before blasting or washing.

4. Cleaning of concrete shall be accomplished by means of abrasive, hydro or shot blasting, scabblers, steam cleaning, hammer and chisel, vacuuming or a combination of methods.
5. After cleaning, the substrate shall be rinsed with clean water.
6. The substrate shall be cleaned to the satisfaction of the *ENGINEER*. The surface must have an open pore structure free from clogs of dust, slurry water or foreign material.
7. The manner of accomplishing the cleaning shall be such as to protect surfaces not to be coated from staining or other damage.

3.03 CONCRETE REPAIR INSTALLATION

- A. Mix concrete repair material in accordance with manufacturer's instruction (add aggregate to the mortar where permitted).
- B. Dampen substrate with water (saturated surface dry, but free of standing water).
- C. Prime surface with bonding agent.
- D. Immediately install concrete repair material to wet bonding agent as directed by the manufacturer's instructions (in lifts as depth required).
- E. Tool and finish with screed or trowel to match adjacent surfaces.
- F. Moist cure and protect surface immediately from direct sunlight, wind, rain and frost after finishing.

3.04 CLEANING

- A. Clean exposed surface of all grease, dirt and other foreign materials.
- B. Touch up all marred or abraded surfaces as specified herein.

****END OF SECTION****

SECTION 03 11 00
(03110)
CONCRETE FORMWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.
2. Openings for other affected Work.
3. Form accessories.
4. Stripping forms.
5. Sample panel.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 03 20 00: Concrete Reinforcement*
3. *Section 03 30 00: Concrete*

C. Payment:

1. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
2. Include all costs for *CONCRETE FORMWORK* in the prices bid for the various related items of work as designated in the Proposal.

1.02 SYSTEM DESCRIPTION

A. Design Requirements:

1. Design and construction of all forms and form supports, shoring and bracing methods, and their adequacy shall rest with the Subcontractor.
2. Design formwork so it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure with a minimum factor of safety of 2.0 and maximum deflection shall not exceed a clear span length L/400 minimum.
3. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose.
4. Design forms and falsework to include assumed values of live load, dead load, weight of moving equipment operated on the formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of the structure during construction.
5. Provide shop drawings that have been signed and sealed by a qualified Professional Engineer in accordance with *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Performance Requirements:

1. Tolerances for construction of formwork shall be as necessary to provide completed concrete structures within the concrete tolerances specified in *Section 03 30 00, Concrete*.
2. Provide positive means of adjustment to maintain tolerances before and during concrete placement.

1.03 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required to demonstrate compliance with the specified requirements.

C. Shop drawings showing precise dimensions of the work of this section, and all other data needed to ensure proper and adequate provisions in construction to accommodate the work of this section.

1. Show the forms to be used indicating form construction, type and location of form ties, reveal strips, chamfer, drip, groove, and method of sealing forms against grout leakage. Lay out form ties in regular, symmetrical patterns.
2. Show pattern for exposed textured or Architectural concrete.

D. Samples: Submit drawings and samples of formwork for textured or Architectural concrete illustrating full range of colors, finishes and patterns available.

E. Manufacturer's recommended installation procedures.

1.04 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

- C. Basis of acceptance:
 - 1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.
- D. Perform the work of this Section in accordance with the following standards as modified and supplemented herein:
 - 1. ACI 301; Specifications for Structural Concrete for Buildings
 - 2. ACI 347; Recommended Practice for Concrete Formwork

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 FORM MATERIALS

- A. Plywood, lumber, steel, fiberglass reinforced plastic, or any material that will produce concrete with the required finish and within the specified tolerances.
- B. Except for metal forms, use new materials. Materials may be reused during progress of the work, provided they are completely cleaned and reconditioned, recoated for each use, and capable of producing formwork of the required quality.
- C. For footings and foundations, use boards or planks secured to wood or steel stakes, substantially constructed to shapes indicated and to support the required loads.
- D. For studs, wales, and supports, use standard grade or better lumber, dimensions as required to support the loads but not less than 2" x 4".
- E. Porous form materials shall be sealed to prevent absorption of water from the concrete.

- F. Use of aluminum form materials in contact with concrete is prohibited.
- G. Wall forms:
1. Exposed concrete surfaces:
 - a. Minimum for surfaces indicated to receive smooth form finish or any rubbed finish:
 - (1) BB plyform, Class 1, conforming to U.S. Product Standard PS-1; 3/4-inch minimum thickness; free of raised grain, torn surfaces, worn edges, patches, or other defects which would impair the appearance of the concrete surface;
 - (2) Wood form materials shall be new at the start of the work and may be reused subject to the approval of the *ENGINEER*.
 - b. Seal edges and coat both faces with colorless coating, which will not affect application of applied finishes.
 2. Unexposed concrete surfaces:
 - a. Use 1" x 6" shiplap Douglas Fir boards, surfaced one side and two edges, or 3/4" minimum thickness BB plyform, Class I or II, conforming to U.S. Product Standard PS-1, sanded both sides, mill-oiled.
- H. Column forms, if required:
1. For square or rectangular columns, use 2" thick Douglas Fir planks or joists, surfaced one side and two edges, or use metal forms.
 2. For round columns, use metal forms or patented paper tube forms approved by the *ENGINEER*.
 3. Construct column forms with tight joints and securely clamped together with steel clamps.

2.03 FORM TIES

- A. Hold inner and outer forms for vertical concrete together with combination steel ties and spreaders approved by the *ENGINEER*.
1. Space ties symmetrically in tiers and rows, each tier plumb from top to bottom and each row level.
 2. At horizontal pour lines, locate ties not more than 6" below the pour lines. Tighten after concrete has set and before the next pour is made.
 3. For exposed concrete surfaces, provide form ties of removable type with she-bolts equipped with permanent plugs and a system approved by the *ENGINEER* for fixing the plugs in place.

2.04 EARTH FORMS

- A. Side forms for footings may be omitted, and concrete may be placed directly against excavation, only when requested by the Contractor and approved by the *ENGINEER*.
- B. When omission of forms is accepted, provide additional concrete 1" on each side of the minimum design profiles and dimensions shown on the Drawings.

2.05 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 FORM CONSTRUCTION

A. General:

1. Construct forms complying with ACI 347 to the exact sizes, shapes, lines, and dimensions shown, and as required to obtain accurate alignment, location, grades, and level and plumb work in the finished structure.
2. Provide for openings, offsets, keyways, recesses, moldings, reglets, chamfers, blocking, screeds, bulkheads, anchorages, inserts, and other features as required.
3. Tolerances shall be in accordance with Section 3.3.1 of ACI 347.
4. Erect, support, brace, and maintain formwork so it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure.
5. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose.
6. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position.
7. Provide shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof.
8. Provide trussed supports when adequate foundations for shores and struts cannot be secured.
9. Support form materials by structural members spaced sufficiently close to prevent objectionable deflection.
10. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities, and within the allowable tolerances.
11. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints, and provide backup material at joints as required to prevent leakage and prevent fins.
12. Provide camber in formwork as required for anticipated deflections due to weight and pressures of fresh concrete and construction loads.

B. Fabrication:

1. Fabricate forms for easy removal without hammering or prying against concrete surfaces.
2. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.
3. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.
4. Provide top forms for inclined surfaces where so directed by the *ENGINEER*.

C. Forms for exposed concrete:

1. Drill forms to suit ties being used, and to prevent leakage of cement paste around tie holes. Do not splinter forms by driving ties through improperly prepared holes.
2. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back the joints with extra studs or girts to maintain true, square intersections.
3. Use extra studs, wales, and bracing to prevent objectionable bowing of forms between studs, and to avoid bowed appearance in concrete. Do not use narrow strips of form material, which will produce bow.

D. Corner treatment:

1. Unless shown otherwise, form chamfers with 1" x 1" strips, accurately formed and surfaced to produce uniformly straight lines and tight edges.
2. Extend terminal edges to required limit, and miter the chamfer strips at changes in direction.

E. Locate control joints as indicated on the Drawings and, where required but not shown on the Drawings, as approved by the *ENGINEER*.

F. Provisions for other trades:

1. Provide openings in concrete formwork to accommodate work of other trades.
2. Verify size and location of openings, recesses, and chases with the trade requiring such items.
3. Accurately place and securely support items to be built into the concrete.

3.03 FORM COATINGS

A. Coat form contact surfaces with form coating compound before reinforcement is placed.

1. Do not allow excess form coating material to accumulate in the forms or to come in contact with surfaces, which will bond to fresh concrete.
2. Apply the form coating material in strict accordance with its manufacturer's recommendations.

3.04 REMOVAL OF FORMS

A. General:

1. Do not disturb or remove forms until the concrete has hardened sufficiently to permit form removal with complete safety.
2. Do not remove shoring until the member has acquired sufficient strength to support its own weight, the load upon it, and the added load of construction, but no sooner than seven (7) days.
3. Do not strip floor slabs in less than two(2) days.
4. Do not strip wall concrete in less than 24 hours. Do not backfill until concrete has cured seven (7) days.
5. When stripping time is less than specified curing time, measures shall be taken to provide adequate curing and thermal protection of the stripped concrete.

B. Finished surfaces:

1. Exercise care in removing forms from finished concrete surfaces so that surfaces are not marred or gouged, and that corners are true, sharp, and unbroken.
2. Release sleeve nuts or clamps, and pull the form ties neatly.
3. Do not permit steel spreaders, form ties, or other metal to project from, or be visible on, any concrete surface except where so shown on the Drawings.
4. Solidly pack form tie holes, rod holes, and similar holes in the concrete. For packing, use the cement grout specified in *Section 03 30 00, Concrete* of these Specifications, flushing the holes with water before packing, screeding off flush, and grinding to match adjacent surfaces.

3.05 FIELD QUALITY CONTROL

- A. Inspect and check complete formwork, falsework, shoring and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties and parts are secure.
- B. Contact *ENGINEER* when formwork is complete and has been cleaned.
- C. For all exposed concrete surfaces do not re-use wood type formwork more than three (3) times. Do not patch formwork.

****END OF SECTION****

SECTION 03 20 00
(03200)
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included: Provide concrete reinforcement where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Related work:
 - 1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
 - 2. *Section 03 11 00: Concrete Formwork*
 - 3. *Section 03 30 00: Concrete*
- C. Payment:
 - 1. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
 - 2. Include all costs for *CONCRETE REINFORCEMENT* in the prices bid for the various related items of work as designated in the Proposal.

1.02 REFERENCE STANDARDS

- A. American Concrete Institute
 - 1. ACI-301, Specifications for Structural Concrete for Buildings.
 - 2. ACI-315, Details and Detailing of Concrete Reinforcement.
 - 3. ACI-318, Building Code Requirements for Reinforced Concrete Structures.
- B. Concrete Reinforcing Steel Institute:
 - 1. Manual of Standard Practice.
- C. American Society for Testing and Materials:
 - 1. ASTM A-185; Specification for Steel Welded Wire Reinforcement, Plain, for Concrete Reinforcement.
 - 2. ASTM A-615; Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. ASTM A-82; Specification for Steel Wire, Plain, for Concrete Reinforcing

1.03 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Comply with pertinent provisions of the following codes and standards, except as modified herein. Where there is a conflict, the more stringent code or standard shall govern.
 - 1. ACI-301, Specifications for Structural Concrete for Buildings.
 - 2. ACI-315, Details and Detailing of Concrete Reinforcement.
 - 3. ACI-318, Building Code Requirements for Reinforced Concrete Structures.
 - 4. ICC, International Building Code, 2018, as modified by the Uniform Construction Code of the State of New Jersey.

1.04 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Manufacturer's product data:
 - 1. Complete materials list of all materials proposed to be furnished and installed under this section.
 - 2. Specifications and other data required to demonstrate compliance with the specified requirements.
 - 3. Submit copies of mill test reports for shipments of reinforcing steel prior to placing reinforcement into the work.
- C. Shop Drawings showing details of bars, anchors, and other items, if any, provided under this Section.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage:
 - 1. Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use.
 - 2. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.
 - 3. Store in a manner to prevent excessive rusting and fouling with dirt, grease, and other bond-breaking coatings.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 REINFORCEMENT MATERIALS AND ACCESSORIES

- A. Bars:
 - 1. Provide deformed billet steel bars complying with ASTM A615, using grades shown on the Drawings.
 - 2. Where grades are not shown on the Drawings, use Grade 60.
- B. Steel wire:
 - 1. Comply with ASTM A82.
 - 2. For tie wire, comply with Fed Spec QQ-W-461, annealed steel, black, 16 gage minimum (use coated wire for coated bars).
- C. Welded wire reinforcement:
 - 1. Provide plain welded steel, complying with ASTM A185.
- D. Synthetic Fiber Reinforcement:
 - 1. Acceptable Manufacturers:
 - a. Propex Concrete Systems Corp., 6025 Lee Highway, Suite 425, Chattanooga, Tennessee 37427. Toll Free (800) 621-1273. Phone (423) 892-8080. Fax (423) 892-0157.
 - b. Or equivalent.
 - 2. Synthetic fiber reinforcement: Fibermesh 150.
 - a. Material: 100 percent virgin homopolymer polypropylene multifilament fibers, containing no reprocessed olefin materials.
 - b. Conformance: ASTM C 1116, Type III.
 - c. Fire classifications:
 - (1) UL Report File No. R8534-11.
 - (2) Southwest Certification Services (SWCS), Omega Point Laboratories No.8662-1.
 - d. Fiber length: Graded.

- e. Alkali resistance: Alkali proof.
- f. Absorption: Nil.
- g. Specific gravity: 0.91.
- h. Melt point: 324 degrees F (162 degrees C).

E. Welding electrodes: Comply with AWS A5.1, low hydrogen, E70 series.

F. Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place:

- 1. Use wire bar type supports complying with CRSI recommendations, unless otherwise shown on the Drawings.
- 2. Do not use wood, brick, or other non-complying material.
- 3. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
- 4. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with either hot-dip galvanized or plastic-protected legs.

2.03 FABRICATION

A. General:

- 1. Fabricate reinforcing bars to conform to the required shapes and dimensions, with fabrication tolerances complying with the CRSI Manual.
- 2. In case of fabricating errors, do not straighten or re-bend reinforcement in a manner that will weaken or injure the material.
- 3. Reinforcement with any of the following defects will not be acceptable.
 - a. Bar lengths, depths, and/or bends exceeding the specified fabrication tolerances;
 - b. Bends or kinks not shown on the Drawings;
 - c. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. General:

1. Comply with the specified standards for detail and method of placing reinforcement and supports, except as may be modified herein.
2. Clean reinforcement to remove loose rust and mill scale, earth, and other materials, which reduce or destroy bond with concrete.
3. Position, support, and secure reinforcement against displacement by formwork, construction, and concrete placing operations.
4. Locate and support reinforcement by metal chairs, runners, bolsters, spacers, and hangers, as required.
5. Place reinforcement to obtain minimum coverages for concrete protection.
6. Arrange, space, and securely tie bars and bar supports together with the specified tie wire.
7. Set wire ties so twisted ends are directed away from exposed concrete surfaces.

B. Welded Wire Fabric:

1. Install welded wire fabric in as long lengths as practical, lapping adjoining pieces. Laps of adjoining pieces shall be not less than one spacing of the cross wires plus two inches and in no case less than six inches whichever is greater.
2. Epoxy coated or galvanized welded wire fabric shall be tied with coated tie wire or any suitable non-conductive material acceptable to the *ENGINEER* or purchaser that will not damage the coating and provide sufficient strength.
3. Stainless steel welded wire fabric shall be tied with stainless steel tie wire or any suitable non-conductive material acceptable to the *ENGINEER* or purchaser that will provide sufficient strength.

C. Synthetic Fiber Reinforcing:

1. Add synthetic fiber reinforcement to concrete mixture in accordance with manufacturer's instructions.
2. Add synthetic fiber reinforcement into concrete mixer before, during, or after batching other concrete materials.
3. Application Rate: Add synthetic fiber reinforcement at standard application rate of 1.5 pounds per cubic yard (0.90 kg/m³) of concrete.

D. Provide sufficient numbers of supports, and of strength to carry the reinforcement.

E. Do not place reinforcing bars more than 2" beyond last leg of any continuous bar support.

F. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.

3.03 SPLICES

- A. Lap splices: Tie securely with the specified wire to prevent displacement of splices during placement of concrete.
- B. Splice devices:
 - 1. Obtain the *ENGINEER'S* approval prior to using splice devices.
 - 2. Install in accordance with manufacturer's written instructions.
 - 3. Splice in a manner developing at least the full tensile strength of the bar.
- C. Welding: Do not weld reinforcing bars without written permission from *ENGINEER*. If welding is permitted, perform in accordance with AWS D1.4.79.
- D. Do not splice bars except at locations shown on the Drawings, except as otherwise specifically approved by the *ENGINEER*.

3.04 TESTING

- A. Samples:
 - 1. Samples for physical tests of reinforcement will consist of at least two pieces, each 18" long, of each size of reinforcement steel, selected by the testing agency from material at the building site or at the fabricator's or supplier's yard.
 - 2. Material to be sampled at the building site shall have been delivered thereto at least 72 hours before it is needed.
- B. Tests:
 - 1. Where samples are taken from bundles as delivered from the mill, with the bundles identified as to heat number, and provided mill analyses accompany the report, then one tensile test and one bend test will be made from a specimen of each ten tons or fraction thereof of each size of reinforcement steel.
 - 2. Where positive identification of the heat number cannot be made, or where random samples are taken, then one series of tests will be made from each 2½ tons or fraction thereof of each size of reinforcement steel.
 - 3. Payment for testing is described in *Section 01 45 29, Testing Laboratory Services* of these Specifications.

****END OF SECTION****

SECTION 03 31 10
(03313)
LIGHTWEIGHT STRUCTURAL CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Provide lightweight structural concrete where shown, as specified herein, and as needed for a complete and proper installation.

B. Related work:

1. *Section 01 45 29: Testing Laboratory Services*
2. *Section 03 30 00: Concrete*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Provide specific submittals as specified in ACI-301.

C. Delivery slips:

1. All deliveries of concrete shall be accompanied by delivery slips conforming to ASTM C-94 and shall show:
 - a. Name of ready-mix batch plant
 - b. Serial number of ticket
 - c. Date
 - d. Truck number
 - e. Name of purchaser
 - f. Specific designation of job (name and location)
 - g. Specific class or designation of the concrete in conformance with that employed in job.
 - h. Amount of concrete in cubic yards
 - i. Time loaded or of first mixing of cement and aggregates.
 - j. Water added by receiver of concrete and his initials.
 - k. Type and brand, and amount of cement
 - l. Type and brand, and amount of admixtures
 - m. Signature or initials of ready-mix representative

- D. Provide copy of each delivery slip to the *ENGINEER*.
- E. Mixes:
 - 1. Secure mix designs as specified in Part 2 of this Section.
 - 2. The Contractor shall furnish for approval mix proportions prepared by a testing laboratory approved by the *ENGINEER*
 - 3. Submit mixture proportions and related data for each concrete mixture.
- F. Submit copies of mill test reports for shipments of cement and reinforcing steel prior to placing reinforcement into the work.

1.03 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Do not deliver aggregates to site or to ready-mix plant until pit source has been approved and the plant, capacity, and ability to produce a uniform and continuous product has been verified and approved by the Architect.
- C. Do not commence placement of lightweight structural concrete until mix designs have been reviewed and approved by the Architect and all governmental agencies having jurisdiction, and until copies are at the job site, the batch plant, and the building department.

PART 2 - PRODUCTS

2.01 CEMENT

- A. Provide a standard brand of portland cement complying with ASTM C150, Type II, low alkali. Do not change the brand of cement during progress of the work except as approved in writing by the Architect.

2.02 AGGREGATES

- A. Provide fine aggregate complying with pertinent provisions of Section 03300 of these Specifications.
- B. Coarse aggregate:
 - 1. Provide expanded clay or shale produced by the rotary kiln process and complying with ASTM C330.
 - 2. Provide aggregates having a loss of not more than 8% if tested by sodium sulfate solution and 10% if tested by magnesium sulfate solution, all in accordance with ASTM C88.

2.03 WATER

- A. Use only water which is clean and free from deleterious amounts of acid, alkali, salt, and organic materials.

2.04 ADMIXTURES

- A. Comply with pertinent provisions of *Section 03 30 00, Concrete*.

2.05 CONCRETE MIXES

- A. Comply with pertinent provisions of *Section 03 30 00, Concrete*, Class "F" except mix shall be proportioned to have an equilibrium density as determined by ASTM C567, between 90 and 115 pounds per cubic foot.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Comply with pertinent provisions of *Section 03 30 00, Concrete*.

****END OF SECTION****

SECTION 03 35 00
(03345)
CONCRETE FINISHING AND CURING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Finishing and curing of cast-in-place concrete as needed for a complete and proper installation.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 03 30 00: Concrete*
3. *Section 03 11 00: Concrete Formwork*

C. Payment:

1. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
2. Include all costs for *CONCRETE FINISHING AND CURING* in the prices bid for the various related items of work as designated in the Proposal.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Manufacturer's product data:

2. Complete materials list of all materials proposed to be furnished and installed under this section.
3. Specifications and other data required that demonstrate compliance with the specified requirements.

1.03 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

B. Except as may be modified herein or otherwise directed by the Engineer, comply with ACI 301, "Specifications for Structural Concrete for Buildings."

1.04 PRODUCT HANDLING

A. Comply with provisions of *Section 01 66 00, Storage and Protection.*

B. Protection: Use all means necessary to protect the materials of this section before, during and after installation and to protect the installed work and materials of all other trades.

- C. Replacements: In the event of damage, immediately make all repairs and replacement necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Deliver materials in manufacturer's original unopened packaging with all tags and labels intact and legible of time of use.
- E. Store and handle material in strict accordance with manufacturer's directions and in such a manner as to avoid damage; store at site under cover.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

- A. General:
 - 1. Carefully study the *Contract Documents* and determine the location, extent, and type of required concrete finishes.
 - 2. As required for the work, provide the following materials, or equivalents approved in advance by the *ENGINEER*.
- B. Concrete materials: Comply with pertinent provisions of Section 03300, except as may be modified herein.
- C. Liquid bonding agent: "Weld-Crete," manufactured by the Larsen Products Corporation, or equal.
- D. Curing and protection paper:
 - 1. Approved products:
 - a. "Sisalkraft, Orange Label";
 - b. Equal products complying with ASTM C171.
 - 2. Where concrete will be exposed and will be subjected to abrasion, such as floor slabs, use non-staining paper such as "Sisalkraft, Seekure 896," or equal paper faced with polyethylene film.
 - 3. 6 mil, white polyethylene sheeting.
- E. Liquid curing compound:
 - 1. Concrete sealer: "VOCOMP-30" acrylic concrete curing and sealing material by W.R. Meadows or equivalent.

- F. Slip-resistant abrasive aggregate:
 - 1. Provide aluminum oxide, 14/36 grading.
 - 2. Acceptable manufacturers:
 - a. Carborundum Company
 - b. Norton Company
 - c. L.M. Scofield Company

2.03 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 REQUIRED FINISHES

- A. Formed Surfaces:
 - 1. Formed surfaces of concrete which will be exposed to view and which will not be painted shall receive a grout cleaned finish.
 - 2. Formed surfaces of concrete that will be painted shall receive a smooth form finish. Surfaces designated for immersion service shall not be "Bagged."
 - 3. Formed surfaces of concrete that will not be exposed to view but which will receive waterproofing shall be given a smooth form finish.
 - 4. Formed surfaces of concrete that will not be exposed to view and which are not scheduled to receive paint and/or waterproofing shall be given a rough form finish.
 - 5. Unspecified finish: If the finish of formed surfaces is not specified herein, provide the following finishes as applicable.
 - a. Rough form finish:
 - (1) For all concrete surfaces not exposed to public view.
 - b. Smooth form finish:
 - (1) For all concrete surfaces exposed to public view.

B. Slabs:

1. Floor slabs of buildings including stair landings and miscellaneous areas and garage floors shall receive a troweled finish. Floor slabs that will not receive tile, carpet or paint shall also receive floor sealer as specified herein.
2. Unformed surfaces of equipment foundations shall receive a floated finish.
3. Sidewalks, ramps and all exterior slabs on grade that are intended as walking surfaces shall receive a broom finish.
4. Exterior platforms, steps and landings and exterior and interior pedestrian ramps shall receive a non-slip finish.
5. Unspecified finish: If the finish of slab surfaces is not specified herein, provide the following finishes as applicable:
 - a. Scratched finish:
 - (1) For surfaces scheduled to receive bond-applied cementitious applications and slate or stone paving.
 - b. Floated finish:
 - (1) For surfaces intended to receive roofing.
 - c. Troweled finish:
 - (1) For floors intended as walking surfaces.
 - (2) Floors scheduled to receive floor coverings or waterproof membrane.
 - d. Broom finish:
 - (1) Exterior pedestrian ramps.
 - e. Non-slip finish:
 - (1) Platforms, steps, and landings;
 - (2) Exterior or interior walkways near process equipment.

3.03 FINISHING OF FORMED SURFACES

A. General:

1. After removal of forms, give the concrete surfaces one or more of the finishes specified below.
2. Patch all bug holes, voids and cracks.
3. Revise the finishes as needed to secure the approval of the *ENGINEER*.

B. As-cast finish:

1. Rough form finish (below grade surfaces only):

- a. Leave surfaces with the texture imparted by forms, except patch tie holes and defects.
 - b. Remove fins exceeding 1/4" in height.
2. Smooth form finish:
- a. Coordinate as necessary to secure form construction using smooth, hard, uniform surfaces, with number of seams kept to a practical minimum and in a uniform and orderly pattern.
 - b. Patch tie holes and defects.
 - c. Remove fins completely.
- C. Rubbed finishes:
1. Provide these finishes only on a "smooth form finish" base as described above.
 2. Smooth rubbed finish:
 - a. Produce on newly hardened concrete no later than the day following form removal.
 - b. Wet the surfaces, and rub with carborundum brick or other abrasive until uniform color and texture are produced.
 - c. Do not use a cement grout other than the cement paste drawn from the concrete itself by the rubbing process.
 3. Grout cleaned finish:
 - a. Do not start cleaning operations until all contiguous surfaces to be cleaned are completed and accessible.
 - b. Do not permit cleaning as the work progresses.
 - c. Mix one part portland cement and 1½ parts fine sand with sufficient water to produce a grout having the consistency of thick paint.
 - d. Substitute white portland cement for part of the gray portland cement as required to produce a color matching the color of surrounding concrete, as determined by a trial patch.
 - e. Wet the surface of the concrete sufficiently to prevent absorption of water from the grout, and apply the grout uniformly with brushes or spray gun.
 - f. Immediately after applying the grout, scrub the surface vigorously with a cork float or stone to coat the surface and fill all air bubbles and holes.
 - g. While the grout is still plastic, remove all excess grout by working the surface with a rubber float, sack, or other means.
 - h. After the surface whites from drying (about 30 minutes at normal temperatures) rub vigorously with clean burlap.
 - i. Keep the surface damp for at least 36 hours after final rubbing.

3.04 FINISHING SLABS

A. Definition of finishing tolerances:

1. "Class A": True plane within 1/8" in ten feet as determined by a ten foot straightedge placed anywhere on the slab in any direction.
2. "Class B": True plane within 1/4" in ten feet as determined by a ten foot straightedge placed anywhere on the slab in any direction.
3. "Class C" True plane within 1/4" in two feet as determined by a two foot straightedge placed anywhere on the slab in any direction.

B. Scratched finish: After the concrete has been placed, consolidated, struck off, and leveled to a Class C tolerance, roughen the surface with stiff brushes or rakes before the final set.

C. Floated finish:

1. After the concrete has been placed, consolidated, struck off, and leveled, do not work the concrete further until ready for floating.
2. Begin floating when the water sheen has disappeared and when the surface has stiffened sufficiently to permit the operation.
3. During or after the first floating, check the planeness of the surface with a ten-foot straightedge applied at not less than two different angles.
4. Cut down high spots and fill low spots, and produce a surface with a Class B tolerance throughout.
5. Refloat the slab immediately to a uniform sandy texture.

D. Troweled finish:

1. Provide a floated finish as described above, followed by a power troweling and then a hand troweling.
 - a. Produce an initial surface which is relatively free from defects, but which still may show some trowel marks.
 - b. Provide hand troweling when a ringing sound is produced as the trowel is moved over the surface.
 - c. Thoroughly consolidate the surface by hand troweling.
2. Provide a finished surface essentially free from trowel marks, uniform in texture and appearance, and in a plane of Class A tolerance.
 - a. On surfaces intended to support floor coverings, use fringing or other means as necessary and remove all defects in such magnitude as would show through the covering.

E. Broom finish:

1. Provide a floated finish as described above.
2. While the surface is still plastic, provide a textured finish by drawing a fiber bristle broom uniformly over the surface.

3. Unless otherwise directed by the *ENGINEER*, provide the texturing in one direction only.
4. Provide “light,” “medium,” or “coarse” texturing as directed by the *ENGINEER* or otherwise called for on the Drawings.

3.05 CURING, SEALING AND PROTECTION

- A. Beginning immediately after placement, protect concrete from premature drying, excessively hot and cold temperatures and mechanical injury.
- B. Where application of specified finish materials will be inhibited by use of curing or sealing agents, cure the surface by water only; do not use chemical cure. Do not use curing or sealing compound on surfaces to receive tile or crystalline waterproofing.
- C. Liquid curing or sealing compounds shall not be used on any surface against which additional concrete or other material is to be bonded unless it is proven that the curing compound will not prevent or reduce bond, or unless positive measures are taken to remove it completely from such areas.
- D. Preservation of moisture:
 1. Unless otherwise directed by the *ENGINEER*, apply one of the following procedures to concrete not in contact with forms, immediately after completion of placement and finishing.
 - a. Ponding or continuous sprinkling.
 - b. Application of absorptive mats or fabric kept continuously wet.
 - c. Application of sand kept continuously wet.
 - d. Continuous application of steam (not exceeding 150°F) or mist spray.
 - e. Application of waterproof sheet materials specified in Part 2 of this section.
 - f. Application of other moisture retaining covering as approved by the *ENGINEER*.
 - g. Application of the curing agent specified in Part 2 of this section or elsewhere in the contract Documents.
 - (1) Apply curing compound when the surface water has disappeared and walking workmen will not mar the concrete surface.
 - (2) Apply at the rate of 1/10 of a gallon per minute. Spray on in a fine, fog pattern without spurts and dribbles to form a thin, continuous film. Avoid puddling in low areas. Brush or roll out all puddles.
 2. Where forms are exposed to the sun, minimize moisture loss by keeping the forms wet until they can be removed safely.
 3. Cure concrete by preserving moisture as specified above for at least seven days.
- E. Sealing:
 1. Apply specified sealing compound to concrete curbs, sidewalks, driveways and aprons, designated floors and exterior flat work not designated to receive other finishes. Material may be used as a curing compound on these surfaces in accordance with manufactures directions.

F. Temperature, wind, and humidity:

1. Cold weather:

- a. When the mean daily temperature outdoors is less than 40°F, maintain the temperature of the concrete between 50°F and 70°F for the required curing period.
- b. When necessary, provide proper and adequate heating system capable of maintaining the required heat without injury due to concentration of heat.
- c. Do not use combustion heaters during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases, which contain carbon dioxide.

2. Hot weather: When necessary, provide wind breaks, fog spraying, shading, sprinkling, ponding, or wet covering with a light colored material, applying as quickly as concrete hardening and finishing operations will allow.

3. Rate of temperature change: Keep the temperature of the air immediately adjacent to the concrete during and immediately following the curing period as uniform as possible and not exceeding a change of 5°F in any one hour period, of 50°F in any 24-hour period.

G. Protection from mechanical injury:

1. During the curing period, protect the concrete from damaging mechanical disturbances such as heavy shock, load stresses, and excessive vibration.
2. Protect finished concrete surfaces from damage from construction equipment, materials, and methods, by application of curing procedures, and by rain and running water.
3. Do not load self-supporting structures in such a way as to overstress the concrete.

****END OF SECTION****

SECTION 03 64 23
(03740)
CONCRETE CRACK REPAIR BY EPOXY INJECTION

PART 1 GENERAL

1.01 DESCRIPTION

A. Description:

1. Repair of structural and non-structural cracks in concrete slabs by the pressure injection of an epoxy resin adhesive, if and where directed by the *ENGINEER*.

B. Related Work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 03 01 30.71: Concrete Repairs*

1.02 PERFORMANCE CRITERIA

A. Pressure injection gravity materials.

1. Properties of the mixed epoxy resin adhesive used for the pressure injection grouting:

- a. Tack-free time to touch (3-5 mils): 2.5 - 4 hours.
- b. Initial viscosity (Brookfield Viscometer, Spindle #2; speed 100): 300-450 cps.
- c. Color: Clear, amber.

2. Properties of the cured epoxy resin adhesive used for pressure injection grouting:

- a. Compressive properties (ASTM D-695) at 28 days:

- (1) Compressive strength: 10,000 psi min.
- (2) Modulus of elasticity: 210,000 psi min.

- b. Tensile properties (ASTM D-638) at 14 days:

- (1) Tensile strength: 7,000 psi min.
- (2) Elongation at break: 3 - 10%.
- (3) Modulus of elasticity: 340,000 psi min.

- c. Flexural properties (ASTM D-790) at 14 days:

- (1) Flexural strength (modulus of rupture): 8,600 psi min.
- (2) Tangent modulus of elasticity in bending: 300,000 psi min.

- d. Shear strength (ASTM D-732) at 14 days: 4,500 psi min.

- e. Total water absorption (ASTM D-570) at 7 days: 1.5% max. (2 hour boil).
- f. Bond strength (ASTM C-882) hardened concrete to hardened concrete:
 - (1) 2 day (dry cure): 2,300 psi min.
 - (2) 14 day (moist cure): 2,300 psi min.
- g. Deflection temperature (ASTM D-648) at 14 days: 108°F min. (fiber stress loading = 264 psi).
- h. The epoxy resin adhesive shall conform to ASTM C-881, Type I, Grade 1, Class B and C.
- i. The epoxy resin adhesive shall be approved by the United States Department of Agriculture.

B. Sealant for cracks and porting devices.

- 1. Properties of the mixed epoxy resin adhesive used for the sealing of cracks and porting devices:
 - a. Tack-free time to touch: 2 - 3 hours.
 - b. Consistency (½ inch thick): Non-sag.
 - c. Color: Gray.
- 2. Properties of the cured epoxy resin adhesive used for the sealing of cracks and porting devices:
 - a. Compressive properties (ASTM D-695) at 28 days:
 - (1) Compressive strength: 10,000 psi min.
 - (2) Modulus of elasticity: 700,000 psi min.
 - b. Tensile properties (ASTM D-638) at 14 days:
 - (1) Tensile strength: 3,000 psi min.
 - (2) Elongation at break: 0.3%.
 - (3) Modulus of elasticity: 630,000 psi min.
 - c. Flexural properties (ASTM D-790) at 14 days:
 - (1) Flexural strength (modulus of rupture): 3,700 psi min.
 - (2) Tangent modulus of elasticity in bending: 850,000 psi min.
 - d. Shear strength (ASTM D-732) at 14 days: 3,800 psi min.
 - e. Total water absorption (ASTM D-570) at 7 days: 1.0% max. (2 hour boil).
 - f. Bond strength (ASTM C-882) hardened concrete to hardened concrete:
 - (1) 2 day (dry cure): 2,800 psi min.

(2) 14 day (moist cure): 2,000 psi min.

- g. Deflection temperature (ASTM D-648) at 14 days: 104°F min. (fiber stress loading = 264 psi).
- h. The epoxy resin adhesive shall conform to ASTM C-881, Type I, Grade 3, Class B and C.
- i. The epoxy resin adhesive shall be approved by the United States Department of Agriculture.

1.03 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Manufacturer's product data:
 - 1. Complete materials list of all materials proposed to be furnished and installed under this section.
 - 2. Specifications and other data required to demonstrate compliance with the specified requirements.
 - 3. Material Safety Data Sheets (MSDS).
- C. Manufacturer's recommended installation procedures.

1.04 QUALITY ASSURANCE

- A. Qualifications of manufacturer:
 - 1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.
- B. Qualifications of workmen:
 - 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
 - 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.
 - 3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.
- C. Basis of acceptance:
 - 1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.05 PRODUCT DELIVERY STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.06 PROJECT CONDITIONS

- A. Environmental conditions: Do not apply material if it is raining or snowing or if they appear to be imminent.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified repair material.

1.07 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the warranty period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- C. Acceptable manufacturers:
 - 1. Sika
Lyndhurst, NJ
201-933-8800
 - 2. Sonneborn
Chemrex, Inc.
Shakopee, MN
1-800-433-9517
 - 3. Prime Resins, Inc.
Conyers, GA
1-800-321-7212
 - 4. Or equivalent.

2.02 PRODUCTS

- A. Epoxy resin adhesive for pressure injection of cracks:
 - 1. Sika "Sikadur 35, Hi-Mod LV".
 - 2. Sonneborn "Epofil".
 - 3. Prime Resins "Prime Rez 1000, High-Mod".
- B. Epoxy resin adhesive for sealing of cracks and porting devices.
 - 1. Sika "Sikadur 31, Hi-Mod Gel".
 - 2. Sonneborn "Epogel".
 - 3. Prime Resins "Prime Gel 2000, High Mod".
- C. Or equivalent.

2.03 MATERIALS

- A. Epoxy resin adhesive for the pressure injection of cracks:
 - 1. Component "A" shall be a modified epoxy resin containing suitable viscosity control agents.
 - 2. Component "B" shall be primarily a reaction product of a selected amine blend with an epoxy resin containing suitable viscosity control agents and accelerators.
 - 3. The ratio of Component "A": Component "B" shall be 2:1 by volume.
- B. The epoxy resin adhesive for the sealing of cracks and porting devices:
 - 1. Component "A" shall be a modified epoxy resin containing suitable viscosity control agents and pigments.
 - 2. Component "B" shall be primarily a reaction product of a selected amine blend with an epoxy resin containing suitable viscosity control agents, pigments and accelerators.
 - 3. The ratio of Component "A": Component "B" shall be 2:1 volume.
 - 4. The material shall not contain asbestos.
- C. Porting devices as required for either manual or automated application. Porting devices for automated application shall be supplied by the manufacturer of the pressure injection equipment.

2.04 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Remove existing flooring to expose concrete slab.
- B. Cracks and adjacent substrate must be clean, sound and free of frost.
- C. Remove dust, laitance, grease, curing compounds, waxes, impregnations, foreign particles, efflorescence and other bond inhibiting materials from the surface by mechanical means, i.e. - sandblasting, high pressure waterblasting, etc., as approved by the *ENGINEER*.
- D. Repair area may be dry or damp, but shall be free of standing water prior to product application.
- E. Mixing the epoxy resin adhesive for sealing cracks and porting devices:
 - 1. Premix each component in accordance with manufacturer's instructions.
 - 2. Mix only that quantity of material that can be used within its pot life.
- F. Mixing of the epoxy resin adhesive used for pressure injection grouting:
 - 1. Manual: Premix each component in accordance with manufacturer's instructions. Mix only that quantity of material that can be used within its pot life (20-30 minutes at 73F).
 - 2. Automated: The injection equipment shall meter and mix the two (2) components of the epoxy resin adhesive and dispense the product into the prepared cracks. The unit shall be portable and be equipped with positive displacement-type pumps with interlock to provide positive ratio control of exact proportions of the two (2) components of the epoxy resin adhesive at the nozzle. The pumps shall be air powered or electric and shall provide an in-line mixing and metering system and shall contain drain-back plugs.

3.03 INSTALLATION

- A. General: Install the work of this section in strict accordance with the manufacturer's recommendations.
- B. Placement procedure:
 - 1. Sealing cracks and porting devices: Set porting devices as required by the manufacturer. Spacing of the porting devices shall not exceed the thickness of the substrate. Spacing of the porting devices shall be accomplished as required to achieve the travel of the epoxy resin adhesive for the pressure injection grouting between ports and fill the cracks to the maximum. On structures open on both sides, provide porting devices on opposite sides at staggered elevations. Apply the mixed epoxy resin adhesive for sealing over the cracks and around each porting device to provide an adequate seal to prevent the escape of the epoxy resin adhesive for the injection grouting. Where

required by the *ENGINEER*, apply the epoxy resin adhesive for sealing in such a manner that minimal defacing or discoloration of the substrate shall result.

2. Pressure injection grouting:

- a. Manual: Load the mixed epoxy resin adhesive for grouting into a disposable caulking cartridge or bulk-loading caulking gun. Inject the prepared cracks with a constant pressure in order to achieve maximum filling and penetration without the inclusion of air pockets or voids in the epoxy resin adhesive. Begin the pressure injection at the lowest port and continue until there is the appearance of the epoxy resin adhesive at an adjacent port, thus indicating travel. Continue the procedure until all pressure injectable cracks have been filled.
- b. Automated: Dispense the epoxy resin adhesive for grouting under constant pressure in accordance with procedures recommended by the equipment manufacturer or as required to achieve maximum filling and penetration of the prepared cracks without the inclusion of air pockets or voids in the epoxy resin adhesive. Continue the approved procedure until all pressure injectable cracks have been filled.

- C. If penetration of any cracks is impossible, consult the *ENGINEER* before discontinuing the injection procedure. If modification of the proposed procedure is required to fill the cracks, submit said modification in writing to the *ENGINEER* for acceptance prior to proceeding.
- D. Adhere to all limitation and cautions for the epoxy resin adhesives in the manufacturer's current printed literature.

3.04 CLEANING

- A. After the epoxy resin adhesive for grouting has cured, the epoxy resin adhesive for sealing cracks and porting devices shall be removed as required by the *ENGINEER*. Clean the substrate in a manner to produce a finish appearance acceptable to the *OWNER*.
- B. The uncured epoxy resin adhesive can be cleaned from tools with an approved solvent. The cured epoxy resin adhesive can only be removed mechanically.
- C. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

PART 4 - PAYMENT

4.01 CONCRETE CRACK REPAIR BY EPOXY INJECTION

- A. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
- B. Include all costs for *CONCRETE CRACK REPAIR BY EPOXY INJECTION* in the various related items of work as designated in the *PROPOSAL*.

****END OF SECTION****

SECTION 05 50 00
(05500)
METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Aluminum pipe railings and components.
2. Base plates.
3. Anchors.
4. Miscellaneous framing, supports and trim.
5. All other miscellaneous metal work shown on the *Contract Drawings*.
6. Field painting of all metal fabrications and miscellaneous metals.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 03 31 00: Lightweight Structural Concrete*
3. *Section 05 52 14: Architectural Aluminum Pipe Railings*
4. *Section 09 90 00: Painting*

C. Payment:

1. Unless otherwise noted in the *Proposal* Section, no separate payment shall be made for this item.
2. Include all costs for *METAL FABRICATIONS* in the prices bid for the various related items of work as designated in the *Proposal*.

D. Standards: Comply with the provisions of the following (as applicable):

1. AISC – “Specification for Design, Fabrication, and Erection of Structural Steel for Building”.
2. The Aluminum Association – “Aluminum Design Manual”.
3. AWS – “Structural Welding Code D1”.
4. ASME – “Structural Welding code Section IX”.
5. FEMA Bulletin 3-93, #102 and #114.

1.02 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Manufacturer's product data:
 - 1. Complete materials list of all materials proposed to be furnished and installed under this section.
 - 2. Specifications and other data required that demonstrate compliance with the specified requirements.
- C. Shop drawings.
 - 1. Show each type of structure, details of anchor bolt settings; longitudinal and transverse cross sections; framing and details; and all accessory items; materials; finishes; construction and installation details; and other pertinent information required for proper and complete fabrication, assembly and erection.
 - 2. Submit an anchor bolt setting plan with the following information included:
 - a. Where using cast-in place anchor bolts, show anchor bolt locations, diameters, material, plate washer sizes (if used), and projection and embedment lengths above and below the bearing face of concrete.
 - b. Where anchor bolts are drilled in concrete, show anchor bolt locations, diameters, material, projection and embedment lengths above and below the bearing face of concrete, the anchor bolt manufacturer's model number and description along with the manufacturer's current allowable load tables with recommended installation, use and safety factor data. The manufacturer's dimensional limits regarding bolt spacing, edge distance, embedment length and their effect upon allowable stresses shall be included.
 - c. For all types of anchor bolts, provide base plate thickness and size and depth of grout to be provided.
- D. Manufacturer's current recommended installation procedures.

1.03 QUALITY ASSURANCE

- A. Qualifications of manufacturer:
 - 1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.
- B. Qualifications of workmen:
 - 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
 - 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

3. Perform shop and/or field welding required in connection with the work of this Section in strict accordance with pertinent recommendations of the American Welding Society. Welders shall be certified as meeting the requirements of the American Welding Society AWS D1.1.
4. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PROJECT CONDITIONS

A. Field Measurements:

1. Check actual locations and other construction to which metal fabrications must fit, by accurate field measurements before fabrication.
2. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

- A. In fabricating items that will be exposed to view, limit materials to those that are free from surface blemishes, pitting, rolled trade names, and roughness.

2.03 IRON AND STEEL

- A. All steel shapes, plates and bars shall be hot dip galvanized after fabrication in accordance with ASTM A123.
- B. Comply with following standards, as pertinent.
1. Steel plates, shapes, and bars:
 - a. ASTM A36, except “W” and “WT” shapes; 36 KSI minimum yield.
 - b. ASTM A572 or ASTM A992 for “W” and “WT” shapes; 50 KSI minimum yield.
 2. Steel plates to be bent or cold-formed: ASTM A283, Grade C;
 3. Steel tubing (hot-formed, welded, or seamless): ASTM A501;
 4. Steel bars and bar-size shapes: ASTM A306, Grade 65, or ASTM A36;
 5. Cold-finished steel bars: ASTM A108;
 6. Cold-rolled carbon steel sheets: ASTM A336;
 7. Cast steel: ASTM A27, Grade N2;
 8. Galvanized carbon steel sheets: ASTM A526, with G90 zinc coating in accordance with ASTM A525;
 9. Gray iron castings: ASTM A48, Class 10;
 10. Malleable iron castings: ASTM A47;
 11. Steel pipe: ASTM A53, Grade B, Schedule 40, black finish unless otherwise noted;

2.04 ALUMINUM

- A. Aluminum work shall be fabricated of plates and rolled or extruded shapes. All aluminum shall conform to the appropriate current ASTM Specification and alloy listed below.

<u>Application</u>	<u>ASTM Designation</u>	<u>ASTM Alloy</u>
Permanent Mold Castings	B108	SG-70B-T61
Sand Castings	B26	SG-70A-T6
Plate	B209	6061-T6
Bolts, Screws	B211	2024-T4*
Nuts, 5/16" Tap and Under	B211	6061-T6
Rolled or Extruded Shapes	B308	6061-T6
Extruded Bar and Tube	B221	6061-T6
Drawn Tube	B210	6061-T6
Pipe	B241	6061-T6
Shims	B209	1100-0
Flat Washers	B209	2024-T4
Lock Washers	B211	7075-T6

*This alloy should have an anodic coating of 0.002-inch minimum thickness, with dichromate or boiling water seal.

2.05 STAINLESS STEEL

- A. Pipe: ASTM A312, Type 304, unless otherwise shown and with a mill finish.
- B. Shapes and Bars: A276, Type 304, unless otherwise shown and with a mill finish.
- C. Sheet: ASTM 666, type and gage as shown with a mill finish for areas not visible to the public and a #4 finish otherwise.
- D. Forgings: ASTM A473.

2.06 FASTENERS

- A. General:
 - 1. For exterior use and where built into exterior walls, provide zinc-coated fasteners.
 - 2. Provide fasteners of type, grade and class required for the particular use.
 - 3. Thread lubricant to prevent galling: Molybdenum disulfide reinforced grease.
- B. Comply with following standards as pertinent:
 - 1. Carbon steel:
 - a. Bolts and nuts: Provide hexagon-head regular type complying with ASTM A307, Grade A;
 - b. Lag bolts: Provide square-head type complying with Fed Spec FF-B-561;
 - c. Machine screws: Provide cadmium plated steel type complying with Fed Spec FF-S-111;
 - d. Washers:
 - (1) Plain washers: Comply with Fed Spec FF-W-92, round, carbon steel;
 - (2) Lock washers: Comply with Fed Spec FF-W-84, helical spring type carbon steel;
 - e. Toggle bolts: Provide type, class, and style needed but complying with Fed Spec FF-B-588;
 - 2. Stainless Steel:
 - a. Bolts: Hexagon-head Type 316 Stainless Steel complying with ASTM F-593, Alloy Group 1.
 - b. Nuts: Hexagon-head Type 316 Stainless Steel complying with ASTM F-594, Alloy Group 1. Cotter pins for castle type lock nuts shall also be stainless steel.
 - c. Washers: Type 316 Stainless Steel complying with ASTM F-593, Alloy Group 1.

3. Aluminum:
 - a. Bolts: Hexagon-head aluminum bolts, Alloy 6061-T6 complying with ASTM F-468.
 - b. Nuts: Self-locking, hexagon-head aluminum nuts, Alloy 6061-T6, complying with ASTM F-467.
 - c. Washers: Aluminum washers, Alloy 6061-T6.

2.07 CONCRETE ANCHOR BOLTS

- A. General: Concrete anchor bolts are either cast-in or drilled-in concrete as indicated on the plans. Drilled-in concrete anchors shall be either adhesive or expansion anchors. However, unless specifically indicated as otherwise on the plans, all drilled-in concrete anchor bolts shall be adhesive anchors.
- B. Materials:
 1. Cast-in concrete anchors shall be either stainless steel ASTM F593 (AISI 304) or carbon steel ASTM A36. Unless specifically indicated as otherwise on the plans, all cast-in concrete anchors shall be stainless steel ASTM F593 (AISI 304).
 2. Drilled-in concrete anchors:
 - a. Adhesive anchors: All adhesive anchors shall consist of an all thread anchor rod, nut, washer and adhesive material. Anchor rods shall be AISI Type 304 stainless steel that meets the requirements of ASTM F593. The adhesive anchors shall be Hilti "HIT-HY 200" injection adhesive anchors or equivalent. All drilled-in concrete anchors shall be adhesive anchors unless specifically indicated as otherwise on the plans.
 - b. Expansion anchors shall be Hilti Kwik Bolts III concrete expansion anchors as manufactured by Hilti Fastening Systems, Tulsa, Oklahoma. Expansion anchors shall be made of AISI Type 304 stainless steel. Expansion anchors shall be used only when specifically indicated on the plans.

2.08 SHOP PAINT

- A. Primer: As specified in *Section 09 90 00, Painting*.
- B. Galvanizing Repair:
 1. All damage to galvanized surfaces shall be repaired using an organic, zinc-rich coating containing 95% metallic zinc by weight in the dried film. Material shall be recognized under the Component Program of Underwriter's Laboratories, Inc., as an equivalent to hot-dip galvanizing and conform to Federal Specification DOD-P-21035 (formerly MIL-P-21035A) for repair of hot-dip galvanizing and meet requirements of Military Specification MIL-P-26915A USAF Specification for Zinc-Rich Paints. Repair coating shall be "DEVCON Z," "KoldGalv 920Z," "ZRC COLD GALVANIZING COMPOUND," or equivalent.
 2. Galvanizing repair
 - a. Surface preparation: SSPC-SP11, Power Tool Cleaning to Bare Metal.
 - b. Cold galvanizing compound: 1 coat at 4 mils DFT

2.09 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

2.10 FABRICATION

A. General:

1. Except as otherwise shown on the *Contract Drawings* or the approved Shop *Contract Drawings*, use materials of size, thickness, and type required to produce reasonable strength and durability in the work of this Section.
2. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
3. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
4. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss. Temperature change (Range): 100 deg F (38 deg C).
5. Shear and punch metals cleanly and accurately. Remove burrs.
6. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
7. Remove sharp or rough areas on exposed traffic surfaces.
8. Weld corners and seams continuously to comply with AWS recommendations and the following:
 - a. When welding painted or galvanized steel, the zinc or paint coating shall be removed to bare metal at least 1" to 4" (2.5-10 cm) from either side of the intended weld zone and on both sides of the pieces.
 - b. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - c. Obtain fusion without undercut or overlap.
 - d. Remove welding flux immediately.
 - e. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matched those adjacent.
9. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

10. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
11. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
12. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws, and similar items.
13. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.
14. Prior to shop painting or priming, properly clean metal surfaces as specified in *Section 09 90 00, Painting*, for the applied finish and for the proposed use of the item.
15. On surfaces inaccessible after assembly or erection, apply two (2) coats of the specified primer. Change color of second coat to distinguish it from the first.
16. Insulate aluminum surfaces that will come in contact with concrete, masonry, plaster, or metals other than stainless steel, zinc or white bronze by giving a coat of heavy-bodied alkali resisting bituminous paint or other approved paint in shop.
17. Stainless steel materials and fabrications shall be cleaned and passivated in accordance with ASTM A380 after fabrication.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 COORDINATION

- A. Coordination as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.03 INSTALLATION

- A. General:
 1. Set work accurately into position, plumb, level, true, and free from rack.
 2. Anchor firmly into position.

3. Where field welding is required, comply with AWS recommended procedures of manual-shielded metal-arc welding for appearance and quality of weld and for methods to be used in correcting welding work.
4. When welding painted or galvanized steel, the zinc or paint coating shall be removed to bare metal at least 1" to 4" (2.5-10 cm) from either side of the intended weld zone and on both sides of the pieces.
5. Grind exposed welds smooth, and touch-up shop prime coats or galvanized surfaces as applicable.
6. Do not cut, weld, or abrade surfaces which have been hot-dip galvanized after fabrication and which are intended for bolted or screwed field connections.

3.04 FIELD PAINTING

- A. Immediately after erection, clean the field welds, bolted connections, and abraded areas of shop priming. Paint the exposed areas with same material used for shop priming.
- B. Field paint all surfaces in accordance with *Section 09 90 00*.
- C. Do not paint aluminum or stainless steel unless otherwise indicated.

****END OF SECTION****

SECTION 05 52 14
(05522)
ARCHITECTURAL ALUMINUM PIPE RAILINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Provide and install architectural aluminum pipe railing for building access where shown.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 03 30 00: Concrete.*
3. *Section 05 50 00: Metal Fabrications*

C. Payment:

1. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
2. Include all costs for *ARCHITECTURAL PIPE RAILINGS* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

1.02 DESIGN REQUIREMENTS

A. Loads:

1. Handrail assemblies shall be designed to resist a load of 50 lb/ft (pound-force per linear foot) (0.73 kN/m) applied in any direction at the top and to transfer this load through the supports to the structure.
2. All handrail assemblies shall be able to resist a single concentrated load of 200 lb (0.89 kN), applied in any direction at any point along the top, and have attachment devices and supporting structure to transfer this loading to appropriate structural elements of the building. This load need not be assumed to act concurrently with the loads specified in the preceding paragraph.

B. Shall submit calculations to the *ENGINEER* for approval. Testing of base castings or base extrusions by an independent lab (meeting the requirements of the Aluminum Association) will be an acceptable substitute for calculations. Calculations will be required for approval of all other design aspects. Calculations and test results must be signed and sealed by a Professional Engineer licensed in the State of New Jersey.

C. Post spacing shall be a maximum of 5'-0". The handrail manufacturer shall provide posts of a schedule that provides adequate strength to meet the loading requirements. If the manufacturer's posts alone are not of adequate strength, the manufacturer shall add reinforcing dowels as base anchorages to meet loading requirements.

D. Samples of all components, bases, and pipe must be submitted for approval. Expansion and contraction shall be accommodated by means of internal joint splices spaced at a maximum of twenty-four feet (24') intervals. Where required, locate within 6" of posts.

- E. Posts shall not interrupt the continuation of the top rail at any point along the railing, including corners and end terminations (OSHA 1910.23). The top surface of the top railing shall be smooth and shall not be interrupted by projecting fittings.
- F. The top rail at a corner return shall be able to withstand a 200# load without loosening. The manufacturer is to determine the maximum post offset dimension for their system. Provide physical tests from a laboratory to confirm compliance.

1.03 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Manufacturer's product data:
 - 1. Complete materials list of all materials proposed to be furnished and installed under this section.
 - 2. *Specifications* and other data required that demonstrate compliance with the specified requirements.
 - 3. Submit for *ENGINEER* review the manufacturer's assembly and installation instructions.
- C. Shop Drawings:
 - 1. Shop drawings: Indicate sizes, shapes, configuration, sections, locations, fabrication and installation details. Indicate fabricated sizes. Certify that railings and guardrails meet code requirements for vertical and horizontal loading.
 - 2. Indicate all required field measurements.
- D. Calculations:
 - 1. Submit calculations that verify that the pipe rail system including rails, posts, base plates and anchor bolts meet the requirements for strength as described in these *Specifications*. Calculations shall be signed and sealed by a Professional Engineer registered in New Jersey.
- E. Samples:
 - 1. Color and finish samples: Indicating each color and finish to be expected in completed work.
 - 2. Railings: Submit 2'-0" long sample of each type railing with post and rails indicating construction, welded joints, rail end cap closure and finish.
- F. Manufacturer's current recommended installation procedures.
- G. Maintenance instructions: Submit for finished aluminum components including cleaning materials, methods and precautions.

1.04 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.
3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

D. Requirements of regulatory agencies: All design and installations shall be in compliance with the International Building Code, as modified by the New Jersey Uniform Construction Code, Local Ordinances, and the Occupational Safety and Health Administration (OSHA), 29 CFR1910.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Comply with provisions of *Section 01 66 00, Storage and Protection*.

B. Protection:

1. Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
2. Protection: Maintain protective covering on pipe until installation is complete.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

D. Delivery and storage:

1. Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use.
2. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.
3. Store all materials in clean, dry location, away from uncured concrete and masonry.
4. Cover with waterproof paper, tarpaulin or polyethylene sheeting.

1.06 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. Manufacturer shall warrant the railing against defects in materials and workmanship for a period of twenty years from date of installation. Finishes shall be guaranteed against chalking, yellowing, peeling, cracking, pitting, corroding, non-uniformity of color or gloss deterioration for a period of ten years.
- C. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

- A. Post and rails:
 - 1. All rails and posts shall be extruded aluminum alloy 6061-T6 with a clear anodized finish. Posts and rails shall be a minimum diameter of 1½" (1.90" O.D.).
- B. Fittings:
 - 1. Type: Pressure fit.
 - 2. Aluminum: Cast, ASTM B26.
- C. Handrail brackets:
 - 1. Metal: Aluminum
 - 2. Type: Cast
 - 3. Style: As indicated on Plans.
- D. Finish: (PICK one or more from below or specify another)
 - 1. Powder Coat Paint Meeting AAMA 2605, *Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels*.
 - 2. U.V. resistance and scratch & mar resistance formula shall consist of super durable TGIC polyester resin system with flocked and color stable full pigmentation.
 - 3. Chemical pretreatment:

- a. Alkaline cleaner applied at 160 degrees F. for duration of 3 to 5 minutes.
 - b. D.I. water rinse.
 - c. Conversion phosphate coating applied at 140 degrees F. for 3 to 5 minutes.
 - d. D.I. water rinse.
 - e. Application on non-chromate, chrome sealer amorphous chromium phosphate that meets or exceeds ASTM D1730, Type B, Method 5.
 - f. D.I. water rinse, and dry in place.
4. Coating Application:
- a. Electrostatic application of super TGIC system powder with a minimum dry film thickness of 3.5 to 5.5 mils cured coating.
5. Color shall be White (match existing).
- E. Dissimilar materials: Aluminum surfaces in contact with concrete, grout or dissimilar metals will be protected with a coat of bituminous paint, zinc chromate primer, mylar isolators or other approved material.
- F. Strength:
- 1. The rail system shall be designed and constructed in accordance with the criteria set forth in Section 1607.7.1 of the 2018 International Building Code as modified by the New Jersey Uniform Construction Code, unless otherwise specified in this section.
- G. Expansion and contraction:
- 1. Allow for expansion and contraction in top rail by means of an internal expanding splice at a maximum of twenty-four foot (24') intervals.
- H. Miscellaneous:
- 1. All other aluminum parts and/or fittings shall be fabricated from 6061-T6 aluminum.

2.03 FABRICATION

- A. Form rail-to-end post connections and all changes in rail direction by radius bends or by approved fittings.
- B. Remove burrs from all exposed cut edges with no chamfer.
- C. Form elbow bends and wall returns to uniform radius, free from buckles and twists, with smooth finished surfaces, or use prefabricated bends.
- D. Close aluminum pipe ends by using prefabricated fittings.
- E. Welding:
 - 1. Accurately miter and cope intersections of posts and rails and weld all around.
 - 2. Thoroughly fuse without undercutting or overlap.

3. Remove spatter, grind exposed welds where necessary for blending and contour surfaces to match those adjacent.
 4. Discoloration of finished surfaces will not be acceptable.
- F. Provide pressure relief holes at closed ends of pipe or tube.
- G. Fabricate joints which will be exposed to the weather so as to exclude water, or provide weep holes where water may accumulate.
- H. Blend in color discrepancies on anodized aluminum areas, due to welding, exposed fasteners, etc., using approved lacquer.
- I. Workmanship - All pipe cuts shall be square and accurate for minimum joint-gap. Cuts shall be clean and straight, free of "chamfer" from deburring, burrs, and nicks. All holes shall be drilled and countersunk the proper size, as required for a tight, flush fit. Where protection is applied for prevention of dissimilar materials electrolysis, care shall be taken that none of the protective material is visible when assembly is completed.

2.04 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.
- B. Concrete anchors:
1. Anchors shall be provided in accordance with the requirements of *Section 05 50 00, Metal Fabrications* of these *Specifications*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Drill holes of proper size and depth for adhesive anchors. Clean all holes in accordance with printed instructions furnished by Anchor Manufacturer.
- B. Protection of dissimilar materials - Surfaces of aluminum components in contact with other metals and concrete surfaces shall be painted as directed in paragraph 2.01E of these *Specifications* to prevent contact between the two surfaces.
- C. Set posts plumb and aligned to within 1/8" in 12'.
- D. Set rails horizontal or parallel to rake of steps or ramp to within 1/8" in 12'.

- E. Assemble and install in accordance with printed instructions of the manufacturer.
- F. Fitted assembly:
 - 1. Assemble tubes with pressure-fit fittings at joints and drive together to provide tight joints.
 - 2. Use wood blocks and padding to prevent damage to tube and fittings.
 - 3. Seal recessed holes of exposed locking screws using plastic filler cement colored to match finish of pipe.
- G. Drill holes of proper size for screws and countersink to a flush fit.
- H. Expansion joints:
 - 1. Provide at intervals of not more than twenty-four feet (24').
 - 2. Provide slip joint with internal sleeve extending 2" beyond joint each side.
 - 3. Fasten internal sleeve securely to one side.
 - 4. Locate joints within 6" of posts.
- I. Support wall handrails on brackets spaced not more than 5' on centers.

3.03 CLEANING

- A. As installation is completed, wash thoroughly, using clean water and soap; rinse with clean water.
- B. Do not use acid solution, steel wool or other harsh abrasives.
- C. If stain remains after washing, remove finish and restore in accordance with fabricator's recommendations.

3.04 REPAIR OF DEFECTIVE WORK

- A. Remove stained or otherwise defective work and replace with material that meets Specification requirements.

****END OF SECTION****

SECTION 06 20 00
(06150)
CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:

1. Wood, nails, bolts, screws, framing anchors and other rough hardware
2. Framing, sheathing and siding.

B. Related Work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 05 52 14: Architectural Aluminum Pipe Railings*
3. *Section 09 90 00: Painting*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required that demonstrate compliance with the specified requirements.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.
3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance: The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Deliver the materials to the job site and store, in a safe area, out of the way of traffic, and shored up off the ground surface.
- C. Protect all lumber from the weather by use of suitable covers.
- D. Identify framing lumber as to grades, and store each grade separately from other grades.
- E. Protect metals with adequate waterproof outer wrapping.
- F. Use extreme care in off loading of lumber to prevent damage, splitting, and breaking of materials.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 DIMENSION LUMBER

- A. Provide lumber complying with the currently adopted International Building Code, New Jersey Edition and PS-20, American Softwood Lumber Standard and with applicable grading rules.
 - 1. Inspection Agencies:
 - a. RIS - Redwood Inspection Service.
 - b. NLGA - National Lumber Grades Authority (Canadian).
 - c. SPIB - Southern Pine Inspection Bureau.
 - d. WCLIB - West Coast Lumber Inspection Bureau.
 - e. WWPA - Western Wood Products Association.
- B. Grade stamps:
 - 1. Identify each piece of lumber with grade stamp of inspection agency evidencing compliance with grading rules and showing agency, grade, species and moisture content.
- C. Dimensions:
 - 1. Nominal sizes are indicated. Provide actual sizes as required by P.S.-20.
 - 2. Provide dressed lumber, S4S, unless otherwise indicated.

3. Provide seasoned lumber with 19% moisture content.
4. For structural framing provide the following grade and species.
 - a. No. 2 grade, yellow pine or;
 - b. Any species and grade that complies with the requirements of Chapter 23 of the International Building Code and AF&PA NDS-05, *National Design Specification (NDS) for Wood Construction with 2005 Supplement*, as referenced in the Building Code.

2.03 FIRE-RETARDANT TREATED WOOD

- A. Fire-retardant treated wood shall be pressure treated in accordance with AWPA C-20 or AWPA C-27 and have, when tested in accordance with ASTM E-84, a listed flame spread of 25 or less and shall show no evidence of significant progressive combustion when tested for an additional 20-minute period. In addition the flame front shall not progress more 10.5 feet beyond the centerline of the burners at any time during the test. (IBC 2009, Section 2303.2)
- B. Fire-retardant treated wood shall be labeled in accordance with IBC, Section 2303.2.1.
- C. Fire-retardant treated wood exposed to the weather shall be identified as “Exterior” as required by IBC, Section 2303.2.3)
- D. Fire-retardant treated wood exposed to interior humid conditions shall be identified as “Interior Type A” as required by IBC, Section 2303.2.4)

2.04 ROUGH HARDWARE

- A. Fasteners for preservative-treated and fire-retardant treated wood shall be of hot-dipped zinc coated galvanized steel, stainless steel, silicon bronze or copper.
- B. Steel items:
 1. Comply with ASTM A7 or ASTM A36.
 2. Use Hot Dip galvanized at exterior locations.
- C. Machine bolts: Comply with ASTM A307, Hot Dip galvanized at exterior locations.
- D. Lag bolts: Comply with Fed Spec FF-B-561, Hot Dip galvanized at exterior locations.
- E. Nails:
 1. Use common except as otherwise noted.
 2. Use spirally grooved or ring shank nails for exterior decks and ramps.
 3. Use finishing nails for trim.
 4. Comply with Fed Spec FF-N-105.
 5. Use Hot Dip galvanized at exterior locations.

F. Framing anchors:

1. Provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:
 - a) Provide products for which model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance with International Building Code, 2009.
2. Galvanized steel sheet: Steel sheet hot-dip galvanized prior to fabrication to comply with ASTM A525 for coating designation G60 and with ASTM A446, Grade A (structural quality); ASTM A526 (commercial quality); or ASTM A527 (lock forming quality).

2.05 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 WORKMANSHIP

- A. Produce joints which are tight, true, and well nailed, with members assembled in accordance with the Drawings and with pertinent codes and regulations.
- B. Selection of lumber pieces:
 1. Carefully select the members.
 2. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing, and will allow making of proper connections.
 3. Cut out and discard defects which render a piece unable to serve its intended function.
 4. Lumber may be rejected by the *ARCHITECT*, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.
- C. Do not shim any framing component.

3.03 GENERAL FRAMING

A. General:

1. Comply with AF&PA, "Manual for Wood Frame Construction" and the International Building Code, 2009.
2. In addition to framing operations normal to the fabrication and erection indicated on the Drawings, install wood blocking and backing required for the work of other trades.
3. Set horizontal and sloped members with crown up.
4. Do not notch, cut, or bore members for pipes, ducts, or conduits, or for other reasons except as shown on the Drawings or as specifically approved in advance by the *ENGINEER/ARCHITECT*.

B. Bearings:

1. Make bearings full unless otherwise indicated on the Drawings.
2. Finish bearing surfaces on which structural members are to rest so as to give sure and even support.
3. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

3.04 BLOCKING AND BRIDGING

A. Install blocking as required to support items of finish including hardware, toilet room accessories and other wall mounted items.

B. Bridging:

1. Install wood cross bridging (not less than 2" x 3" nominal), metal cross bridging of equal strength, or solid blocking between joists where the span exceeds 8'-0".
2. Provide maximum distance of 8'-0" between a line of bridging and a bearing.
3. Cross bridging may be omitted is permitted by code, except where otherwise indicated on the Drawings.
4. Install solid blocking between joists at points of support and wherever sheathing is discontinuous. Blocking may be omitted where joists are supported on metal hangers.

3.05 FIREBLOCKING AND DRAFTSTOPPING

A. Fireblocking and draftstopping materials and installation shall conform to Section 717 of the International Building Code, 2009.

B. Install firesblocking and draftstopping where required by Sections 717 and 1406 of the International Building Code, 2009.

3.06 ALIGNMENT

- A. On framing members to receive a finished surface, align the finish subsurface to vary not more than 1/8" from the plane of surfaces of adjacent furring and framing members.

3.07 FASTENING

A. General:

1. Comply with the "Fastening Schedule," Table 2304.9.1 and Chapter 23 of the International Building Code, 2009.
2. Install items straight, true, level, plumb, and firmly anchored in place.
3. Where blocking or backing is required, coordinate as necessary with other trades to ensure placement of required backing and blocking in a timely manner.
4. Nail trim with finish nails of proper dimension to hold the member firmly in place without splitting the wood.

B. Nailing:

1. Use only common wire nails or spikes of the dimension required, except where otherwise specified or noted on the Drawings.
2. Provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike, provided, however, that 16d nails may be used to connect two pieces of 2" (nominal) thickness.
3. Nail without splitting wood.
4. Pre-bore as required.
5. Remove split members and replace with members complying with the specified requirements.

C. Bolting:

1. Drill holes 1/16" larger in diameter than the bolts being used.
2. Drill straight and true from one side only.
3. Do not bear bolt heads on wood, but use washers under head and nut where both bear on wood, and use washers under all nuts.

D. Screws:

1. For lag screws and wood screws, prebore holes same diameter as root of threads, enlarging holes to shank diameter for length of shank.

3.08 JOINTING

- A. Make joints to conceal shrinkage; miter exterior joints; cope interior joints; miter or scarf end-to-end joints.
- B. Install trim in pieces as long as possible, jointing only where solid support is obtained.

3.09 INSTALLATION OF OTHER ITEMS

- A. Install items in strict accordance with the Drawings and the recommended methods of the manufacturer as approved by the Architect, anchoring firmly into position at the prescribed locations, straight, plumb, and level.

3.10 FINISHING

- A. Sandpaper finished wood surfaces thoroughly as required to produce a uniformly smooth surface, always sanding in the direction of the grain; except do not sand wood which is designed to be left rough.
- B. No coarse grained sandpaper mark, hammer mark, or other imperfection will be accepted.

3.11 CLEANING UP

- A. Keep the premises in a neat, safe, and orderly condition at all times during execution of this portion of the Work, free from accumulation of sawdust, cut-ends, and debris.
- B. Sweeping:
 - 1. At the end of each working day, and more often if necessary, thoroughly sweep surfaces where refuse from this portion of the Work has settled.
 - 2. Remove the refuse to the area of the job site set aside for its storage.
 - 3. Upon completion of this portion of the Work, dispose of all debris and thoroughly broom clean all surfaces.

****END OF SECTION****

SECTION 07 21 00
(07210)
BUILDING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Fiber fill, rigid, batt, spray, or granular insulation for:
 - a. Insulation under slabs on grade.
 - b. Foundation wall insulation (and supporting backfill).
 - c. Block/board cavity wall insulation.
 - d. Concealed and exposed board type building insulation.
 - e. Blanket type building insulation.
 - f. Sound attenuation blankets.
 - g. Fire safing insulation.
 - h. Firestopping of through penetrations.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 00 11 00: Statement of Work*
3. *Section 06 20 00: Carpentry*
4. *Section 09 21 16: Gypsum Wallboard Systems*

C. Payment:

1. Unless otherwise noted in the *Proposal* Section, no separate payment shall be made for this item.
2. Include all costs for *BUILDING INSULATION* in the prices bid for the various related items of work as designated in the *Proposal*.

1.02 REFERENCES

A. American Society for Testing and Materials:

1. ASTM C 578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
2. ASTM C 612: Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
3. ASTM C 665: Standard Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

4. ASTM C 991: Standard Specification for Flexible Fibrous Glass Insulation for Metal Buildings.
5. ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
6. ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials.
7. ASTM C203: Standard Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
8. ASTM D1621: Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
9. ASTM D1622: Standard Test Method for Apparent Density of Rigid Cellular Plastics.
10. ASTM D2126: Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
11. ASTM E96/E96M: Standard Test Method for Water Vapor Transmission of Materials.
12. National Fire Protection Association (NFPA) 285: Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus.

1.03 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Manufacturer's product data:
 1. Complete materials list of all materials proposed to be furnished and installed under this section.
 2. Specifications and other data required that demonstrate compliance with the specified requirements.
- C. Manufacturer's current recommended installation procedures.

1.04 QUALITY ASSURANCE

- A. Qualifications of manufacturer:
 1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.
- B. Qualifications of workmen:
 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.
 3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with pertinent provisions of *Section 01 66 00, Storage and Protection*.
- B. Deliver materials to project site in manufacturer's original packaging.
- C. All insulation and components delivered to the job site shall bear the label of an approved agency showing the manufacturer's name, product listing, product identification, R-value and information sufficient to determine that the end use will comply with the requirements of the International Building Code, IBC 2009.
- D. Store materials off ground.
- E. Protect against weather, condensation and damage.
- F. Immediately remove damaged material from site.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products:

1. Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
 2. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- B. Concealed installation:
1. Insulation materials, where concealed as installed in buildings of any type construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450. (IBC 719.2)
- C. Exposed installation:
1. Insulation materials, where exposed as installed in buildings of any type construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450. (IBC 719.3)
 2. Exposed insulation materials installed on attic floors shall also have a critical radiant flux of not less than 0.12 watt per square centimeter when tested in accordance with ASTM E 970. (IBC 719.3.1)
- D. All insulation materials shall conform to the applicable sections of the International Building Code, IBC 2009.

2.02 BATT INSULATION

A. Acceptable manufacturers:

1. Certaineed Corporation
2. Owens Corning Fiberglass Corporation
3. Manville Building Insulation
4. Or equivalent.

B. Materials:

1. Non-Reflective: ASTM C665; Type II, Class A, Category 1, preformed glass fiber; friction fit.
2. Reflective: ASTM C665; Type III, Class A, Category 1, preformed glass fiber; friction fit.
3. Thermal resistance values:
 - a. Walls: R-19 unless otherwise shown.
 - b. Ceilings: R-30 unless otherwise shown.
4. Fasteners:
 - a. Staples shall be bronze or galvanized with a 7/16" crown and 1/2" shank.
 - b. Wire shall be 20 ga., galvanized steel.
5. Tape: Bright aluminum or Polyester to match insulation facing, self-adhering type, mesh reinforced, 2 inch wide.
6. Insulation Fasteners: Steel impale spindle and clip on flat metal base, self adhering backing, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place.
7. Wire Mesh: Galvanized steel, hexagonal wire mesh.

2.03 FIRE SAFING INSULATION

A. Acceptable manufacturers:

1. Thermafiber, Inc
2. Or equivalent.

B. Safing Insulation:

1. "Thermafiber Safing Insulation" or equivalent, conforming to ASTM C 612, Type 1 and ASTM C 665, Type 1 and non-combustible when tested in accordance with ASTM E 136. Flame spread and smoke developed ratings of 0 when tested in accordance with ASTM E 84.
2. R-Value: 4.2 per inch.
3. Facing: [Unfaced.] [Foil Faced.]
5. Density: [4.0 pcf (actual)] [Density: 6.0 pcf (actual)] [Density: 8.0 pcf (actual)]

2.04 SOUND ATTENUATION INSULATION

- A. Acceptable manufacturers:
 - 1. Thermafiber, Inc..
 - 2. Or equivalent.
- B. Materials
 - 1. Type: Thermafiber Sound Attenuation Fire Blanket (SAFB).
 - 2. R-Value: 3.7 per inch.
 - 3. Density: 2.5 pcf (nominal).
 - 4. Thickness: As shown

2.05 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Examine space allocated for insulation for proper depth of receive material.
- D. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Remove or protect against projections in construction framing that may damage or prevent proper installation.

3.03 INSTALLATION:

- A. General:
 - 1. Fit insulation snugly between framing.
 - 2. Maintain integrity of insulation over entire area to be insulated.
 - 3. Insulate small areas between closely spaced framing members.
 - 4. Carefully cut and fit insulation around pipes, conduits, and other obstructions.

5. Where pipes or conduit are located in stud spaces, place insulation between exterior wall and pipe, compressing insulation where necessary.
6. Do not install insulation requiring compression in excess of 10%.
7. Install insulation to attain minimum R-value as indicated for finished assembly.

B. Faced Insulation:

1. Staple facing flanges to sides of wood framing at 8 in. centers, or closer as necessary to hold flanges tightly to framing members.
2. Retain in place with wire mesh secured to metal framing members.
3. Exercise care to insure integral vapor barrier is continuous over entire surface.
4. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.
5. Install faced insulation with integral vapor barrier toward warm-in-winter side of assembly.

C. Metal Studs or Joists: Secure insulation in place using wire laced in crisscross fashion between studs or joists and tied or securely fastened to prevent displacement or sagging of material.

- a. Fasten insulation to back-up using manufacturer's acceptable

3.04 CLEAN UP

- A. Remove and dispose of excess materials, litter, and debris; leaving work areas in a clean condition.

****END OF SECTION****

SECTION 07 92 13
(07920)
SEALANTS AND CAULKING

PART 1 - GENERAL

1.01 SUMMARY

A. Work included:

1. Throughout the work, seal and caulk joints where shown on the Drawings and elsewhere as required to provide a positive barrier against passage of moisture, air and water.
2. The work of this section includes preparation of substrate surfaces, backing material and sealant.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 06 20 00: Carpentry*
3. *Section 09 90 00: Painting*

C. Payment:

1. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
2. Include all costs for the *SEALANTS AND CAULKING* in the prices bid for the various items of related work designated in the Proposal.

1.02 REFERENCES

A. American Society for Testing and Materials:

1. ASTM C790: Standard Practices for use of Latex Sealing Compounds.
2. ASTM C804: Standard Practice for use of Solvent-Release type Sealants.
3. ASTM C834: Standard Specification for Latex Sealing Compounds.
4. ASTM C919: Standard Practice for use of Sealants in Acoustical Applications.
5. ASTM C920: Standard Specification for Elastomeric Joint Sealants.
6. ASTM C1330: Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.

1.03 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.

- 2. Specifications and other data required to demonstrate compliance with the specified requirements.
- C. Shop drawings showing precise dimensions of the work of this section, and all other data needed to ensure proper and adequate provision in concrete forming, reinforcement, and placement to accommodate the work of this section.
- D. Manufacturer's recommended installation procedures.
- E. Samples: Upon request of the *ENGINEER*, submit Samples of each sealant, each backing material, each primer, and each bond breaker proposed to be used.

1.04 QUALITY ASSURANCE

- A. Qualifications of manufacturer:
 - 1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.
- B. Qualifications of workmen:
 - 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
 - 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.
 - 3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.
- C. Basis of acceptance:
 - 1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.
- E. Do not retain at the job site material, which has exceeded the shelf life recommended by its manufacturer.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not install solvent curing sealants in enclosed building spaces.
- B. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Proprietary Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- C. Acceptable manufacturers:
 - 1. Polymeric Systems, Inc. (PSI)
Phoenixville, PA
(800) 228-5548
 - 2. Bostik
Middleton, MA
(8088) 603-8558
 - 3. Sika Corporation
Lyndhurst, NJ
(800) 933-7452
 - 4. ChemRex, Inc. (Sonneborn)
Shakoppe, MN
(800) 433-9517
 - 5. Pecora Corporation
Harleysville, PA
(800) 523-6688
 - 6. Tremco
Beachwood, OH
(800) 321-7906
 - 7. G. E. Silicones
Wilton, CT
(800) 255-8886
 - 8. Dow Corning Corporation
Midland, MI
(517) 496-6000

9. W. R. Meadows, Inc
Hampshire, IL
Phone: (847) 214-2100

10. Or equivalent.

2.02 SEALANTS

A. Provide the following sealants where specified, called for on the Drawings, or otherwise required for a complete and proper installation.

1. Sealant Type "A":

a. Self leveling, complying with ASTM C920, Type M, Grade P, Class 25, use T, A and M.

b. Acceptable products:

- (1) Bostik "Chem-Calk 550"
- (2) Vulkem 245
- (3) Pecora NR-200
- (4) Tremco THC-900
- (5) Sonneborn "Sonalastic SL-2"
- (6) Or equal.

2. Sealant Type "B":

a. Non-sag, complying with ASTM C920, Type S, Grade NS, Class 25, use NT, M, A and O.

b. Acceptable products:

- (1) Vulkem 116
- (2) Tremco Dymonic
- (3) Bostik "Chem-Calk 900"
- (4) Sika Sikaflex 1A
- (5) Sonneborn "Sonolastie NP1"
- (6) Or equal.

3. Sealant Type "C":

a. Non-sag, fungicidal silicone complying with ASTM C920, Type S, Grade NS, Class 25, use NT, G, A and O.

b. Acceptable products:

- (1) Rhodorsil 6B sanitary white
- (2) Bostik silicone rubber bathroom caulk
- (3) GE sanitary 1700
- (4) Dow Corning 786
- (5) Or equal

4. Sealant Type "D":
 - a. Acoustical sealant:
 - (1) Non-hardening, gunnable (not-exposed):
 - (a) PTI 808
 - (b) Tremco acoustical sealant
 - (c) Or equal.
 - (2) Paintable, non-staining, gunnable (exposed):
 - (a) Pecora AC-20
 - (b) Tremco Acrylic Latex 834
 - (c) Red Devil Acrylic Latex 15 yr. Caulk
 - (d) Or equal.
 5. Sealant Type "E":
 - a. Conforming to ASTM C920, Type M, Grade P or NS, Class 25 and specifically suitable and NSF certified for Immersion Service in Potable Water Service.
 - b. Acceptable Products:
 - (1) PSI RC-270 (gun grade) (urethane)
 - (2) PSI RC-270 SL (self leveling) (urethane)
 - (3) Or equal.
 6. Sealant Type "F":
 - a. Conforming to ASTM C-920, Type M or S, Grade P or NS, Class 25 and specifically suitable for Immersion Service in Wastewater Treatment Facilities.
 - b. Acceptable Products:
 - (1) Sonolastic "Polysulfide" (gun grade)
 - (2) Pecora "GC-2" (2 part polysulfide)
 - (3) PSI RC-270 (gun grade) (urethane)
 - (4) PSI RC-270 SL (self leveling) (urethane)
 - (5) W.R. Meadows Deck-O-Seal 785 (2 part polysulfide)
 - (6) Or equal.
- B. For other services, provide products especially formulated for the proposed use and approved in advance by the *ENGINEER*.
- C. Colors:
1. Colors for each sealant installation will be selected by the *ENGINEER* from standard colors normally available from the specified manufacturer.

2. Should such standard color not be available from an approved substitute manufacturer except at additional charge, provide such colors at no additional cost to the *OWNER*.
3. In concealed installations, and in partially or fully exposed installations where so approved by the *ENGINEER*, use standard gray or black sealant.

2.03 PRIMERS

- A. Use only those primers that have been tested for durability on the surfaces to be sealed and are specifically recommended for this installation by the manufacturer of the sealant used.

2.04 BACKUP MATERIALS

- A. Use only those backup materials that are non-absorbent, non-staining, and specifically recommended for this installation by the manufacturer of the sealant used.
- B. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 1. Type C: Closed-cell material for exterior, horizontal applications only.
 2. Type O: Open-cell material for all applications including hot poured sealants to 500 °F and chemical sealant products except exterior, horizontal applications.
 3. Type B: Bi-cellular material for vertical and horizontal joints, or where joints are more irregular, and to fill air-gap spaces in general construction. NOT for hot poured or chemical sealant applications unless specifically recommended otherwise by the manufacturer.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.05 MASKING TAPE

- A. For masking tape around joints, provide an appropriate masking tape that will effectively prevent application of sealant on surfaces not scheduled to receive it, and that is removable without damage to substrate.

2.06 OTHER MATERIALS

- A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- B. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. General:

- 1. Clean and prime joints in accordance with manufacturer's instructions.
- 2. Remove loose materials and foreign matter, which might impair adhesion of sealant.
- 3. Verify that joint backing and release tapes are compatible with sealant.
- 4. Perform preparation in accordance with ASTM C804 for solvent release sealants and ASTM C790 for latex base sealants.
- 5. Protect elements surrounding the work of this Section from damage or disfiguration.

B. Concrete surfaces:

- 1. Install only on surfaces, which are dry, sound, and well brushed, wiping free from dust.
- 2. At open joints, remove dust by mechanically blown compressed air if so required.
- 3. To remove oil and grease, use sandblasting or solvent cleaning and wire brushing.
- 4. Where surfaces have been treated, remove the surface treatment by sandblasting or wire brushing.
- 5. Remove laitance and mortar from joint cavities.

C. Steel surfaces:

- 1. Steel surfaces in contact with sealant:
 - a. Sandblast as required to achieve acceptable surface for bond.
 - b. If sandblasting is not practical, or would damage adjacent finish, scrape the metal or wire brush to remove mill scale and rust.
 - c. Use solvent to remove oil and grease, wiping the surfaces with clean white rags only.
- 2. Remove protective coatings on steel by sandblasting or by using a solvent which leaves no residue.

D. Aluminum surfaces:

1. Aluminum surfaces in contact with sealant:
 - a. Remove temporary protective coatings, dirt, oil, and grease.
 - b. When masking tape is used for protective cover, remove the tape just prior to applying the sealant.
2. Use only such solvents to remove protective coatings as are recommended for that purpose by the manufacturer of the aluminum work, and which are non-staining.

3.03 INSTALLATION OF BACKUP MATERIAL

- A. Backup material shall be used when and where recommended by the manufacturer of the sealant.
- B. When using backup of tube or rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose or rod backup stock.
- C. Measure joint dimensions and size material to achieve required width/depth ratios.
- D. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width.
- E. Install bond breaker where joint backing is not used or where required.
- F. Installation tool:
 1. For installation of backup material, provide a blunt-surfaced tool of wood or plastic, having shoulders designed to ride on the adjacent finished surface and a protrusion of the required dimensions to assure uniform depth of backup material below the sealant.
 2. Do not, under any circumstance, use a screwdriver or similar tool for this purpose.
 3. Using the approved tool, smoothly and uniformly place the backup material to the depth indicated on the Drawings or otherwise required, compressing the backup material 25% to 50% and securing a positive fit.

3.04 PRIMING

- A. Use only the primer approved by the manufacturer for the particular installation, applying in strict accordance with the manufacturer's recommendations as approved by the Architect.

3.05 INSTALLATION OF SEALANTS

- A. Prior to start of installation in each joint, verify the joint type according to details on the Drawings, or as otherwise directed by the Architect, and verify that the required proportion of width of joint to depth of joint has been secured.
- B. Equipment:
 1. Apply sealant under pressure with power-actuated hand gun or manually-operated hand gun, or by other appropriate means.
 2. Use guns with nozzle of proper size, and providing sufficient pressure to completely fill the joints as designed.

- C. Thoroughly and completely mask joints where the appearance of primer or sealant on adjacent surfaces would be objectionable.
- D. Install the sealant in strict accordance with the manufacturer's recommendations, thoroughly filling joints to the recommended depth.
- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Tool joints to the profile shown on the Drawings, or as otherwise required if such profiles are not shown on the Drawings.
 - 1. Provide uniformly smooth joints with slightly concave surface.
 - 2. Do not use tooling agent unless specifically so recommended in writing by the manufacturer of the sealant.

3.06 CLEANING UP

- A. Remove masking tape immediately after joints have been tooled.
- B. Clean adjacent surfaces free from sealant as the installation progresses, using solvent or cleaning agent recommended by the manufacturer of the sealant used.
- C. Upon completion of the work of this Section, promptly remove from the job site all debris, empty containers, and surplus material derived from this portion of the work.
- D. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.07 PROTECTION OF FINISHED WORK

- A. Protect sealants until cured.
- B. Repair or replace disfigured or damaged sealants where necessary or required to provide finished appearance.

3.08 SCHEDULE

- A. The following schedule of sealant locations is provided as a guide only and is not all inclusive or limiting as to the quantity of work specified herein.
- B. Sealant schedule:

<u>LOCATION</u>	<u>SEALANT TYPE</u>
1. Interior & Exterior Traffic Bearing Joints.	Type A
2. Perimeter of Interior & Exterior Frames; Coping Joints; Coping to Facade Joints; Cornice & Wash (Horizontal) Joints;	Type B

Interior and Exterior Control
Joints; around Entrances, Store
Fronts and Windows; Interior
and Exterior Electrical and
Mechanical Fixtures, Flashing.

- | | | |
|----|--|--------|
| 3. | Showers, Restroom Fixtures,
Restrooms. | Type C |
| 4. | For Sound Transmission Reduction | Type D |
| 5. | Immersion Service and splash zones
in potable water facilities. | Type E |
| 6. | Immersion Service and splash zones
in Wastewater Treatment Facilities | Type F |

END OF SECTION

SECTION 09 21 16
(09260)
GYPSUM WALLBOARD SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Gypsum drywall and accessories.
2. Provide finish for all gypsum board in accordance with the Gypsum Wallboard Finish Schedule.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 06 20 00: Carpentry*
3. *Section 09 90 00: Painting*

C. Payment:

1. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
2. Include all costs for *GYPSUM WALLBOARD SYSTEM* in the prices bid for the various related items of work as designated in the Proposal.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required that demonstrate compliance with the specified requirements.

C. Shop drawings:

1. Typical gypsum board installation showing corner details, edge trim details and the like.
2. Typical sound rated assembly, showing treatment at perimeter of partitions and penetrations at gypsum board.
3. Typical shaft wall assembly.
4. Typical fire rated assembly and column fireproofing indicating details of construction same as that used in fire rating test.

D. Samples: For the following products:

1. Trim Accessories: Full-size sample in 12-inch length for each trim accessory.

- E. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

- A. Qualifications of manufacturer:

- 1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

- B. Qualifications of workmen:

- 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
- 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.
- 3. In acceptance or rejection of the work of this section the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

- C. Regulatory requirements:

- 1. Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
- 2. Gypsum board assemblies shall have been tested for fire resistance according to ASTM E119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- 3. Top runner in fire-resistance-rated assemblies shall be labeled and listed by UL, or another testing and inspection agency acceptable to authorities having jurisdiction.

- D. Basis of acceptance:

- 1. The manufacturer's installation instructions, as approved by the *ENGINEER*, will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.

- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.

- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

D. Delivery and storage:

1. Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use.
2. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.
3. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.
4. Stack wallboard so that long lengths are not over short lengths.
5. Avoid overloading floor system.
6. Store adhesives in dry area, provide protection against freezing at all times.

1.05 PROJECT CONDITIONS

A. General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.

B. Room temperatures:

1. For non-adhesive attachment of gypsum board to framing, maintain not less than 40 degrees F (4 degrees C).
2. For adhesive attachment and finishing of gypsum board, maintain not less than 50 degrees F (10 degrees C) for 48 hours before application and continuously after until dry.
3. Do not exceed 95 degrees F (35 degrees C) when using temporary heat sources.

C. Ventilation:

1. Provide ventilation during and following adhesives and joint treatment applications.
2. Use temporary air circulators in enclosed areas lacking natural ventilation.
3. Under slow drying conditions, allow additional drying time between coats of joint treatment.
4. Protect installed materials from drafts during hot, dry weather.

D. Protection: Protect adjacent surfaces against damage and stains.

PART 2 - PRODUCTS

2.01 GENERAL

A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.

- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 GYPSUM WALLBOARD

- A. Regular board: ASTM C1396, 1/2" or 5/8" thick as shown.
- B. Fire-rated board: ASTM C36, Type "X", 5/8" thick (water resistant where shown).
- C. Water resistant board: ASTM C630, Regular or Type "X", 1/2" thick or 5/8" thick as required.
- D. Abuse resistant board: ASTM C1629; Level 2, Moderate Duty
- E. High Impact Board: ASTM C1629; Level 3, Heavy Duty

2.03 MOLD RESISTANT WALLBOARD

- A. Fiberglass-Mat Faced Gypsum Board:
1. Thickness: 1/2 inch.
 2. Width: 4 feet.
 3. Length: 8 feet - 12 feet.
 4. Weight: 2.02 pounds per square foot.
 5. Edges: Tapered.
 6. Surfacing: Coated fiberglass mat on face, back, and long edges.
 7. Flexural Strength, Parallel (ASTM C473, ASTM C1658): Not less than 80 lbf.
 8. Flexural Strength, Perpendicular (ASTM C473, ASTM C1658): Not less than 100 lbf.
 9. R-Value (ASTM C518): Not less than 0.56.
 10. Nail Pull Resistance (ASTM C473, ASTM C1658): Not less than 80 lbf.
 11. Humidified Deflection (ASTM C473, ASTM C1658): Not more than 1/4 inch.
 12. Hardness, Core, Edges, and Ends (ASTM C473, ASTM C1396): Not less than 15.
 13. Water Absorption (ASTM C630, ASTM C1396, ASTM C1658): Less than 5 percent of weight.
 14. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
 15. Microbial Resistance (ASTM D6329, EPA 12-week protocol): Will not support microbial growth.
 16. Acceptable Products:
 - a. 1/2" Georgia-Pacific "DensArmor Plus Interior Panel"
 - b. 1/2" Georgia-Pacific "DensArmor Plus Fireguard C."
 - c. 1/2" Gold Bond "eXP® Interior Extreme"
 - d. 1/2" Temple-Inland "GreenGlass"
 - e. 1/2" USG Sheetrock "Mold Tough"
- B. Fire-Rated Fiberglass-Mat Faced Gypsum Board:
1. Thickness: 5/8 inch.
 2. Width: 4 feet.
 3. Length: 8 feet.
 4. Weight: 2.5 pounds per square foot.
 5. Edges: Tapered.
 6. Surfacing: Coated fiberglass mat on face, back, and long edges.
 7. Flexural Strength, Parallel (ASTM C473, ASTM C1658): Not less than 100 lbf.
 8. Flexural Strength, Perpendicular (ASTM C473, ASTM C1658): Not less than 140 lbf.
 9. R-Value (ASTM C518): Not less than 0.67.
 10. Nail Pull Resistance (ASTM C473, ASTM C1658): Not less than 90 lbf.
 11. Humidified Deflection (ASTM C473, ASTM C1658): Not more than 1/8 inch.
 12. Hardness, Core, Edges, and Ends (ASTM C473, ASTM C1396): Not less than 15.
 13. Water Absorption (ASTM C630, ASTM C1396, ASTM C1658): Less than 5 percent of weight.

14. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
15. Microbial Resistance (ASTM D6329, EPA 12-week protocol): Will not support microbial growth.
16. Acceptable Products:
 - a. 5/8" Georgia-Pacific "DensArmor Plus Fireguard"
 - b. 5/8" Georgia-Pacific "DensArmor Plus Fireguard C"
 - c. 5/8" Gold Bond "eXP® Interior Extreme," Type X.
 - d. 5/8" Temple-Inland "GreenGlass," Type X.
 - e. 5/8 USG Sheetrock "Mold Tough" Type X

2.03 FRAMING

- A. For non-load bearing construction: ASTM C645, galvanized.
- B. For load bearing construction: Section 05 40 00.

2.04 FASTENERS

- A. Self-drilling, self-tapping, bugle head, for use with power driven tool.
 1. ASTM C-1002:
 - a. Type G, wallboard to wallboard, 1½" long (minimum)
 - b. Type S, wallboard to steel framing, 1" long (minimum)
 - c. Type W, wallboard to wood framing, 1¼" long (minimum)

2.05 TRIM

- A. Trim features: Provide hot-dip galvanized 0.55 mm (0.0217") nominal thickness (26 gauge).
- B. Casing beads: Channel shaped with concealed wing not less than 22 mm (7/8") wide, and an exposed wing.
- C. Corner beads: Provide angle shaped with wings not less than 22 mm (7/8") wide and perforated for nailing and joint treatment, or with combination metal and paper wings, bonded together, not less than 32 mm (1¼") wide and suitable for joint treatment.
- D. Edge beads for use at perimeter of ceilings shall be angle shaped with wings not less than 19mm (¾") wide. Concealed wing shall be perforated for nailing and exposed wing shall be folded flat. Exposed wing may be factory finished in a white color.
- E. Control joints: Roll-formed zinc with ¼" open slot protected by plastic tape removed after finishing.

2.06 JOINTING SYSTEM

- A. The jointing system shall include reinforcing tape and compound designed as a system to be used together and shall be only as recommended by the manufacturer of the gypsum wallboard used. Jointing compound may be used for finishing if so recommended by the manufacturer.

2.07 JOINTING MATERIALS

- A. Tape: ASTM C475 - Fiberglass.
- B. Joint compound: ASTM C475, ready mixed, all purpose.
- C. Water: Potable

2.08 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and operable installation of the work of this section, shall be new, first quality of their respective kinds, and subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 PREPARATION

A. Inspection:

1. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that gypsum drywall may be installed in strict accordance with all pertinent codes and regulations, the manufacturer's recommendations and the original design.

- B. Discrepancies: Do not install gypsum drywall until all unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General:

1. Framing:

- a. Install framing in accordance with ASTM C754, "Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Wallboard"; except that studs shall be spaced 16" o.c.
- b. Install "Blocking" for all wall mounted equipment, accessories, and hardware shown or specified.

2. Wall board:

- a. Install Gypsum Board in accordance with ASTM C840, Specification for Application and Finishing of Gypsum Board.
- b. Install the gypsum wallboard with the separate boards in moderate contact but not forced into place. At internal and external corners, conceal the cut edges of the board by the overlapping covered edges of the abutting boards. Stagger the boards so that corners of any four boards will not meet at a common point except in vertical corners.

- B. Ceilings: Install the gypsum wallboard to ceilings with the long dimension of the wallboard at right angles to the supporting members, except that wallboard may be installed with the long dimension parallel to supporting members that are spaced 40 cm (16") on center when attachment members are provided at end joints.

- C. Walls: Install the gypsum wallboard to studs at right angles to the furring or framing members. Make end joints, where required, over furring or framing members.

- D. Attaching: Drive the specified screws with clutch-controlled power screwdrivers, spacing the screws 25 cm (12") on centers at ceilings and 40 cm (16") on centers at walls, except that where framing members are spaced 50 cm (25") apart on walls screw spacing shall be 25 cm (12") on centers.

- E. Access doors: By careful coordination with the drawings, install the specified access doors where required, anchoring firmly into position for long life under hard use aligning properly to achieve an installation flush with the finished gypsum drywall surface.

3.03 JOINT TREATMENT

A. General:

1. Inspect all areas to be joint treated, ascertaining that the gypsum wallboard fits snugly against supporting framework.
2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees F. for 24 hours prior to commencing treatment, for the entire period of treatment, and until joint and finishing compounds have dried.
3. Apply the joint treatment and finishing compound by machine or hand tool.
4. Provide a minimum drying time of 24 hours between coats, with additional drying time in poorly ventilated areas.

B. Apply finishing compound as specified herein in accordance with the required finish level.

1. Embedding compound: Apply to gypsum wallboard joints and fastener heads in a thin uniform layer. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6" wide at joints, and feather edged. When thoroughly dry, sandpaper to eliminate ridges and high points.
2. Finishing compound: After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to all joints and fastener heads. Feather the finishing compound to not less than 12" wide. When thoroughly dry, sandpaper to obtain uniformly smooth surfaces, taking all necessary care to not scuff the paper surface of the wallboard.

C. Levels of gypsum board finish:

1. Level 1: All joints and interior angles shall have tape embedded in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
2. Level 2: All joints and interior angles shall have tape embedded in joint compound and one separate coat of joint compound applied over all joints, angles, fastener heads, and accessories. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
3. Level 3: All joint and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. All joint compound shall be smooth and free of tool marks and ridges.
4. Level 4: All joints and interior angles shall have tape embedded in joint compound and three separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. All joint compound shall be smooth and free of tool marks and ridges.
5. Level 5: All joints and interior angles shall have tape embedded in joint compound and three separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. A thin skim coat of joint compound, or a material manufactured especially for this purpose, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.

3.04 CORNER TREATMENT

- A. Internal corners: Treat as specified for joints, except that the reinforcing tape shall be folded lengthwise through the middle and fitted neatly into the corner.
- B. External corners:
 - 1. Install a corner bead fitting neatly over the corner and secured with the same type fasteners used for applying the wallboard, spacing the fasteners approximately 6" on centers and driving through the wallboard into the framing or furring member.
 - 2. After the corner piece has been secured into position, treat the corner with joint compound and reinforcing tape as specified for joints, feathering the joint compound out from 8" to 10" on each side of the corner.

3.05 CONTROL JOINTS

- A. Control joints shall be either manufactured devices designed for this purpose or field fabricated from suitable materials.
 - 1. Apply over face of gypsum board where specified or shown. Cut to length with a fine-toothed hacksaw (32 teeth per in.). Cut end joints, square, butt together and align to provide neat fit. Attach control joint to gypsum board with 9/16" Type G staples, or equivalent, spaced 6" o.c. max. along each flange. Remove plastic tape after finishing with joint compound.
- B. Control joints shall be installed where specified herein or indicated on the plans. Full height door frames shall be considered equivalent to a control joint.
- C. Control joints shall be provided where any of the following conditions exist.
 - 1. A control joint shall be installed where a partition, wall, or ceiling traverses a construction joint (expansion, seismic, or building control element) in the base building structure.
 - 2. Control joints shall be installed where a wall or partition runs in an uninterrupted straight plane exceeding 30 linear feet.
 - 3. Control joints in interior ceilings with perimeter relief shall be installed so that linear dimensions between control joints do not exceed 50 ft and total area between control joints does not exceed 2500 sq ft.
 - 4. Control joints in interior ceilings without perimeter relief shall be installed so that linear dimensions between control joints do not exceed 30 ft and total area between control joints does not exceed 900 sq ft.
 - 5. Control joints in exterior ceilings and soffits shall be installed so that linear dimensions between control joints do not exceed 30 ft and total area between control joints does not exceed 900 sq ft.
 - 6. A control joint or intermediate blocking shall be installed where ceiling framing members change direction.
 - 7. Control joints shall be installed where specified by the architect or designer as a design accent or architectural feature.
- D. Where a control joint occurs in an acoustical or fire-rated system, blocking shall be provided behind the control joint by using a backing material such as 5/8 in. Type X gypsum board, mineral fiber, or other tested equivalent.

E. Isolation joints:

1. Where gypsum board construction intersects structural components, provide isolation by stopping board a minimum of 1/4 inch from structure, for finishing by means of exposed or semi-exposed trim.

3.06 OTHER METAL TRIM

- A. General: The drawings do not purport to show all locations and all requirements for metal trim in connection with the work of this section. Carefully study the drawings and the installation; provide in place all metal trim normally recommended by the manufacturer of the gypsum wallboard used.
- B. Installation: Install the metal trim in strict accordance with the manufacturer's recommended methods of installation, providing not less embedment and finishing than specified above for corner treatment.

3.07 CLEANING UP

- A. In addition to the requirements of *Section 01 74 00, Cleaning and Restorations* of these Specifications, use all necessary care during execution of this portion of the work to prevent scattering of gypsum wallboard scraps and dust and to prevent tracking of joint and finishing compound onto floor surfaces. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scraps, debris, and surplus material of this section.

3.08 GYPSUM BOARD FINISH SCHEDULE

LOCATION	FINISH LEVEL
Plenums	Level 1
Tile Backer Board	Level 2
Storage Rooms	Level 3
Utility Rooms	Level 3
Closets	Level 3
Mechanical Rooms	Level 3
Generator Rooms	Level 3
Offices	Level 5
Classrooms	Level 5
Corridors	Level 5
Laboratories	Level 5
Lunch Rooms	Level 5
Rest Rooms	Level 4
Meeting Rooms	Level 5

****END OF SECTION****

SECTION 09 68 13
TILE CARPETING

PART 1 – GENERAL

1.01 DESCRIPTION

A. Work included:

1. Provide all carpet tile and accessories.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 21 00: Cash Allowances*

C. Payment:

1. Separate payment will be made for this item. Include all costs for *TILE CARPETING* as indicated under the specific proposal item.
2. The cost for this item shall include all materials, equipment, labor, and tools necessary and shall include those items that are considered to be an integral part of this work and that may be specified elsewhere.

1.02 REFERENCES

A. Carpet and Rug Institute:

1. CRI 104 - Standard for Installation of Commercial Carpet.
2. CRI Green Label Plus Testing Program.

B. Consumer Products Safety Commission:

1. CPSC 16 CFR 1630 - Standard for the Surface Flammability of Carpets and Rugs.

C. National Fire Protection Association:

1. NFPA 253 - Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source.

D. American Society for Testing and Materials

1. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
2. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

1.03 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*
- B. Manufacturer's product data:
 - 1. Complete materials list of all materials proposed to be furnished and installed under this section.
 - 2. Specifications and other data required that demonstrate compliance with the specified requirements.
- C. Manufacturer's current recommended substrate preparation requirements and installation procedures.
 - 1. Manufacturers literature shall specifically indicate the allowable Moisture Vapor Transmission rate or Moisture Vapor Emission rate and manufacturers required procedures to determine the Moisture Vapor Transmission rate.
- D. Shop drawings showing location of all joints, edge bindings and moldings; pile direction, and types of all carpet metal and accessories.
- E. Samples:
 - 1. Carpet: Submit two samples illustrating color [and pattern design] for each carpet color selected. [Matching roll carpet samples.]
 - 2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- long Samples.
- F. Manufacturer's recommended installation procedures.

1.04 QUALITY ASSURANCE

- A. Qualifications of manufacturer:
 - 1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER.*
 - 2. ISO 1400I
 - 3. ISO 9001
 - 4. Reclamation Program: Will recycle EcoWorx carpet tile free of charge for quantities of 500 SY (418 SM) or more within continental United States and Canada or 5000 SY (4190 SM) globally.
- B. Qualifications of workmen:
 - 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
 - 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
 - 3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

- C. Basis of acceptance: The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.
- D. Environmental:
 - 1. Green Label Plus Certified
 - 2. Cradle to Cradle Certified Gold
 - 3. NSF 140 Gold
 - 4. Health Product Declaration
 - 5. Declare Label, red list compliant
 - 6. No PVC components

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.06 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.

1.07 OPERATION AND MAINTENANCE MANUALS

- A. Operation and maintenance manuals shall be provided in accordance with *Section 01 78 23, Operation and Maintenance Data*.
- B. Manuals in final form shall be available a minimum of five (5) working days prior to the instruction of the *OWNER'S* personnel.

1.08 MAINTENANCE

- A. Comply with provisions of *Section 01 78 45, Spare Parts and Maintenance Materials*.
- B. Supply extra carpet tiles in the amount of 5% of each style, pattern and color used in the building.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- C. All carpet tile and accessories shall comply with the following:
 - 1. Surface Burning Characteristics:
 - a. Class I, minimum 0.45 watts/sq cm when tested in accordance with NFPA 253.
 - 2. CPSC 16 CFR 1630.
 - 3. Testing Requirements:
 - a. Pill Test CPSC FF 1 70: Pass
 - b. Radiant Panel ASTM FF 1 70: Class I
 - c. NBS Smoke ASTM E662 NF: <450
 - d. Static AATCC 134: <3.5 kv
 - e. Coefficient of Friction: 0.6 (meets ADA requirements)

2.02 CARPET TILE

- A. Acceptable Manufacturers:
 - 1. Patchcraft Flooring, Model "Foot In the Door II"
P.O. Box 2128
Dalton, GA 30722-2128
Tel: (800) 291-4014
 - 2. Or Equivalent
- B. Carpet Tile – Type 1: Tufted, polypropylene conforming to the following criteria:
 - 1. Patchcraft, Model "Walk Right In II (#I0304)
 - 2. Construction: Hobnail
 - 3. Fiber: Polyester
 - 4. Dye Method: 100% Solution Dyed
 - 5. Backing: EcoWorx® Tile
 - 6. Size: 24 inches x 24 inches
 - 7. Stitches: 0 per inches
 - 8. Finished Pile Thickness: 0.274 inches
 - 9. Average Density: 6477 oz/yd³
 - 10. Total Thickness: 0.362 inches
 - 11. Tufted Weight: 49.3 oz/yd²
 - 12. Intended Use: Field Area
 - 13. Color: By Owner

B. Carpet Tile – Type 2: Tufted, polypropylene conforming to the following criteria:

1. Patchcraft
2. Construction: Hobnail
3. Fiber: Polyester
4. Dye Method: 100% Solution Dyed
5. Backing: EcoWorx® Tile
6. Size: 24 inches x 24 inches
7. Stitches: 0 per inches
8. Finished Pile Thickness: 0.274 inches
9. Average Density: 6477 oz/yd³
10. Total Thickness: 0.362 inches
11. Tufted Weight: 49.3 oz/yd²
12. Intended Use: Step Accent
13. Color: By Owner

2.03 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet cushion manufacturer.

1. Primer (if needed): 9050 is an acrylic solution made to neutralize excess alkali that is also recommended as a primer coat to prevent over absorption of adhesive and to ensure a better bond. Formulated with an antimicrobial agent, it provides protection against bacteria, fungi, and mildew in the wet or dry state. Contains no solvent, alcohol, or other hazardous materials per OSHA 29 CFR 1910.1200. Non-photo chemically reactive per rule #102. Available in 4-gallon pails.
2. Leveling and Patching Compounds: Use a cementitious patching/leveling compound that meets or exceeds the required moisture level and pH requirements. Use of gypsum-based patching and/or leveling compounds which contain Portland or high alumina cement and meet or exceed the compressive strength of 3,000 psi are acceptable.
3. Transition stripes.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended or provided by carpet and carpet cushion manufacturers.

1. VOC Limits: Provide adhesives that comply with the following limits for VOC content when tested according to ASTM D 5116:
 - a. Total VOCs: 10.00 mg/sq. m x h.
 - b. Formaldehyde: 0.05 mg/sq. m x h.
 - c. 2-Ethyl-1-Hexanol: 3.00 mg/sq. m x h.
2. For EcoWorx (fiberglass reinforced):
 - a. Shaw 5000 pressure sensitive: 5 lbs. 85% RH ph 5-9
 - b. Shaw 5100 pressure sensitive: 5 lbs 85% RH pH 5-9
 - c. Shaw 5036 with antimicrobial: 5 lbs 85% RH pH 5-9
 - d. Shaw 5800 or high moisture: 10 lbs 95% RH pH 10
 - e. Shaw 3800 indoor/outdoor: 8 lbs 90% RH pH 5-9
 - f. LokDots dry adhesive: No visible moisture pH 12
 - g. LokWorx tabs: 10 lbs 85% RH pH 12
 - h. Mill-applied ES: No visible moisture

3. For EcoLogix (attached cushion): All, excluding LokDots and LokWorx
4. For StrataWorx (light weight tile alternative to broadloom).
 - a. Shaw 5000 pressure sensitive: 5 lbs 85% RH pH 5-9
 - b. Shaw 5036 with antimicrobial: 5 lbs 85% RH pH
 - c. Shaw 5800 for high moisture: 10 lbs 95% RH pH 10
- C. Tackless Carpet Stripping: Water-resistant plywood, in strips as required to match cushion thickness and that comply with CRI 104, Section 12.2.
- D. Seam Adhesive: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for sealing and taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- E. Base Cap: Aluminum type, 628 finish, clear color.
- F. Moldings and Edge Strips: Aluminum, clear color.

2.04 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and operable installation of the work of this section, shall be new, first quality of their respective kinds, and subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Verify that surface is dry and perfectly clean, free of all oil, grease, detergent film, Etc.
 1. Examine substrates, with installer present, for compliance with requirements for maximum moisture content, pH, smoothness and level.
 2. If dusting or powdering exists, seal the floor with a latex primer such as Shaw 9050.
 3. Smoothing: Make all substrata level and free from irregularities. Assure one constant floor height after carpet is installed, grinding high spots and filling low spots as required.
- D. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Substrates shall be smooth, structurally sound, permanently dry, clean and free of all foreign material such as dust, was, solvents, paint, grease, oils, old adhesive residue, curing and hardening/curing compounds, sealers and other foreign materials that might prevent adhesive bond.
- B. Pre-existing Adhesive:
 - 1. Non-active Multipurpose Adhesive: Remove ridges, sweep or vacuum debris.
 - 2. Active Multipurpose Adhesive: Remove ridges then eliminate the adhesive tack with a product such as Shaw 6200.
 - 3. Pressure Sensitive Adhesive Affected by Plasticizer Migration: If the previous carpet tile had a PVC backing and the plasticizer in the backing has transferred to the adhesive, you must thoroughly remove adhesive by wet scrapping.
 - 4. Existing Pressure Sensitive Adhesive: Evaluate the tack level of the existing adhesive. If sufficient, the existing adhesive can be used to install Shaws's tile products. If insufficient, apply new adhesive over existing adhesive.
 - 5. Active Cutback Adhesive: Wet scrape adhesive, reduce to a well-bonded residue and encapsulate with a product such as Shaw 9000.
 - 6. Non-active Cutback Adhesive: Wet scrape adhesive and reduce to a well-bonded residue.
- C. Fill depressions or cracks with a cementitious patching/leveling compound that meets or exceeds the required moisture level and pH requirements. Use of gypsum-based patching and/or leveling compounds which contain Portland or high alumina cement and meet or exceed the compressive strength of 3,000 psi are acceptable.
 - 1. Smoothing: Make all substrata level and free of irregularities. Assure one constant floor height after carpet is installed, grinding high spots and filling low spots as required.
- D. Moisture Testing: Perform tests required by manufacturer to determine Moisture Vapor Transmission rate and as follows.
 - 1. Perform relative humidity test using in-situ probes in accordance with ASTM F 2170. Proceed with installation only after substrates are within manufacturers required relative humidity level.
 - a. Perform 3 tests for the first 1000sf and at least 1 additional test for each additional 1000sf or fraction thereof. For purposes of determining floor area and performing the tests.
 - b. For slabs on or below grade perform at least 1 test within one meter of each wall.
 - c. If the relative humidity exceeds the manufacturer's allowable tolerances, apply the manufacturers recommended vapor mitigation system to lower the value to the acceptable limit.
 - 2. Determine moisture vapor emission rate in accordance with ASTM F 1869. Proceed with installation only after substrates are within manufacturers required relative humidity level.
 - a. Perform 3 tests for the first 1000sf and at least 1 additional test for each additional 1000sf or fraction thereof. For purposes of determining floor area and performing the tests, the garage floor and mezzanine floors shall be considered separately.
 - b. For slabs on or below grade perform at least 1 test within one meter of each wall.

- c. If the moisture vapor emission rate exceeds the manufacturer's allowable tolerances, apply the manufacturers recommended vapor mitigation system to lower the value to the acceptable limit.

3.03 INSTALLATION

- A. Install carpet tile in accordance with CRI 104 and manufacturer's instructions, whichever is most stringent.
 1. Start the tile installation as near to the center of the room as possible and position it to use the largest perimeter cut tile size.
 2. Snap a chalk line parallel to one major wall bisecting the starting point. It may be necessary to offset the center chalk line to assure perimeter tiles will be at least half size.
 3. Snap a second chalk line from the starting point at 90° to the first line. Use a 3-4-5, 6-8-10, or larger triangle depending on the room size. Meters or feet may be used to lay out the triangle in these proportions.
 4. Use a full spread of adhesive applied with a 3/8" foam paint roller or 1/16 x 1/32 x 5/64 u-notch trowel. The adhesive must be allowed to dry completely before installing the carpet. Installing into the wet adhesive will result into a permanent bond and may cause the carpet to bubble. Trowel application of adhesive is recommended for EcoLogix. EcoWorx ES / EcoLogix no adhesive required. Approximate coverage rates are 35-40 yards per gallon when applied with a roller, and 28-33* yards per gallon when applied with a trowel.
 5. Install each full carton and complete an entire pallet before starting another pallet to minimize product variation. Each tile has directional arrows on the back. These arrows allow for one-directional or multi-directional installation. Some styles may be large scale or linear in design and require quarter turning. If you are unsure about whether or not your product requires a quarter turned installation, please contact 1.877.502.7429. Numbers within the arrows are for manufacturing purposes and are not related to installation.
 6. Begin installation at the intersection of two chalk lines. Continue until you complete one quadrant. Proceed to an adjoin quadrant until all four (4) quadrants are completed. Larger areas may require chalk lines bisecting the original four (4) quadrants.
 7. Install tiles using the pyramid technique. This gives you multiple alignment checks. If the edges do not align and the misalignment increases with progression of the installation, find and correct the source of the problem.
 8. Carpet tiles come in various sizes. All Shaw tiles have directional arrows on the back of the tile. Slide tiles into position to prevent yarn from being trapped between the tiles. Trapped yarn will adversely affect the appearance of the installation and will cause alignment problems.
 9. EcoWorx ES/EcoLogix ES are manufactured with the adhesive already applied. Once the tile is ready to install, simply peel the liner from the back and position snugly to the adjacent tile.
 10. Tiles must fit snugly, but not be compressed. Press the entire surface of the tile to ensure adhesion. Check for fit by measuring the length of ten (10) full tiles after installation. The measurement must not be less than, or exceed by more than 1/4 inch, the length of the tiles being multiplied by ten. For example: if 24" x 24" tiles are being installed, the measurement should be between 240 and 240 1/4 inches.
 11. Measure and cut tiles from the back using a straight edge. Be sure the arrows are pointing in the correct direction.

12. Roll the entire installation with a 75 lb. or greater roller to assure the proper adhesion to the substrate.
- B. Do not mix carpet from different cartons unless from same dye lot.
- C. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- D. Install carpet tile in square pattern, with pile direction alternating to next unit, set parallel to building lines.
- E. Locate change of color or pattern between rooms under door centerline.
- F. Fully adhere carpet tile to substrate.
- G. Trim carpet tile neatly at walls and around interruptions.
- H. Complete installation of edge strips, concealing exposed edges.
- I. Installation on Stairs:
 1. Use one piece of carpet for each tread and riser below. Apply seam adhesive to cut edges.
 2. Install carpet with pile direction in length of stair.
 3. Adhere carpet tight to stair treads and risers.

3.04 CLEANING

- A. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*. Thoroughly clean all carpet surfaces prior to final acceptance of the carpeted areas by the *OWNER*.
- B. Remove excess adhesive from floor, base, and wall surfaces without damage.
- C. Clean and vacuum carpet surfaces.

3.05 PROTECTION

- A. Do not permit traffic on unprotected carpet.
- B. Provide a heavy non-staining paper walkway over carpeting in direction of foot traffic, maintaining intact until final acceptance.
- C. Do not use plastic sheeting or carpet protectors.

3.06 MAINTENANCE

- A. Post-Installation Care:
 1. Place plywood over the carpet when heavy objects will be moved within 24 hours after installation.

B. Preventive Floor Care:

1. Use protective chair mats under chairs with casters.
2. Use soil removal mats at exterior entrances.
3. Use absorbent mats in areas where moisture, oil and grease are present.

C. Routine Maintenance:

1. Set a schedule depending on traffic and vacuum regularly.
2. Remove spots with spot removers as soon as they occur.
3. Use encapsulation agents periodically.
4. Clean with hot water extraction periodically.

Traffic Level	Vacuum	Spot Removal	Interim Cleaning	Hot Water Extraction
Light	2/week	As needed	As needed	1/year
Moderate	1/day	As needed	As needed	1/year
Heavy	1/day	As needed	Monthly	4/year
Extra Heavy	1/day	As needed	Weekly	Monthly

****END OF SECTION****

SECTION 09 90 00
(09900)
PAINTING
(GENERAL)

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Surface preparation and painting of interior walls, ceilings, sills, molding, trim, shelving, doors, frames and windows, and appurtenances.
2. Surface preparation and painting of exterior doors, frames, windows, trim, and appurtenances.
3. Surface preparation and painting of all exposed new and existing piping, valves and fittings except non-ferrous metals and stainless steel. This shall include all piping that will be enclosed in insulation.
4. Surface preparation and painting of all equipment and machinery that is not factory painted, including foundations.
5. Surface preparation and painting of all structural steel, bar joists, metal deck, miscellaneous metal and supports.
6. Surface preparation and painting of all process equipment that is not factory painted.
7. Surface preparation and painting of all interior and exterior, above and below grade surfaces of process tanks.
8. Surface preparation and painting of all exterior exposed electrical cabinets, boxes, hangers, apparatus, etc. that are not factory painted.
9. Surface preparation and painting of floors and all exposed surfaces of equipment pads in chemical containment areas including walls to a height of 4" above highest point on floor surface.
10. Restore or repaint areas damaged.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 01 74 00: Cleaning and Restorations*
3. *Section 05 50 00: Metal Fabrications*
4. *Section 06 20 00: Carpentry*
5. *Section 07 92 13: Sealants and Caulking*
6. *Section 26 05 00: Basic Electrical Requirements*

C. Payment:

1. Unless otherwise noted in the *PROPOSAL* Section, no separate payment shall be made for this item.
2. Include all costs for *PAINTING* in the prices bid for the various related items of work as designated in the *PROPOSAL*.

1.02 REFERENCE STANDARDS

A. Steel Structures Painting Council:

- | | | |
|-----|------------|---|
| 1. | SSPC-SP1 | Solvent Cleaning |
| 2. | SSPC-SP2 | Hand Tool Cleaning |
| 3. | SSPC-SP3 | Power Tool Cleaning |
| 4. | SSPC-SP5 | White Metal Blast Cleaning |
| 5. | SSPC-SP6 | Commercial Blast Cleaning |
| 6. | SSPC-SP7 | Brush-Off Blast Cleaning |
| 7. | SSPC-SP10 | Near-White Blast Cleaning |
| 8. | SSPC-SP11 | Power Tool Cleaning to Bare Metal |
| 9. | SSPC-SP12 | High & Ultrahigh-Pressure Water Jetting |
| 10. | SSPC-SP13 | Surface Preparation of Concrete |
| 11. | SSPC-TR3 | Dehumidification & Temperature Control |
| 12. | SSPC-Vis 1 | Pictorial Surface Preparation Standards |
| 13. | SSPC-Vis 3 | Visual Std. for Power and Hand tool Cleaned Steel |
| 14. | SSPC-PA 1 | Shop, Field and Maintenance Painting |
| 15. | SSPC-PA2 | Measurement of Dry Paint Thickness |

1.03 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's literature:

1. Manufacturer's descriptive literature to include color charts, and recommend method of application for paints and related materials.
2. Manufacturer's standard and custom color charts and decks showing full range of colors available.

C. Upon completion of high performance coating application, provide certification from paint material supplier indicating that quantity of each coating material purchased was sufficient to properly coat all surfaces. Such certification shall list the square footage figure for all areas coated and the number of gallons of each material used as provided by *CONTRACTOR*.

1.04 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Applicator qualifications:

1. Completion of minimum of five (5) equal applications for each coating system specified.
2. Provide listing of experience as outlined in *PROPOSAL*.
3. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
4. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.
5. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

B. Labels: Include the following information on each paint material container label:

1. Manufacturer's name.
2. Distinctive product name.
3. Manufacturer's stock number and lot number.

C. Product information:

1. Manufacturer shall include the following on paint material label, or submit on accompanying instruction sheet for *CONTRACTOR'S* use.
2. Submit detailed information as specified in AWWA D102, Section 4.
 - a. Mixing instructions
 - b. Percent solids
 - c. Spreading rate
 - d. Weight
 - e. Drying time
 - f. Pot life
 - g. Thinning instructions
 - h. Safety precautions
3. Provide Material Safety Data Sheets (MSDS) for all materials delivered to site.

D. Requirements of regulatory agencies:

1. Comply with all Local, State, and Federal safety regulations, laws and ordinances.
2. Federal:
 - a. Worker protection:
 - (1) 29 CFR 1910.94, Ventilation
 - (2) 29 CFR 1910.95(a-p), Occupational Noise Exposure
 - (3) 29 CFR 1910.97, Non-Ionizing Radiation
 - (4) 29 CFR 1910.134, Respiratory Protection Standard
 - (5) 29 CFR 1910.146, Permit-Required Confined Spaces
 - (6) 29 CFR 1926.20, General Safety and Health Provisions
 - (7) 29 CFR 1926.353, Protection in Welding, Cutting and Heating
 - (8) 29 CFR 1926.55, Gases, Vapors, Fumes, Dusts and Mists
 - (9) 29 CFR 1926.57, Ventilation
 - (10) 29 CFR 1926.59, Hazard Communication Program
 - (11) 29 USC 654, Section 5(a)(1) General Duty Clause of the 1970 OSH Act, which requires employers to provide safe work conditions for their employees.
 - b. Ambient air quality:
 - (1) 40 CFR 50.6, National Primary and Secondary Ambient Air Quality Standards for Particulate Matter.
 - c. Water quality:
 - (1) 40 CFR 122, Administered Permit Programs: The National Pollutant Discharge Elimination System
 - (2) 40 CFR, Parts 141, 142 and 143; Federal Safe Drinking Water Act
 - d. Hazardous waste:
 - (1) 40 CFR 261, Identification and Listing of Hazardous Waste
 - (2) 40 CFR 262, Standards Applicable to Generators of Hazardous Waste
 - (3) 40 CFR 263, Standards Applicable to Transporters of Hazardous Waste
3. State of New Jersey:
 - a. N.J.A.C. 7:10-1 et. seq.; New Jersey Safe Drinking Water Regulations.
 - b. N.J.A.C. 7:27-16; Misc. Metal Parts and Products Rule.
 - c. N.J.A.C. 7:27-23; Architectural Coatings Rule.
 - d. N.J.A.C. 8:59-5.1, et. seq.; New Jersey Worker and Community Right to Know Act.
4. All other Federal, State and local regulations applicable to the work.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.
- E. Deliver sealed containers with labels legible and intact.
- F. Storage of materials:
 - 1. Store only acceptable project materials on project site.
 - 2. Store in suitable location. Comply with manufacturer's storage recommendations.
 - 3. Restrict storage to paint materials and related equipment.
 - 4. Comply with health and fire regulations.
 - 5. Storage of materials shall be subject to approval of *ENGINEER*.
 - 6. All paint cans, opened and unopened, shall remain on job site for inspection by *ENGINEER*. Do not discard until directed to do so by *ENGINEER*.

1.06 JOB CONDITIONS

- A. Sequencing, scheduling: Do not begin painting until environmental conditions meet the requirements of these Specifications.
- B. Environmental requirements:
 - 1. Do not blast when relative humidity exceeds 85 percent (85%), and/or surface temperature of steel is less than 5° F. above the dew point.
 - 2. Comply with paint supplier's recommendations as to environmental conditions under which coatings and coating systems can be applied. The following shall be considered as general requirements, and shall not be exceeded unless recommended by paint supplier and approved by *ENGINEER*.
 - a. Interior coating systems:
 - (1) Do not apply when surrounding air temperature, as measured in shade, is below 50° F. and when temperature of surface to be painted is below 50° F.
 - (2) Do not apply paint to wet or damp surfaces during periods of rain, snow, fog, or mist, or when relative humidity exceeds 85 percent. If dew or condensation is present, delay painting until mid-morning or as required to insure that surfaces to be painted are dry.

- (3) Do not apply paint when it is expected that air temperature in shade will drop below 50° F., or that relative humidity will exceed 85 percent within 18 hours after application of paint. Complete days painting to allow minimum of 6 hours drying time prior to time of day when condensation will occur.

b. Exterior coating systems:

- (1) Same general environmental requirements as specified for interior coating system.
- (2) Do not apply paint when wind velocity exceeds 15 m.p.h.

C. Protection:

1. Cover or otherwise protect surfaces not being painted concurrently.
2. *CONTRACTOR* shall promptly remedy all paint damage to existing structures and other property at site or adjacent thereto not designated for painting under this Contract. See paragraph 9 of General Conditions, as amended by Supplementary Conditions.

D. Safety precautions:

1. Comply with all OSHA regulations.
2. Provide adequate air exhaust equipment to eject blast dust and solvent fumes from tank interiors or confined spaces; and to prevent accumulation of solvent fumes that will retard curing of the paint or create an explosion or fire hazard.
3. During blasting operations, provide nozzle men with air-supplied helmets and other persons exposed to blasting dust with filter-type respirators and safety goggles.
4. When applying coatings inside of tanks or confined spaces, all persons exposed to toxic vapors shall wear air-supplied masks.
5. Provide access facilities, ventilation, grounding, lighting, protective clothing; and handle paint and solvent as specified in AWWA D102, Section 7. Comply with paint supplier's safety precautions.

1.07 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including surface preparation, recoating, removal and reinstallation of equipment and re-start-up during the warranty period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, character and quality of material, serviceability and other described essential characteristics.

B. Substitutions:

1. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
2. No request for substitution will be considered that decreases the film thickness specified and/or number of coats to be applied; or that offers a change from the generic type of coating specified.
3. Submit additional information for substitutions as specified below:
 - a. Certification that coating meets regulatory requirements.
 - b. List at least five (5) equivalent applications where each coating material has been used and rendered satisfactory service.

C. Acceptable manufacturers:

1. Tnemec Company, Inc.
Kansas City, MO
816- 474-3400
2. Carboline Company
St. Louis, MO
314- 644-1000
3. Sherwin-Williams Company
Malvern, PA
Jim Criss – Cell: 609-577-4034
4. ICI Devoe Coatings
Sykesville, MD
410- 795-3234
5. Finnaren & Haley
Conshohocken, PA
800- 843-9800
6. Benjamin Moore & Co.
Montvale, NJ
201-573-9600
7. NSP Specialty Products
Pinehurst, NC 28374
800-248-8907
910-235-0468
8. International Paint
Union, NJ 07083
908-686-1300
9. Or equivalent.

2.02 MATERIALS

- A. Paint:
 - 1. Materials are specified in the Painting Schedule.
 - 2. Use manufacturer's standard colors or custom colors as selected by the *ENGINEER* from the manufacturer's full range of standard and custom colors.
- B. Primers and undercoats: As specified in Painting Schedule or as recommended by paint manufacturer and approved by *ENGINEER*.
- C. Sealer for interior woodwork: White pigmented Shellac or urethane wood sealer.
- D. All coatings shall be in compliance with N.J.A.C. 7:27-23 and NJSA 7:27-16.
- E. All coatings shall be lead free.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Inspection:
 - 1. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 - 2. Verify that the work of this section may be installed in accordance with all pertinent codes and regulations, the original design, and the referenced standards.
 - 3. Verify that the specified coatings are compatible with the surface and service for which they are to be used.
 - 4. Examine surfaces scheduled to receive paint for conditions that will adversely affect execution, permanence or quality of work and that cannot be put into acceptable condition through preparatory work specified below. *CONTRACTOR* shall be solely responsible for providing a surface acceptable to the application of coatings utilizing the indicated cleaning methods as a minimum.
- B. Discrepancies:
 - 1. In the event of discrepancy, immediately notify the *ENGINEER*.
 - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 PREPARATION

- A. General:
 - 1. Before painting, remove hardware, accessories, plates, lighting fixtures and similar items or provide ample protection of such items.
 - 2. Upon completion of each space, replace above items.

3. Use only skilled mechanics for removing and replacing above items.
4. All welding, burning, etc., shall be completed prior to the blasting operation. All flux, spatter, slag or other laminations left from welding must be chipped or ground off. Rough welds and other sharp projections shall be ground smooth.
5. Clean surfaces shall be coated with the specified coating system during the same day as blasted and prior to sundown of that day.
6. Blasting media shall be fresh, with sharp angular surfaces to insure fast, positive cleaning action with a minimum of dust.
7. Blasting media shall be confined as closely as possible to the area being blasted. If necessary, shields of sheeting or other such barriers shall be erected to confine the media to the blast area. Rotating equipment near blasting operations shall have a tent placed over it to protect it from drifting, spent media.
8. Nameplates, valve stems, rotating equipment, etc., shall be protected from blasting and coating by suitable masking materials.
9. Dials, gauges, and indicators on operating equipment shall be covered with clear material so as to afford visual access.

B. Preparation of surfaces:

1. Wood:
 - a. Sandpaper to smooth and even surface, then dust off.
 - b. Touch up knots, pitch streaks, sap spots and similar blemishes with sealer before priming.
2. Wallboard and plaster shall be thoroughly cleaned of all dust, dirt and efflorescence by stiff broom or brush cleaning.
3. Block: Thoroughly clean of all dust, dirt, loose mortar and efflorescence by brushing down with stiff brooms or scraping tools, producing a clean surface for painting. All surface contaminants shall be removed.
4. Concrete:
 - a. Concrete shall be permitted to age at least 28 days prior to applying coating system.
 - b. The *CONTRACTOR* may elect to use a paintable curing compound to permit coating in seven (7) days.
 - c. All surface contaminants shall be removed and there shall be no evidence of laitance on the surface prior to painting. Hardeners and sealers shall be removed. Surface shall be acid etched or brush blasted.
 - d. Patch all bug holes, voids and cracks.
 - e. Surfaces to be used for immersion service shall not be “bagged”.

5. Iron and steel surfaces:
 - a. All sharp edges and welds shall be ground smooth to a rounded contour and all weld splatter shall be removed prior to blast cleaning.
 - b. Iron and steel shall be prepared in accordance with SSPC-SP6 unless otherwise specified and prime coated the same day whether shop primed or field painted.
 - c. Primed iron and steel shall be cleaned of all construction debris and hand tool cleaned in accordance with SSPC SP2 prior to touch-up and field painting.
 - d. Surface profile for blasted surfaces shall be between 20 and 30 percent of the total dry film thickness of the complete system.
 - e. Compressed air for blasting shall be clean, dry and oil free. Place oil and water separators in air hose as close as possible to blast cleaning equipment. Water shall be continuously bled from moisture traps.
 - f. After blasting, remove all dust and grit with vacuum cleaner or compressed air (clean and dry).
 - g. Coat blasted surfaces before they become contaminated with rust, oil, grease, dust or other foreign matter.
 - h. If blast cleaned surfaces become contaminated by rust, oil, grease, hand-prints or other foreign matter, solvent clean and reblast to original specifications to insure same degree of cleanliness.
 - i. Blasted surfaces shall be prime coated the same day.
 - j. Feather edges of sound paint during spot-blasting operations.
6. Galvanized steel:
 - a. New Galvanized Metal: Remove grease, oil, dirt, soil, drawing compounds, and other contaminants by use of solvents, emulsions, cleaning compounds or steam cleaning per SSPC-SP1. If galvanized metal has not weathered for at least 6 months or if the metal has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a paint test patch (minimum area of 2 sq ft) and allow the paint to dry for at least one week before testing adhesion. If adhesion is unacceptable, Brush-Off Blast per SSPC-SP7 or NACE 4 to remove these treatments.
 - b. Old Galvanized Metal: If metal is covered with a white powder (white rust) and there is little or no rusting, solvent clean per SSPC-SP1.
7. Aluminum:
 - a. Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning SSPC-SP1.
 - b. Aluminum surfaces in contact with concrete shall be coated with a bituminous barrier coat prior to installation.

8. Below grade exterior surfaces of concrete or steel process tanks.
 - a. Below grade exterior surfaces shall be prepared and coated as specified.
 - b. Excavate adjacent to tank down to top of foundation and expose all exterior wall surfaces.
 - c. Prepare and coat exterior tank surfaces as specified and allow to fully cure prior to backfilling.
 - d. After coating has fully cured, backfill adjacent to tank with excavated material unless otherwise specified.
 - e. All excavation, backfilling and grading shall conform to *Section 31 23 00, Excavating, Filling and Grading*.
 - f. All restorations shall conform to *Section 01 74 00, Cleaning and Restorations*.

3.03 APPLICATION

- A. Prior to painting, meet with *ENGINEER* to review all aspects of surface preparation and application.
 1. Do not apply coatings until air temperature, surface temperature, relative humidity, and surface moisture content are within specified limitations.
 2. Check temperature and humidity using pyrometers and hygrometers, or similar equipment.
- B. Sequencing:
 1. Sequence painting to allow coating of surfaces that may be inaccessible after fixtures, partitions, or other facilities are installed and so that minimum damage to finish coatings will result.
 2. All structural steel shall be finish painted.
- C. Prepare surfaces to be painted and apply all paint and other materials in accordance with paint manufacturer's recommendations unless otherwise specified as approved by the *ENGINEER*.
- D. Each coat of paint shall be slightly darker than preceding coat unless otherwise directed. Undercoats shall be tinted similar to finish coats.
- E. Surfaces to be painted shall be clean, dry, smooth and adequately protected from dampness.
 1. Each coat of paint shall be well brushed on, worked out evenly and allowed to dry before a subsequent coat is applied.
 2. Use rollers or airless spray except that sharp corners, inside angles, welds, and rivets shall be brushed and allowed to dry before remaining surfaces are rolled or sprayed.
 3. Rate of application shall not exceed that recommended by paint manufacturer.
 4. Keep brushes, rollers, and spraying equipment clean, dry, free from contamination. Use equipment suitable for the finish desired.
 5. Comply with recommendation of product manufacturer for drying time between succeeding coats.

- F. Mixing, thinning, pot life, application procedure, equipment, coverage, curing, recoating, storage, and number of coats shall be in accordance with coating manufacturer's instructions or these specifications, whichever are more stringent.
- G. Avoid contamination of blasted surfaces and avoid between coat contamination. Surface contamination shall be removed before applying next coat.
- H. Striping of Irregular Surfaces:
1. Stripe paint all edges, corners, crevices, rivets, bolts, welds, sharp edges and similar surface irregularities with the priming paint before the steel receives its first full prime coat of paint. The stripe coat shall be applied by brush or spray to thoroughly work the coating into or on the irregular surfaces and shall extend onto the surrounding steel a minimum of 1 in. in all directions.
 2. The full prime coat can be applied first to protect the steel after blasting followed by the stripe coat after the prime coat has dried. Stripe coat shall be tinted to differentiate it from the prime coat.
 3. The stripe coat can also be applied as part of the application of the prime coat unless prohibited by the coating manufacturer. If applied as part of the application process of the prime coat, the stripe coat shall be allowed to dry for a minimum of ten (10) minutes in order to allow *ENGINEER* to verify that the coat was applied. If a wet-on-wet stripe coat is prohibited by the coating manufacturer or brush or roller application of the full coat pulls the underlying stripe coat, the stripe coat shall be permitted dry according to the manufacturers' recommendations prior to the application of the full coat.
- I. Spraying techniques that result in a uniform, wet pattern shall be used and dry spraying shall be avoided. Dry spray shall be removed prior to sound coating being applied.
- J. Coated surfaces shall be allowed to cure prior to allowing traffic or other work to proceed that might damage coating.
- K. No coating shall be applied over scale, oil, grit or other foreign material. All grit shall be removed by brush, airblast or vacuum type cleaner prior to applying coating system. Care shall be taken to assure that blast cleaned surfaces are not contaminated with foreign material prior to applying primer.
- L. Regulators and gauges in good working order shall be provided on both air and material lines. Operating pressures in accordance with those required for the particular coating will be used.
- M. Temperature of the surface to be painted shall not be less than 50° F (10° C) or greater than 120° F (49° C) unless approved otherwise by the *ENGINEER*.
- N. The coating system shall not be applied closer than 6 inches to a non-blasted area. Any subsequent blasting operation shall not result in sand or grit particles being embedded in the paint film.
- O. Spray guns must be held perpendicular to the surface being painted and handled and adjusted in such a manner that dry overspray is kept to a minimum.
- P. The final dry film thickness of the applied coating system shall be within the range of thicknesses specified per coat, and the thicknesses of the totals of each coat for a coating system as specified in the "Coating Schedule".
- Q. All spray equipment to be used for the application of a particular coating will be available for inspection by *ENGINEERS* representative before application is begun.
- R. The air source must be sufficient to provide a continuous volume of 20 cfm air at each spray gun nozzle at 80 pounds per square inch pressure for applying coatings by conventional spray technique. When

coatings are applied by airless spray, the input pressures to the pump shall be such that a uniform spray pattern is developed for application.

- S. Drop cloths shall be used to protect all previously painted surfaces and all surfaces not to be coated.
- T. All zinc rich primers shall be applied under continuous agitation.
- U. Runs or sags shall be brushed out immediately or the coating shall be removed from the surface.
- V. Finished work shall be uniform, of approved color, smooth and free from runs, sags, defective brushing, clogging, mud cracking or excessive flooding. Make edges of paint adjoining other materials or colors sharp and clean without overlapping.
- W. At completion, touch up and restore finish where damaged and leave in good condition.
- X. All methods of application shall be in accordance with paint manufacturer's recommendations as approved by *ENGINEER*.

3.04 CLEANING

- A. Touch up and restore finish where damaged.
- B. Remove spilled, splashed or splattered paint from all surfaces.
- C. Do not mar surface finish of item being cleaned.
- D. Refer to *Section 01 74 00, Cleaning and Restorations*.

3.05 FIELD QUALITY CONTROL

- A. Tests by *CONTRACTOR*: Check wet film thickness steel surfaces during paint application using a Nordson Wet Film Gauge or similar approved instrument. Take 1 wet film thickness measurement for each 100 square feet of surface painted.
- B. All surfaces, preparation, and paint applications are subject to inspection by the *ENGINEER* Representative.
- C. Painted exterior and interior surfaces shall be rejected if any of the following defects are apparent to the *ENGINEER*.
 - 1. Brush/roller marks, streaks, laps, runs, sags, drips, stippling, mud cracking, blistering, blushing, checking, cratering, flaking, orange peel, over spray, wrinkling, pinholes, hiding or shadowing by inefficient application methods, skipped or missed areas, and foreign materials in paint coatings.
 - 2. Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.
 - 3. Damage due to touching before paint is sufficiently dry or any other contributory cause.
 - 4. Damage due to application on moist surfaces or caused by inadequate protection from the weather.
 - 5. Damage and/or contamination of paint due to blown contaminants (dust, spray paint, etc.).
 - 6. Insufficient film thickness.
 - 7. Insufficient surface profile on blasted steel surfaces.

8. The final coat on any surface exhibits a lack of uniformity of color, sheen, texture, and hiding across full surface area.
- D. Painted surfaces rejected by the *ENGINEER* shall be repaired or replaced at the Contractors expense.
1. Correct deficiencies in film thickness by application of additional coat(s) of paint.
 2. Correct defective work or work not meeting specifications by removal and recoating.

3.06 INSPECTION PRIOR TO RELEASE OF MAINTENANCE BOND

- A. General: Within two (2) years time from acceptance of work by *ENGINEER*, the surfaces coated under this Contract shall be inspected by representatives of *OWNER*, *ENGINEER* and *CONTRACTOR* to determine if any repair work is necessary.
- B. Arrangements:
1. *OWNER* will establish date for the inspection and will notify *CONTRACTOR* at least thirty (30) days in advance.
 2. *OWNER* will drain tank (if required). *CONTRACTOR* shall provide suitable interior lighting and ventilation for the tank inspection.
- C. Remedial work:
1. Any location where coats of paint have peeled off, bubbled, or cracked and any location where rusting is evident shall be considered failure of paint system.
 2. *CONTRACTOR* shall make repairs at all points where failures are observed by removing deteriorated coating, cleaning surface, and recoating with same paint system. If area of failure exceeds 25 percent of the area of a portion of a surface, then for that portion, remove and repaint the entire paint system.
 3. For purposes of determining need for complete repainting of a tank, the outside roof, shell, floor, riser, and tank supporting structure consisting of columns, rods, struts, and other members; and inside roof, shell, floor and riser shall be considered separately.
- D. Inspection Report: *OWNER* will have prepared, by an independent inspection agency, an inspection report covering the inspection describing the number and types of failures observed, the percentage of surface area where failure has occurred, and names of persons making the inspection. The report will include color photographs illustrating each type of failure.
- E. All work relating to the inspection shall conform to the requirements of Paragraph 36 of General Conditions entitled, "Approval and Acceptance of Work".

3.07 PAINTING SCHEDULES

A. GENERAL ENVIRONMENT – INTERIOR:

1. Concrete floors:
 - a. Surface preparation: SSPC-SP13, Detergent wash and dry abrasive blasting.
 - b. Sherwin-Williams:
 - 1 coat “Armorseal 33 Primer” (8 mils DFT)
 - 1 coat “Armorseal 650 SL/RC Epoxy, (20–25 mils DFT/coat)
 - c. PPG/Amercoat
 - 1 coat “Megaseal HSPC 90-127 Primer” (6-10 mils/DFT)
 - 1 coat “Megaseal SL 90-126 Series” (20-25 mils DFT)
 - d. Carboline:
 - 1 coat “Carbogard 1340” (4 mils DFT)
 - 1 coat “Sanitile 945SL” (20-25 mils DFT)
2. Concrete and masonry walls:
 - a. Surface preparation: SSPC-SP13/NACE6 or ICRI No. 310.2R, CSP3-5.
 - b. Sherwin Williams:
 - 1 coat “Kem Cati-Coat HS” Epoxy Block Filler
 - 2 coats “Pro Industrial Acrylic Coating – [Egg Shell] [Semi-Gloss] [Gloss] Finish.
 - c. PPG/Amercoat:
 - 1 coat “Amerlock 400BF” Epoxy Block Filler
 - 2 coats “Pitt-Tech DTM Acrylic Coating”
 - d. Carboline:
 - 1 coat “Sanitile 500” Epoxy Block Filler
 - 1 coat “Sanitile 155” Acrylic Coating
3. Wood surfaces:
 - a. Surface preparation: Sand bare wood to a fresh surface and following manufacturer instructions.
 - b. Sherwin Williams:
 - 1 coat “Premium Wall & Wood Primer,” B28W8111
 - 2 coats: “Pro Industrial Acrylic Coating [Egg Shell] [Semi-Gloss] [Gloss] Finish.”, B66-650 Series
 - c. Carboline:
 - 1 coat “Sanitile 120” Primer/Sealer
 - 1 coat “Sanitile 155” Acrylic Coating
 - d. PPG/Americoat:
 - 1 coat “Seal Grip Acrylic Primer Sealer”
 - 2 coats “Manor Hall 70-101”

4. Ferrous Metal:
(including metal doors, frames, trim, equipment and miscellaneous metal):
 - a. Surface preparation: SSPC-SP2, Hand-tool.
 - b. Sherwin-Williams:
1 coat "DTM Acrylic Primer/Finish (2-5 mils DFT/coat) on bare metal
2 coats "Pro Industrial Acrylic Coating", B66-650 Series (2-5 mils DFT/coat) [Semi-Gloss] [Gloss]
 - c. Carboline:
1 coat "Carbocrylic 120" Primer/Sealer (1-2 mils DFT)
1 coat "Sanitile 155" Acrylic Coating (2-3 mils DFT)
 - d. PPG/Americoat:
2 coats "Pitt-Tech DTM" Acrylic Coating

5. Galvanized Ferrous Metal:
 - a. Surface Preparation SSPC-SP1, Solvent-Clean.
 - b. Sherwin Williams:
1 coat "Pro Industrial Pro-Cryl Universal Primer" (3-4.5 mils DFT)
2 coats "Pro Industrial Acrylic Coating" [Egg Shell] [Semi-Gloss] [Gloss] Finish.
B660650 Series" (2.5-4 mils DFT/coat)
 - d. Carboline:
1 coat "Galoseal"
2 coats "Sanitile 155"
 - e. PPG/Americoat:
1 coat "6-209 Epoxy Ester Primer"
2 coats "Pitt-Tech DTM Acrylic Primer"
 - f. Or approved equivalent.

6. Overhead Ferrous Metal:
(including steel bar joists, steel beams, steel deck):
 - a. Surface preparation: SSPC-SP2
 - b. Sherwin Williams:
1 coat "Kem Bond HS" (2.0 – 5.0 mils)
2 coats "Dry Fall Flat White" (3.0 – 5.0 mils)
 - c. PPG/Americoat:
1 coat "6-209 Epoxy Ester Primer"
2 coats "Pitt-Tech DTM Acrylic Primer"
 - d. Or approved equivalent.

7. Overhead Galvanized Metal:
(including steel bar joists, steel beams, steel deck):
 - a. Surface preparation: SSPC-SP1, Solvent Clean

- b. Sherwin Williams:
 - 1 coat “DTM Wash Primer”
 - 2 coats “Dry Fall Flat White”
 - c. PPG/Americoat:
 - 1 coat “6-209 Epoxy Ester Primer”
 - 2 coats “Pitt-Tech DTM Acrylic Primer”
 - d. Or approved equivalent.
8. Wallboard and plaster:
- a. Surface preparation: Provide Finish per Specification 09 21 16, Gypsum Wallboard and then follow manufacturer’s recommendations.
 - b. Sherwin Williams:
 - 1 coat “ProMar 200 Zero VOC Latex Primer,” B28W2600
 - 2 coats “ProMar 200 Zero VOC Latex,” [Flat] [Egg Shell] Finish.
 - c. Carboline:
 - 1 coat “Carbocrylic 120” Primer/Sealer
 - 1 coat “Carocrylic 3359” Acrylic Coating

3.08 COLOR AND FINISH SCHEDULE

- A. Refer to finish schedule on Plans for locations of all painting work.
- B. Colors shall be selected by the *ENGINEER* from the manufacturer's full range of standard and custom color selections.

****END OF SECTION****

SECTION 14 42 00
WHEELCHAIR LIFT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included:

1. Shaft-way vertical wheelchair lift.

B. Related work:

1. Other sections of the specifications, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 03 30 00: Concrete*
3. *Section 06 20 00: Carpentry*
4. *Section 09 21 16: Gypsum Wallboard System*
5. *Division 26: Electrical*

C. References:

1. ASME A17.1; Safety Code for Elevators and Escalators
2. ASMB A17.5; Elevator and Escalator Electrical Equipment
3. ASME A18.1; Safety Standard for Platform Lifts and Stairway Chairlifts
4. ICC ANSI A117.1; Accessible and Usable Buildings and Facilities
5. NFPA 70; National Electric Code

D. Payment:

1. Unless otherwise noted in the Proposal Section, no separate payment shall be made for this item.
2. Include all costs for *WHEELCHAIR LIFTS* in the prices bid for the various related items of work as designated in the Proposal.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples.*

B. Manufacturer's product data:

1. Complete materials list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required that demonstrate compliance with the specified requirements.

- C. Shop drawings showing precise dimensions of the work of this section, and all other data needed to ensure proper and adequate provision in concrete forming, reinforcement, and placement to accommodate the work of this section.
- D. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

- A. Qualifications of manufacturer:
 - 1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.
- B. Qualifications of workmen:
 - 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
 - 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
 - 3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.
- C. Basis of acceptance: The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.05 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.
- C. Extended Warranty: Provide an extended manufacturer's warranty covering the wheelchair lift materials and workmanship for the following additional extended period beyond the initial two-year warranty.
 - 1. Five Years (seven (7) years total)

1.06 OPERATION AND MAINTENANCE MANUALS

- A. Operation and maintenance manuals shall be provided in accordance with *Section 01 78 23, Operation and Maintenance Data*.
- B. Manuals in final form shall be available a minimum of five (5) working days prior to the instruction of the *OWNER'S* personnel.

1.07 MAINTENANCE

- A. Spare parts and materials:
 - 1. Comply with provisions of *Section 01 78 45, Spare Parts and Maintenance Materials*.

1.08 PROJECT CONDITIONS

- A. Do not use wheelchair lift for hoisting materials or personnel during construction period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other described essential characteristics.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- C. Acceptable manufacturers:
 - 1. Garaventa Lift; United States
P.O. Box 1769
Blaine, WA 98231-1769
Tel: (800) 663-6556
Fax: (604) 594-9915
Email: productinfo@garaentalift.com
Web: www.garaventalift.com
 - 2. Or equivalent.

2.02 SHAFTWAY VERTICAL WHEELCHAIR LIFT

- A. Capacity: 750 lbs (340 kg) rated capacity.
- B. Mast Height:
 - 1. Model GVL SW - 42; 45 inches (1143 mm) maximum lifting height.
- C. Nominal Clear Platform Dimensions:
 - 1. Compact: 36 inches (914 mm) by 49 ½ inches (1257 mm).

- D. Platform Configuration:
 - 1. Straight Through Entry/Exit: Front and rear openings.
- E. Landing Openings:
 - 1. Lower Landing: Door.
- F. Door Construction:
 - 1. Lower Landing: Existing
 - 2. Upper landing: Existing
- G. Lift Components:
 - 1. Machine Tower: Custom aluminum extrusion.
 - 2. Base Frame: Structural steel tubing.
 - 3. Platform Side Wall Panels: 16 gauge (1.5 mm) galvanized steel sheet. Custom aluminum extrusion tubing frame.
- H. Base Mounting and Access to Lift at Lower Landing:
 - 1. Floor Mount: Base of lift shall be mounted on the floor surface of the lower landing.
- I. Leadscrew Drive:
 - 1. Drive Type: Self-lubricating acme screw drive.
 - 2. Emergency Operation: Manual handwheel device to raise or lower platform.
 - 3. Safety Devices:
 - a. Integral safety nut assembly with safety switch.
 - 4. Travel Speed: 10 fpm (3.0 m/minute).
 - 5. Motor: 2.0 hp (560 W).
 - 6. Power Supply:
 - a. 120 VAC single phase; 60 Hz on a dedicated 20 amp circuit.
- J. Platform Controls: 24 VDC control circuit with the following features.
 - 1. Direction Control: Illuminated tactile and constant pressure buttons with dual platform courtesy lights and safety light.
 - 2. Illuminated and audible emergency stop switch shuts off power to lift and activates audio alarm equipped with battery backup.
 - 3. Keyed operation.
 - 4. Arrival Gong and Digital Floor Display.

- K. Call Station Controls: 24 VDC control circuit with the following features.
 - 1. Direction Control: Illuminated and tactile constant pressure buttons with illuminated "in-use" indicator.
 - 2. Safety indicator lamp.
 - 3. Keyed operation.
 - 4. Call Station Mounting:
 - a. Lower: (1) Wall mounted surface.
 - b. Upper: (1) Wall mounted surface.

- L. Safety Devices and Features:
 - 1. Grounded electrical system with upper, lower, and final limit switches.
 - 2. At all landings a solenoid activated interlock shall electrically monitor that the door is in the closed position and the lock is engaged before lift can move from landing.
 - 3. Electrical disconnect shall shut off power to the lift.

- M. Finishes:
 - 1. Aluminum Extrusions: Champagne anodized finish.
 - 2. Ferrous Components: Electrostatically applied baked powder finish, fine textured.
 - a. Color: Satin Grey, RAL 7030.

2.03 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 - 1. Do not begin installation until substrates have been properly prepared.
 - 2. Verify shaft and machine spaces are of correct size and within tolerances.
 - 3. Verify required landings and openings are of correct size and within tolerances.

- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.

- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. General: Install the work of this section in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.
 - 1. Install lifts in accordance with applicable regulatory requirements including ASME A 17.1, ASME A 18.1 and the manufacturer's instructions.
 - 2. Install lifts in accordance with applicable regulatory requirements including CSA B355, and manufacturer's instructions.
 - 3. Install system components and connect to building utilities.
 - 4. Accommodate equipment in space indicated.
 - 5. Startup equipment in accordance with manufacturer's instructions.
 - 6. Adjust for smooth operation.
- B. Painting: Marred or abraded surfaces shall be cleaned and refinished in accordance with manufacturer's recommendations.

3.03 CLEANING

- A. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*.
- B. Remove and dispose of all debris.

3.04 FIELD QUALITY CONTROL

- A. Perform tests in compliance with ASME A 17.1 or A18.1 and as required by authorities having jurisdiction.
- B. Perform tests in compliance with CSA B355 and required by authorities having jurisdiction.
- C. Schedule tests with agencies and Architect, Owner, and Contractor present.

3.05 TESTS

- A. Upon completion of this portion of the work and prior to acceptance by the *OWNER*, make all required tests and adjustments for free and smooth operation.
- B. Secure all approvals from agencies having jurisdiction.

3.06 START-UP

- A. The equipment manufacturer shall provide the services of a trained qualified representative, for one (1) trip per day for a minimum of three (3) days, excluding travel time for the purpose of inspecting the installation. Schedule for site visits to be coordinated with Contractor.
- B. The representative shall prepare and submit a written report to both the *CONTRACTOR* and *ENGINEER* regarding the installation, including any conditions which might affect the manufacturer's guarantee. The equipment shall not be accepted by the *OWNER* until such time as this report has been received and accepted by the *ENGINEER*.

3.07 INSTRUCTIONS

- A. The manufacturer's representative shall instruct the *OWNER'S* operating personnel, at a time designated by the *OWNER*, as to the proper method of operation and recommended maintenance procedures.
- B. The scheduling of the instruction shall be at the convenience of the *OWNER* and may not coincide with the start-up inspection.

END OF SECTION

SECTION 26 05 00
(16010)
BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Basic Electrical Requirements specifically applicable to Division 26 sections, in addition to Division 1 - General Requirements.

1.02 REFERENCES/STANDARDS

- A. American National Standards Institute (ANSI)
- B. National Fire Protection Association (NFPA)
- C. National Electrical Code (NEC) (NFPA-70)
- D. Life Safety Code (NFPA-101)
- E. American Society for Testing and Materials (ASTM)
- F. Illuminating Engineering Society (IES)
- G. Institute of Electrical and Electronics Engineers (IEEE)
- H. Insulated Cable Engineers Association (ICEA)
- I. National Electrical Manufacturers Association (NEMA)
- J. National Electrical Safety Code (NESC) (ANSI-C2)
- K. Standard for Electrical Safety in the Workplace (NFPA-70E)
- L. National Electrical Testing Association (NETA)
- M. Occupational Safety and Health Administration (OSHA)
- N. Underwriters Laboratories (UL)

1.03 SUBMITTALS

- A. Submit under provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.
- C. Mark dimensions and values in units to match those specified.

1.04 REGULATORY REQUIREMENTS

- A. Conform to the Uniform Construction Code for the State of New Jersey and N.J.A.C. 5:23-3.16 et. seq. as applicable.
- B. Conform to applicable References and Standards as listed in Section 1.02.
- C. Obtain permits, and request inspections from Authority having jurisdiction.
- D. All work shall be performed by a State of New Jersey licensed electrician.
- E. Comply with Local, County, State and Federal Regulations and Codes in effect as of date of purchase.

1.05 CONTRACT DRAWINGS

- A. The Contractor shall furnish all labor and material necessary and shall install, complete to be ready for use, the electrical power systems, including the installation and wiring of miscellaneous electrical power equipment, panels, and other electrical equipment as indicated on the Drawings and as herein specified.
- B. The Contract Drawings, which constitute an integral part of this Contract, are for engineering and general arrangement purposes only. They indicate the general layout of the electrical power system, arrangement of switchgear, substation equipment, conduits and other work. Raceway locations shown in details and in the plan on the Contract Drawings indicate the approximate location and routing of all raceways.
- C. Electrical devices and material shall comply with the standards of NEMA and shall be listed and/or labeled by the Underwriters' Laboratories, Inc. Where Underwriters' Laboratories listing is not available for equipment, the Contractor shall submit certified test reports of an adequately equipped, recognized, independent testing laboratory, approved by the local inspecting authority, indicating that the equipment is in conformance with the local code requirements or any other applicable requirements. In lieu of the independent test reports, written approval of the equipment by the local electrical inspecting authority will be acceptable. The Contractor shall pay all cost of tests and/or inspections necessary for approval of the equipment.
- D. All work shall be systematically, carefully and neatly performed in a workmanlike manner, and shall comply with all applicable current standards and practices of the latest National Electric Code (NEC), the latest National Electrical Safety Code (NESC), National Fire Code (NFC), the Institute of Electrical and Electronic Engineers, Inc. (IEEE), Occupational Safety and Health Administration (OSHA), and any local codes or standards which may govern the work being performed or equipment furnished under this Contract.
- E. All manufacturers published data including installation and operation recommendations shall be part of the specifications for this Contract. All equipment shall be installed and connected as recommended by its manufacturer, as specified in these specifications and as shown on the Contract Drawings.
- F. All programmable devices which include but are not limited to circuit breakers, ground faults, timers, generators, transfer switches, variable frequency drives and control panels shall be programmed by the Contractor. All settings shall be programmed based on the end user owner requirements, final field installed components, and per the devices manufacturer recommendations. Contractor shall provide and perform all calculations, system reports and electrical system studies required for these programmable parameters based on manufacturer requirements and shall be included within their final bid at no additional cost to the OWNER and with no assistance from the Design Engineer. All devices shall be fully programmed and commissioned and all systems and subsystems shall be demonstrated to be fully operational. All settings, calculations and system studies required shall be included within the submittal packages and final operations and maintenance manuals. Approval of devices without these documents being submitted does not alleviate the Contractor of these requirements.
- G. In case of interference with other work or erroneous locations with respect to equipment or structures, the Contractor shall furnish all labor and materials necessary to complete the work in an acceptable manner without additional cost to the Owner.
- H. The plans, as drawn, show conditions as accurately as it is possible to indicate them in scale. Plans are diagrammatical and do not necessarily show all the fittings, etc., necessary to suit the building conditions. Locations of outlets, equipment, etc. are approximate. The Contractor shall be responsible for the proper location in order to make them fit with the site details to the satisfaction of the Engineer.

1.06 PROJECT/SITE CONDITIONS

- A. The Contractor is responsible for field verification of all scale dimension on drawings. Actual locations, distances and levels will be governed by actual field conditions. Dimensional changes required due to differing site conditions shall be made at no additional cost.
- B. The Contractor shall check structural, mechanical, equipment, and site plans, shop drawings and equipment wiring diagrams, to avert possible installation conflicts. Should drastic changes from original plans be necessary to resolve such conflicts, the Contractor shall notify the Engineer and secure written approval and agreement on necessary adjustments before installation is started.
- C. The Contractor shall promptly, and before such conditions are disturbed, notify the Engineer or Construction Manager in writing of subsurface, latent or unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract. The Engineer shall promptly investigate the conditions, and if such conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the work under this Contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made, and the Contract modified accordingly.
- D. The Contractor represents that he/she has carefully examined all of the Contract Documents and the construction site and has satisfied himself as to the character, quality and quantity of work to be performed, the materials, equipment and other items to be furnished, and all other requirements of this Contract, as well as conditions that will be encountered at the site or otherwise may affect the cost of performing the work or providing the equipment required for this Contract.
- E. The Contractor shall provide to the Owner at the completion of the contract, certificates of approval for compliance with the National Electric Code and any other authority having jurisdiction.

1.07 ELECTRICAL WORKING DRAWINGS/RECORD DOCUMENTS

- A. The Contract Drawings are not intended to serve as working or installation drawings. These drawings are for engineering and general arrangement purposes only. The Contractor shall prepare and submit to the Engineer for approval of his own working and installation drawings based on the Contract Drawings, but showing all details of construction, such as equipment dimensions, as-built circuit information, conduit plan views/sections, junction box wiring tables, interconnection wiring tables (showing each wire/cable installed), motor mounting details and dimensions, pad and vault details and transformer mounting details, interconnection wiring diagrams, wire label tables and similar drawings depicting the construction and installation work to be performed.
- B. The working drawings shall be prepared based on certified manufacturer's shop drawing of equipment furnished under this and other contracts. It shall be the responsibility of the Contractor to obtain all required shop drawings and wiring diagrams from manufacturers and other contractors, and other relate drawings to properly coordinate all electrical installations and to fulfill the intent of these specifications.
- C. Installation of any electrical equipment, conduit, or wire prior to the approval of these working drawings will be the contractor's responsibility and any modification of the electrical work necessary to meet the equipment requirements or changes made by the Engineer shall be made without additional cost to the Owner.
- D. The interconnection wiring diagrams shall show all connections between the control panels or starters and any field device.
- E. During the course of work, the Contractor shall maintain a record set of as-built drawings on-site (available for the resident Engineer's use) on which the actual physical location of all equipment will be

noted with dimensions as well as wiring numbers and/or connection diagrams. The Contractor shall bring these as-built drawings to each monthly job meeting for inspection by the Engineer.

- F. At the completion of the project, the Contractor shall obtain a copy of the O&M manuals and shop drawings from each manufacturer. The Contractor shall mark all as-built records on these drawings and shall correct/change his own working drawings and shall supply any other as-built wiring diagrams, schematics, interconnection tables or layout drawings that differ in any way from the approved shop drawings, working drawings and the Contract Drawings.
- G. Submission and approval of these as-built drawings/tracings shall be made before any final payment of non-retainer money owed to the Contractor. The Contractor may choose to submit as-built drawings by building/area as he completes such an area to the satisfaction of the Engineer.

1.08 SEQUENCING AND SCHEDULING

- A. Construct work in sequence as required.
- B. Description of work:
 - 1. Power and lighting branch circuit distribution system.
 - 2. Lighting fixtures, interior and exterior including lamps.
 - 3. Grounding and bonding as required by the National Electrical Code (NEC).
 - 4. Cutting and patching associated with Electrical work.
 - 5. Furnishing and setting of all sleeves through floors and walls, including waterproof and fireproof sealing and cap flashing. Restore integrity of fire barriers by sealing all electrical openings through fire-rated walls and floors.
 - 6. Hardware, such as inserts, bolts, etc., associated with concrete housekeeping pads and/or for mounting and securing electrical equipment.
 - 7. Perform all tests, setup, adjustments, and furnish all certificates of approval.
 - 8. Provide all work of every description detailed in these specifications or shown on the Drawings, including connections for all equipment, and all other labor and material as may be needed to make the work of this section complete and acceptable to the *OWNER*.
 - 9. Provide instructions and training for *OWNER'S* personnel.
 - 10. Coordinate scheduled outages with the *OWNER*.
 - 11. Pay all relevant fees.
 - 12. Prime and finish painting, where required, for new and relocated electrical equipment and installation of components.
 - 13. Demolition work as described in these specifications and as shown on the Drawings.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

****END OF SECTION****

SECTION 26 05 03
(16180)
EQUIPMENT WIRING SYSTEMS

PART I - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Electrical connections to equipment specified under other Sections or furnished by *OWNER*.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 26 05 19: Wire and Cable*
3. *Section 26 05 26: Grounding and Bonding for Electrical Systems*
4. *Section 26 05 33: Raceway and Boxes for Electrical Systems*
5. *Section 26 27 26: Wiring Devices*

C. References:

1. NEMA WD 1 - General Purpose Wiring Devices
2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required that demonstrate compliance with the specified requirements.

C. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
3. In acceptance or rejection of the work of this section the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.05 COORDINATION

- A. Comply with requirements of *Section 01 31 13, Project Coordination*.
- B. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- C. Determine connection locations and requirements.
- D. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- E. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other essential characteristics inherent in the named product.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- C. Acceptable Manufacturers - Cords and Caps:
 - 1. Bryant
 - 2. Hubbell
 - 3. ITT Royal
 - 4. Or equivalent.

2.02 CORDS AND CAPS

- A. Straight-blade attachment plug: NEMA WD 1.
- B. Locking-blade attachment plug: NEMA WD 5.
- C. Attachment plug configuration: Match receptacle configuration to outlet provided for equipment.
- D. Cord construction: Oil-resistant thermoset insulated Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for extra hard usage in damp locations.
- E. Cord size: Suitable for connected load of equipment and rating of branch circuit overcurrent protection.

2.03 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Review equipment submittals prior to installation and electrical rough-in. Verify location, size, and type of connections. Coordinate details of equipment connections with supplier and installer.

3.03 DEMOLITION OF EXISTING WORK

- A. Remove exposed abandoned equipment wiring connections, including abandoned connections above accessible ceiling finishes.
- B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.
- C. Extend existing equipment connections using materials and methods compatible with existing electrical installations, or as specified.

3.04 INSTALLATION

- A. Install pre-finished cord set where connection with attachment plug is indicated or specified, or provide cable and attachment plug with suitable strain-relief clamps.
- B. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- C. Install receptacle outlet to accommodate connection with attachment plug.
- D. Install disconnect switches, controllers, control stations, and control devices such as limit switches and temperature switches as indicated or as required by vendors of equipment furnished in other Specification sections. Connect with conduit and wiring as indicated or required.

3.05 ADJUSTING

- A. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

3.06 CLEANING

- A. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*.
- B. Remove and dispose of all debris.

PART 4 - PAYMENT

4.01 EQUIPMENT WIRING SYSTEMS

- A. Quantity and Payment: No separate payment shall be made for this item. Include all costs for *EQUIPMENT WIRING SYSTEMS* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 26 05 19
(16120)
WIRE AND CABLE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Building wire.
2. Cable.
3. Wiring connections and terminations.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 26 05 26: Grounding and Bonding for Electrical Systems*
3. *Section 26 05 33: Raceways and Boxes for Electrical Systems*
4. *Section 26 05 53: Electrical Identification*

C. References:

1. NEMA WC 70/ICEA S-95-658-1999 – Standard for Non-shielded Power Cable Rated 2000 Volts or Less for Distribution of Electrical Energy.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required to demonstrate compliance with the specified requirements.

C. Shop drawings showing precise dimensions of the work of this section, and all other data needed to ensure proper and adequate provisions in construction to accommodate the work of this section.

D. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.05 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other essential characteristics inherent in the named product.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

- C. Acceptable manufacturers:
 - 1. Belden Cable Company
 - 2. General Cable Company
 - 3. Okonite Cable Company
 - 4. Triangle - PWC Inc.
 - 5. Or equivalent.

2.02 BUILDING WIRE

- A. Single conductor power cable:
 - 1. Power cable #12 AWG to #6 AWG:
 - a. Conductor: Soft drawn copper. Class B stranding.
 - b. Insulation: Crosslinked polyethylene, 600 volt, 90°C dry, 75°C wet.
 - c. Jacket: None.
 - d. UL Type: XJW-2.
 - e. Identification (minimum): Conductor size, voltage rating, UL listing, and manufacturer.
 - f. Application: Power feeders from motor starters and panelboards to motors, lighting, and power utilizing appliances, via underground and exposed conduit systems.

2.03 METALLIC SHEATHED CABLE #12 TO #6 AWG

- A. Conductor: Soft drawn copper. #12 through #6 Class B stranding.
- B. Insulation: PVC, 600 Volt, 90EC.
- C. Jacket: None.
- D. Armor: Interlocked steel tape.
- E. UL Type: AC
- F. Identification (minimum): Conductor, size, voltage rating, UL listing, manufacturer.
- G. Application: Power feeders from panelboard to motor starters, lighting and power utilization appliances when concealed above ceiling and in walls.

2.04 SPLICES AND TERMINALS

- A. Twist-on wire connectors:
 - 1. Wire connectors shall have an insulated case and a fixed square wire spring to assure gripping action on conductors.
 - 2. Connectors shall be rated 600 volts.

- B. Mechanical split bolt connectors shall be Bundy Type KS Service or equal manufactured from high strength copper alloy.
- C. Compression type sleeve connectors:
 - 1. Wire sizes #22 AWG to #8 AWG. Sleeves shall be T&B STA-KON or equal nylon insulated butt type splices with insulation support. Splices shall be manufactured from high conductivity electrolytic copper and shall be color coded by wire size.
 - 2. Wires sizes #6 AWG and larger. Sleeves shall be T&B or equal compression sleeves manufactured from high conductivity wrought copper with electro tin plate finish.
 - 3. Compression type splices are to be used on stranded wire only.
- D. Compression type terminals:
 - 1. Wire sizes #16 to #8 AWG. Terminals shall be T&B STA-KON or equal nylon insulated ring tongue terminals with insulation support.
 - 2. Wire sizes #6 AWG and larger. Terminals shall be T&B or equal compression type terminals with a one-hole tongue manufactured from high conductivity wrought copper with electro tin plate finish.
 - 3. Compression type terminals are to be used on stranded wire only.
- E. Heat-shrink splice materials:
 - 1. Heat-shrink materials shall be used for both insulating splices and for maintaining moisture and flame resistance of power cables. Material shall be Raychem Type WCSF or equal, sized to match conductors being spliced.

2.05 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. General wiring methods:

1. Use no wire smaller than #12 AWG for power and lighting circuits, and no wire smaller than #14 AWG for control circuits.
2. Use #10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet, and for 20 ampere, 277 volt branch circuit home runs longer than 200 feet.
3. Place an equal number of conductors for each phase of a circuit in same raceway or cable.
4. Splice only in junction or outlet boxes.
5. Neatly train and lace wiring inside boxes, equipment, and panelboards.
6. Make conductor lengths equal for parallel circuits.

B. Wiring installation in raceways:

1. Pull all conductors into a raceway at the same time. Use UL listed wire-pulling lubricant for pulling #4 AWG and larger wires.
2. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.
3. Completely and thoroughly swab new raceway systems before installing conductors.

C. Cable installation:

1. Provide protection for exposed cables where subject to damage.
2. Support cables above accessible ceilings; do not rest on ceiling tiles. Use spring metal clips or plastic cable ties to support cables from structure. Include bridle rings or drive rings.
3. Use suitable cable fittings and connectors.
4. Install cable per manufacturer's instructions.

D. Wiring connections and terminations:

1. Splice only in accessible junction boxes, and only when unavoidable.
2. Splices shall be made in accordance with manufacturer's instructions.
3. Use solderless pressure connectors with insulating covers for solid copper wire splices and taps, #10 AWG and smaller. Tape connector in wet areas.
4. Use butt-type compression sleeve connectors for in-line splices of stranded wire. Tape connector in wet areas.
5. Thoroughly clean wires before installing lugs and connectors.
6. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.
7. Terminate spare conductors with electrical tape.

3.03 CLEANING

- A. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*.
- B. Remove and dispose of all construction debris.

3.04 FIELD QUALITY CONTROL

- A. Upon completion of this portion of the work and prior to acceptance by the *OWNER*, make all required tests and adjustments for free and smooth operation.
- B. Secure all approvals from agencies having jurisdiction.
- C. Field inspection and testing will be performed under provisions of this specification.
- D. Inspect wire and cable for physical damage and proper connection.
- E. Torque test conductor connections and terminations to manufacturer's recommended values.
- F. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

PART 4 - PAYMENT

4.01 WIRE AND CABLE

- A. Quantity and Payment: No separate payment shall be made for this item. Include all costs for *WIRE AND CABLE* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 26 05 26
(16450)
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Power system grounding.
2. Electrical equipment and raceway grounding and bonding.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 26 05 19: Wire and Cable*
3. *Section 26 05 33: Raceways and Boxes for Electrical Systems*

C. References:

1. ANSI/NFPA 70 National Electrical Code Article 250 "Grounding".

1.02 SYSTEM DESCRIPTION

- A. Maintain the integrity and continuity of the existing grounding system throughout the construction period.
- B. Ground each electrical component ground connection point to the facility grounding system.
- C. Bond together system and equipment neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, ground rods and plumbing systems. Bond transformer secondary neutral to transformer enclosure.

1.03 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required to demonstrate compliance with the specified requirements.

C. Shop drawings:

1. Show precise dimensions of the work of this section, and all other data needed to ensure proper and adequate provisions in construction to accommodate the work of this section.
2. Indicate location of system grounding electrode connections, and routing of grounding electrode conductor.

1.04 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Comply with provisions of *Section 01 66 00, Storage and Protection*.

B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.06 WARRANTY AND WARRANTY REPAIRS

A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.

B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other essential characteristics inherent in the named product.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 MATERIALS

- A. Ground rods: Copper-encased steel, ¾-inch diameter, minimum length 10 feet.
- B. Ground wire: Soft drawn copper, Class B stranding, green colored PVC insulation. Buried ground wires shall be uninsulated.
- C. Grounding clamps: Ground rods and grounding clamps shall be cast, high-copper content bronze alloy.

2.03 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Provide a separate, insulated equipment grounding conductor in feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing.
- B. Connect equipment grounding conductors to existing ground loop using exothermal welds. Verify the integrity of the ground loop or grounding conductor connections to the ground rods. Where loose, corroded or otherwise high-resistance or faulty connections are detected, repair or replace connections to restore integrity of grounding system. [Existing ground system]
- C. Size grounding conductors in accordance with the National Electrical Code.
- D. Connections to reinforcing steel, structural steel and buried ground conductors shall be made using exothermal welds.

3.03 CLEANING

- A. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*.
- B. Remove and dispose of all debris.

3.04 TESTS

- A. Upon completion of this portion of the work and prior to acceptance by the *OWNER*, make all required tests and adjustments for free and smooth operation.
- B. Secure all approvals from agencies having jurisdiction.
- C. Field quality control:
 - 1. Inspect grounding and bonding system conductors and connections for tightness and proper installation.
 - 2. Measure ground resistance from system neutral connection at service entrance to convenient ground reference point using suitable ground testing equipment. Resistance shall not exceed 5 ohms.

PART 4 - PAYMENT

4.01 GROUNDING & BONDING FOR ELECTRICAL SYSTEMS

- A. Quantity and Payment: No separate payment shall be made for this item. Include all costs for *GROUNDING & BONDING FOR ELECTRICAL SYSTEMS* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 26 05 33
(16111)
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Rigid metal conduit and fittings.
2. Surface metal raceway and fittings.
3. Outlet boxes.
4. Pull and junction boxes.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 26 05 03: Equipment Wiring Systems*
3. *Section 26 05 19: Wire and Cable*
4. *Section 26 05 26: Grounding and Bonding for Electrical Systems*
5. *Section 26 05 53: Electrical Identification*

C. References:

1. ANSI C80.1 - Rigid Steel Conduit, Zinc-Coated.
2. ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated.
3. ANSI C80.5 – Rigid Aluminum Conduit.
4. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.
5. NEMA RN 1 - PVC Externally-Coated Galvanized Rigid Steel Conduit and Electrical Metallic Tubing.
6. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Electrical Plastic Conduit (EPC-40 and EPC-80).
7. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.02 SUBMITTALS

- A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.
- B. Manufacturer's product data:
 - 1. Complete list of all materials proposed to be furnished and installed under this section.
 - 2. Specifications and other data required to demonstrate compliance with the specified requirements.

1.03 QUALITY ASSURANCE

- A. Qualifications of Workmen:
 - 1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
 - 2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
 - 3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.05 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other essential characteristics inherent in the named product.

- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 RIGID METAL CONDUIT

- A. Manufacturers:
 - 1. Wheatland Tube Company
 - 2. Allied Tube Conduit
 - 3. Republic Conduit
 - 4. Or equivalent.
- B. Rigid Aluminum Conduit: ANSI C80.5.
- C. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.

2.03 SURFACE METAL RACEWAY

- A. Acceptable Manufacturers:
 - 1. Carlon Electrical Products
 - 2. Hubbell Wiring Devices
 - 3. Thomas & Betts Corp.
 - 4. Walker Systems Inc.
 - 5. The Wiremold Co.
 - 6. Or equivalent.
- C. Duct Description: 0.025" sheet metal channel with fitted cover, suitable for use as surface metal raceway.
- D. Size: Wiremold #200, #500, Or #700 or equivalent as required.
- E. Finish: Buff or Off-White enamel as required to match adjoining surface.
- F. Fittings, Boxes, and Accessories: Furnish manufacturer's standard accessories; including couplings, elbows, connectors and boxes designed for use with raceway system. Match finish on raceways.

2.04 WIREWAY

- A. Acceptable Manufacturers:
 - 1. Carlon Electrical Products
 - 2. Hubbell Wiring Devices
 - 3. Thomas & Betts Corp.
 - 4. Walker Systems Inc.
 - 5. The Wiremold Co.
 - 6. Or equivalent.
- B. Product Description: General purpose type wireway.
- C. Knockouts: Bottom only.
- D. Size: Length as indicated on Drawings or as required during construction.
- E. Cover: Hinged cover.

- F. Connector: Flanged.
- G. Finish: Rust inhibiting primer coating with gray enamel finish.

2.05 OUTLET BOXES

- A. Acceptable manufacturers:
 - 1. Carlon Electrical Products
 - 2. Hubbell Wiring Devices
 - 3. Thomas & Betts Corp.
 - 4. Walker Systems Inc.
 - 5. The Wiremold Co.
 - 6. Or equivalent.
- B. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
- C. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish ½-inch male fixture studs where required.
- D. Nonmetallic Outlet Boxes: NEMA OS 2.
- E. Wall Plates for Finished Areas: As specified in *Section 26 27 26, Wiring Devices*.

2.06 PULL AND JUNCTION BOXES

- A. Acceptable manufacturers:
 - 1. Carlon Electrical Products
 - 2. Hubbell Wiring Devices
 - 3. Thomas & Betts Corp.
 - 4. Walker Systems Inc.
 - 5. The Wiremold Co.
 - 6. Or equivalent.
- B. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
- C. Hinged Enclosures: As specified in *Section 26 27 16, Cabinets and Enclosures*.
- D. Surface Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface mounted junction box:
 - 1. Material: Cast aluminum.
 - 2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.

2.07 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 EXISTING CONDITIONS

- A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.
- B. Remove concealed abandoned raceway to its source.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
- D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- E. Extend existing raceway and box installations using materials and methods compatible with existing electrical installations, or as specified.
- F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.03 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

- A. Size conduit in accordance with the latest issue of the National Electrical Code unless a larger size is shown on the drawings. Use ¾-inch minimum size where exposed and 1" minimum size where buried below grade or in concrete slab.
- B. Arrange conduit to maintain working clearance in compliance with National Electrical Code, Paragraphs 110.26 through 110.34, and to present a neat appearance.
- C. Route exposed conduit parallel or perpendicular to walls, building lines and/or adjacent piping.
- D. Maintain a minimum 6-inch clearance between conduit and piping. Maintain 12-inch clearance between conduit and heat sources such as flues, steam pipes, or heating appliances.
- E. Arrange conduit supports to prevent distortion of conduit alignment by wire-pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.
- F. Group conduit in parallel runs where practical and provide conduit rack constructed of galvanized steel channel "Unistrut" in accordance with *Section 26 05 29, Hangers and Supports for Electrical Systems*.
- G. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.
- H. Support conduit at a maximum of 8 feet on center.

- I. Provide a short length (approximately 36") of flexible liquid-tight metal conduit at motors or other equipment as required to accommodate vibration, for ease of adjustment and future maintenance.
- J. Conduits shall be supported independently of electrical enclosures. Physical stresses caused by vibration or thermal expansion shall not be transmitted to or from electrical enclosures or rotating equipment.
- K. Where conduits are utilized to carry/enclose cables exiting a cable-tray, each conduit shall be rigidly and permanently attached to the top of the cable-tray side rail, and a suitable bending radius provided. Conduit connections through the bottom or side rails of the cable tray are unacceptable.
- L. Conduits shall enter field equipment enclosures through the back, side or bottom (not top) via weatherproof hubs. Conduit entry shall be near the wiring terminal point and not obstruct access to, or removal of, components. Top entry of conduit is permitted with prior written approval, and only if a vapor seal is provided directly above the weatherproof hub.
- M. Conduits may enter pull or terminal boxes at any location except through a removable cover. Provide adequate protection against moisture accumulation and dripping on exposed terminals.
- N. Each end of all conduit runs terminating in a NEMA 1 general purposed or NEMA 3R raintite sheet-metal box or cabinet shall be provided with a galvanized or sherardized lock nut inside and outside of the box and with an approved insulated bushing. Where grounding requirements dictate, provide a grounding bushing inside of the box or cabinet.
- O. Each end of all conduit runs terminating in a NEMA 4, NEMA 12 or NEMA 13 sheet metal box or cabinet shall be provided with a watertight hub.

3.04 CONDUIT INSTALLATION

- A. Cut each conduit square using a saw or pipe-cutter; ream conduit to de-burr cut ends. Field-cut threads shall be of the same type and length as factory-cut threads. No "running threads" shall be permitted. For galvanized conduit, apply a zinc-base paint on the threads prior to assembly.
- B. Bring conduit to the shoulder of fittings and couplings and fasten securely. All conduit connections shall be arranged and installed to be electrically continuous, and to provide a positive electrical ground.
- C. Use conduit hubs for fastening conduit to cast boxes, and for fastening conduit to sheet-metal boxes in damp or wet locations.
- D. Install no more than the equivalent of three 90-degree bends in any run of conduit. Where more bends would be required, provide a pull box. In long conduit runs, pull boxes or expansion fittings with ground straps shall be provided every 125 feet.
- E. Use conduit bodies to make sharp changes in direction, such as around beams.
- F. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2-inch. Where possible, conduit bends shall be of the long radius type, machine made, without kinks, flattening, or crushing. Field bends shall be made only where unavoidable. Field bends shall be made by means of mechanical benders designed to produce radii required by the National Electrical Code.
- G. Avoid moisture traps where possible. Where unavoidable, provide a junction box with a drain fitting at each conduit low point. Slope all conduit toward conduit system low point for complete drainage.
- H. Each complete run of conduit shall be thoroughly cleaned, and no cable or wire shall be pulled until the run is completely free of water and other foreign matter. After cleaning, each conduit shall be sealed and capped with a galvanized or brass fitting and conduit bushing, or by means of plastic caps or other

approved methods until wire or cable is to be pulled. The intent is to protect installed conduit against the entrance of dirt or moisture during construction. Permanently cap all spare conduits.

- I. Provide #12 AWG insulated conductor or suitable pull string in each empty conduit, except for sleeves and nipples.
- J. Install expansion fittings with grounding jumper where conduit crosses building expansion joints. Also, install expansion fittings in straight runs of 125 feet or more and at 125-foot intervals in runs exceeding 250 feet in unheated areas.
- K. Where conduit penetrates fire-rated walls or floors, seal the opening around each conduit with UL listed foamed silicone elastomer compound. Seal the conduit openings to prevent vapors from entering the building via the conduit.
- L. Route conduit through roof openings for piping and ductwork where possible; otherwise, route through roof jack in accordance with Drawing details.
- M. Use PVC-coated rigid steel factory elbows for bends in PVC conduit runs longer than 100 feet, or in PVC conduit runs, which have more than two bends regardless of length.
- N. Wipe PVC conduit clean and dry before joining. Apply full even coat of cement to entire area that will be inserted into fitting. Let joint cure for 20 minutes minimum before applying stress to the joint.
- O. Repair nicks, scratches, abrasions and/or other damage to PVC-coated conduit using appropriate products offered by the conduit manufacturer for the intended purpose.
- P. Where corrosive or potentially hazardous vapors are present, provide approved cable seals in all conduits entering panels, control stations and all other electrical equipment to prevent migration of detrimental vapors into electrical enclosures.
- Q. Fittings or boxes shall be installed where necessary for pulling, even though not shown on the drawings. Conduit systems shall have a sufficient number of supports to provide a rigid installation. Conduits may be bolted or clamped to building members or structural framework. Welding of conduits or conduit fittings directly to structural steel shall not be permitted. Any galvanizing or paint on conduit, conduit fittings, or boxes damaged during installation shall be repaired by the Contractor.

3.05 INSTALLATION – SURFACE METAL RACEWAY ASSEMBLY

- A. Use flat-head screws to fasten channel to surfaces. Mount plumb and level.
- B. Use suitable insulating bushings and inserts at connections to outlets and corner fittings.
- C. Maintain grounding continuity between raceway components to provide a continuous grounding path.
- D. Fastener Option: Use clips and straps suitable for the purpose.
- E. Finish painting the raceways fastened to the ceiling to match the adjacent surface.
- F. Use fittings at all abrupt changes in direction. Do not make bends in the raceway that cause crimping.

3.06 INSTALLATION - WIREWAY

- A. Bolt auxiliary gutter to wall using two-piece hangers. Install level.
- B. Gasket each joint in oil-tight gutter.
- C. Mount raintight gutter in horizontal position only.

3.07 COORDINATION OF BOX LOCATIONS

- A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.
- B. Electrical box locations shown on *Contract Drawings* are approximate unless dimensioned. Verify location of outlets in offices and work area prior to rough-in.
- C. Locate and install boxes to allow access.
- D. Locate and install to maintain headroom and to present a neat appearance.

3.08 OUTLET BOX INSTALLATION

- A. Do not install boxes back-to-back in walls. Provide minimum 6-inch separation, except provide minimum 24-inch separation in acoustic-rated walls.
- B. Locate boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for boxes.
- C. Provide knockout closures to unused openings.
- D. Support boxes independently of conduit except for cast boxes that connect to two (2) rigid metal conduits, both supported within 12-inches of box.
- E. Use multiple-gang boxes where more than one device is mounted together, do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
- F. Install boxes in walls without damaging wall insulation.
- G. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
- H. Position outlets to locate luminaries as shown on reflected ceiling plans.
- I. In inaccessible ceiling areas, position outlets and junction boxes within 6-inches of recessed luminaries, to be accessible through luminaries ceiling opening.
- J. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.
- K. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
- L. Provide cast outlet boxes in exterior locations, exposed to the weather, and wet locations.

3.09 PULL AND JUNCTION BOXES

- A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.
- B. Support pull and junction boxes independent of conduit.
- C. Refer to pull box schedule on drawings for box identification and enclosure type.

3.10 CLEANING

- C. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*.
- D. Remove and dispose of all debris.

PART 4 - PAYMENT

4.01 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- A. Quantity and Payment: No separate payment shall be made for this item. Include all costs for *RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS* in the prices bid for the various related items of work as designated in the Proposal.

****END OF SECTION****

SECTION 26 05 53
(16195)
ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Wire and cable markers.
2. Conduit labels.
3. Nameplates and labels.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 26 05 03: Equipment Wiring Systems*
3. *Section 26 05 19: Wire and Cable*
4. *Section 26 05 33: Raceways and Boxes for Electrical Systems*

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required to demonstrate compliance with the specified requirements.

C. Include schedule for nameplates and tape labels.

D. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
 3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.
- C. Basis of acceptance:
1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of *Section 01 66 00, Storage and Protection*.
- B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.
- D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.05 WARRANTY AND WARRANTY REPAIRS

- A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.
- B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the maintenance period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other essential characteristics inherent in the named product.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.
- C. Manufacturers:
 1. 3M Products
 2. W. H. Brady
 3. Or equivalent

2.02 WIRE AND CABLE MARKERS

- A. The alpha-numeric coding on both ends of each individual 600 Volt conductor size #6 AWG and smaller (including neutrals) shall be made using 3M printable markers catalog number PLP-WHT Series with vinyl flexible overlap or equivalent, in addition to color coding.
- B. The alpha-numeric coding on both ends of each individual 600 Volt conductor size #4 through #1/0 AWG shall be made using W. H. Brady Series 3420 wire markers or equivalent (minimum six characters) in addition to color coding "A", "B", and "C" Phase throughout.
- C. The alpha-numeric coding on both ends of each individual 600 Volt conductor size #2/0 through #500 MCM shall be made using W. H. Brady Series 3430 wire markers or equivalent (minimum six characters) in addition to color coding "A", "B", and "C" Phase.
- D. All 5 kV power wires shall be color-coded on both ends with orange electrical tape. Each phase shall be marked with one, two, or three bands of orange tape (Phase A, B, C) and with W. H. Brady Series 3430 wire markers or equivalent (minimum six characters).
- E. All 15 kV power wires shall be color-coded on both ends with yellow electrical tape. Each phase shall be marked with one, two, or three bands of yellow tape (Phase A, B, C) and with W. H. Brady Series 3440 wire markers or equivalent (minimum six characters).
- F. All 35 kV cables shall be color-coded on both ends with red electrical tape. Each phase shall be marked with one, two, or three bands of red tape (Phase A, B, C.) and with W. H. Brady Series 3440 wire markers or equivalent.

2.03 CONDUIT/LABELS

- A. All raceways labels shall be multiple part chemical resistant, non-adhesive, tags as manufactured by ALMETEK INDUSTRIES, INC., "MINI-TAGS" Catalog #SV-5. Tag holders shall be black polyvinyl chloride (PVC). Tag characters shall be yellow medium density, polyethylene with black characters. Tag holders shall be vertical style and fastened to each raceway using two (2) black, ultra-violet (UV) protected, self-locking, nylon ties as manufactured by Thomas and Betts, "TYRAP", or equivalent.

2.04 NAMEPLATES AND LABELS

- A. Nameplates shall be made of laminated sheet plastic, 1/16-inch thick, engraved to provide black letters on a white background. The nameplates shall be made of laminated sheet plastic, 1/16-inch thick, engraved to provide black letters on a white background. The nameplates shall be fastened in place with stainless steel screws and adhesive backing. Nameplate information shall be as called out on the Contract Drawings specified herein and approved by the Engineer. The Contractor shall provide a sample and submit for approval a list of legends for nameplates he proposes to use.
- B. Panel voltage hazard labels by W. H. Brady Series 96157 or equivalent.

2.05 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. General:

- 1. Degrease and clean surfaces to receive nameplates and tape labels.
- 2. Install nameplates and tape labels parallel to equipment lines.
- 3. Secure nameplates to equipment fronts using aluminum, rivets. Secure nameplate to inside face of recessed panelboard doors in finished locations. Use of screws or adhesive is unacceptable.
- 4. Embossed tape will not be permitted for identification of electrical equipment other than individual wall switches, receptacles, control device stations and instruments.
- 5. All tags and/or nameplates shall be located in a position to be readable after completion of the installation of the equipment. Final nameplate wording will be as approved by the *ENGINEER*.
- 6. Provide and install nameplates for all equipment installed, and all equipment circuits modified. If a source is changed for any electrical equipment, nameplates and wire markers shall be modified for every circuit, equipment, receptacle, or device affected.

B. Wire identification:

- 1. All power, control, and instrumentation wire and cable installed shall be clearly and permanently labeled within six (6") inches of all electrical terminations, splices, and connections using pre-printed alpha-numeric vinyl cloth marking tags. All labeling shall conform to the alpha-numeric system approved by the Engineer during construction. Labeling shall indicate the field identification number of all wire and cable and the phase of all power connectors.
- 2. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on schematic and interconnection diagrams for control wiring.
- 3. All wire and cable furnished, installed and/or terminated under this Contract shall be externally color-coded and at all termination points, contain an alpha-numeric coding for each phase, neutral, and/or grounding conductor installed. This coding shall be used consistently throughout the power distribution system installed under this Contract.
- 4. All 480V power wiring phases shall be color-coded brown, orange, yellow (A, B, C) along their entire length not concealed in the conduit system.
- 5. All 240/120V power wires shall be color-coded black, red, white (A, B, N) along their entire length not concealed in the conduit system.

6. Terminal strips shall be clearly and permanently marked with waterproof ink or indelible pencil. Each wire shall be marked consistently throughout the entire system, using wherever possible the notation of the wires given on the manufacturer's wiring diagrams, Contractor's working drawings, as shown on the Contract Drawings and as approved by the Engineer. Each wire shall be labeled at both termination points. All wire numbers shall appear on as-built drawings before these drawings will be accepted.
7. The entire length of exposed ground conductors and the entire exposed portion in junction boxes, FD boxes, and other enclosures (not concealed by the conduit system) shall be marked with green tape along the entire length.
8. All ground wires shall be color-coded green.

C. Conduit Identification:

1. Under this Contract, the Contractor shall clearly and permanently label as specified in this Section all electrical raceways installed under *Section 25 05 33, Raceway and Boxes for Electrical Systems*, and shown on the Contract Drawings. Labels shall be installed at all raceway termination points.

D. Nameplate engraving schedule:

1. Provide nameplates to identify all electrical distribution and control equipment, and loads served. Letter height: 1/8-inch for individual switches and loads served, 1/4-inch for distribution and control equipment identification.
2. The Contractor shall furnish and install nameplates on all junction boxes, motor starters, ventilation equipment, unit heaters, control panels, transformers, panelboards, pushbuttons, indicating lights, disconnect switches, circuit breakers and any other electrical equipment installed and/or connected to under this Contract as specified herein.
3. All junction and pull boxes shall have the words "JUNCTION BOX" or "PULL BOX" on the nameplate with the individual box number listed below these words, e.g., (JBX-1) and shall be two (2") inches high by four (4") inches wide.
4. All variable frequency drives, motor starters, circuit breakers, panelboards, transformers, capacitors, disconnects, control panel and control station/pilot devices shall have the individual name as listed on the Contract Drawings and shall be one (1") inch high by three (3") inches wide.
5. All other miscellaneous equipment and motors shall have the individual name listed (as directed by the Engineer) on a one (1") inch high by two (2") inch wide nameplate.
6. Identify all panels, load centers, disconnect switches, motor starters and motor control centers with voltage rating using Brady labels.

3.03 CLEANING

- A. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*.
- B. Remove and dispose of all debris.

PART 4 - PAYMENT

4.01 ELECTRICAL IDENTIFICATION

- A. Quantity and Payment: No separate payment shall be made for this item. Include all costs for *ELECTRICAL IDENTIFICATION* in the prices bid for the various related items of work as designated in the Proposal.

END OF SECTION

SECTION 26 27 26
(16141)
WIRING DEVICES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. Wall switches.
2. Receptacles.
3. Device plates and box covers.

B. Related work:

1. Other sections of the *Specifications*, not referenced below, shall also apply to the extent required for proper performance of this work.
2. *Section 26 05 19: Wire and Cable*
3. *Section 26 05 26: Grounding and Bonding for Electrical Systems*
4. *Section 26 05 33: Raceway and Boxes for Electrical Systems*
5. *Section 26 05 53: Electrical Identification*

C. References:

1. NEMA WD 1 - General-Purpose Wiring Devices.
2. NEMA WD 5 - Specific-Purpose Wiring Devices.

1.02 SUBMITTALS

A. Comply with provisions of *Section 01 33 23, Shop Drawings, Product Data and Samples*.

B. Manufacturer's product data:

1. Complete list of all materials proposed to be furnished and installed under this section.
2. Specifications and other data required to demonstrate compliance with the specified requirements.
3. Show configurations, finishes and dimensions.

C. Manufacturer's recommended installation procedures.

1.03 QUALITY ASSURANCE

A. Qualifications of manufacturer:

1. Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the *ENGINEER*.

B. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of the work of this section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this section.
2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the method and materials to be used.
3. In acceptance or rejection of the work of this section, the *ENGINEER* will make no allowance for lack of skill on the part of workmen.

C. Basis of acceptance:

1. The manufacturer's installation instructions will provide the basis for acceptance or rejection of the work performed under this section.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Comply with provisions of *Section 01 66 00, Storage and Protection*.

B. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the *ENGINEER* and at no additional cost to the *OWNER*.

D. Delivery and storage: Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store in strict accordance with the manufacturer's recommendations as approved by the *ENGINEER*.

1.05 WARRANTY AND WARRANTY REPAIRS

A. Warranties shall be provided as specified in *Section 01 78 36, Guarantees*. A copy of the manufacturer's warranty shall accompany the shop drawing submittal.

B. The *CONTRACTOR* and/or equipment manufacturer shall be responsible for all costs of warranty repair work including removal, shipping, reinstallation and re-start-up during the warranty period.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Products: Whenever materials or equipment are described using a certain brand, make, supplier, manufacturer or by specification, such naming shall be regarded as a standard and be intended to convey function, design features, general style, type, materials of construction, character and quality of material or equipment, serviceability and other essential characteristics inherent in the named product.
- B. Other materials may be considered by the *ENGINEER* in accordance with the provisions of *Section 01 25 13, Substitutions*.

2.02 WALL SWITCHES

- A. Acceptable manufacturers:
 - 1. Bryant
 - 2. Hubbell
 - 3. Leviton
 - 4. Or equivalent.
- B. Wall switches for lighting circuits:
 - 1. NEMA WD1; Industrial specification grade AC general use snap switch with toggle handle, back and side wired, rated 20 amperes and 120-277 volts AC. Handle: Color: Brown, Ivory or per drawings. Leviton Catalog Nos. 1221-2 (single pole) and 1222-2 (double pole) or equivalent.
 - 2. Switches shall be Specification Grade.

2.03 RECEPTACLES

- A. Acceptable manufacturers:
 - 1. Bryant
 - 2. Hubbell
 - 3. Leviton
 - 4. Or equivalent.
- B. Receptacles:
 - 1. Convenience and straight-blade receptacles: NEMA WD 1.
 - 2. Convenience receptacle configuration: NEMA WD 1 Type 5-20R; Industrial specification grade, steel strap, back and side wired, duplex rated 20A, 125V. Face color: Brown, Ivory or per drawings. Leviton Catalog #5362 or equivalent.
 - 3. Specific-use receptacle configuration: NEMA WD 1 or WD 5 Type as indicated on Drawings; brown plastic face.
 - 4. Receptacles shall be Specification Grade.

5. Floor mounted flush receptacles: Floor mounted receptacles shall consist of Hubbell Catalog #B-2427 or equivalent deep formed steel floor box with a Hubbell Catalog #8C-3092 LO-CON type or equivalent above floor service fitting and two 20 Amp receptacles.

2.04 WALL PLATES

A. Acceptable manufacturers:

1. Bryant
2. Crouse Hinds
3. Hubbell
4. Leviton
5. Raco
6. Or equivalent.

B. Wall plates:

1. Decorative cover plate: Smooth stainless steel, or plastic with color matching switch or receptacle.

2.05 OTHER MATERIALS

- A. All other materials, not specifically described but required for a complete and proper installation of the work of this section, shall be new, first quality of their respective kinds, and as selected by the *CONTRACTOR* subject to the approval of the *ENGINEER*.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of the work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that work may be completed in strict accordance with the original design and with the manufacturer's recommendations as approved by the *ENGINEER*.
- C. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Install wall switches 48 inches above floor, "OFF" position down.
- B. Install convenience receptacles 24 inches above floor, or 6 inches above counters; with grounding pole on top, or as indicated on drawings.
- C. Install specific-use receptacles at heights shown on *Contract Drawings*.
- D. Install decorative plates on switches, receptacles, and blank outlets in finished areas, using jumbo sizes plates for outlets installed in masonry walls.

- E. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.
- F. Install devices and wall plates flush and level.
- G. Install gasketed weather-protective plates on exterior outlets, and any outlets subject to outdoor weather conditions.
- H. Install weather-protective, rust-inhibiting, cast-iron, gasketed, alloy plates in hard service areas.
- I. Colors of switches and receptacles shall be brown when used with dark colored walls, ivory when used with light colored walls or per drawings.

3.03 CLEANING

- A. Comply with requirements of *Section 01 74 00, Cleaning and Restorations*.
- B. Remove and dispose of all debris.

PART 4 - PAYMENT

4.01 WIRING DEVICES

- A. Quantity and Payment: No separate payment shall be made for this item. Include all costs for *WIRING DEVICES* in the prices bid for the various related items of work as designated in the Proposal.

END OF SECTION