

**SPECIFICATIONS
for the
EGG HARBOR TOWNSHIP HIGH SCHOOL
NATATORIUM COLUMN REPAIRS**

**Prepared for
Egg Harbor Township Board of
Education
Atlantic County, New Jersey
March 2024**



2819 Fire Road, 1st Floor
Egg Harbor Township, NJ
08234

RVE Project No. 0108-C-013

Set No. _____

Jacqueline D. Trovato

Jacqueline D. Trovato, PE
N.J. License # 51944

Edward D. Dennis Jr.

Edward D. Dennis Jr., PE
N.J. License # 47002

NOTICE TO BIDDERS

PUBLIC NOTICE IS HEREBY GIVEN that sealed bids will be received by the Egg Harbor Township Board of Education for the **Egg Harbor Township High School Natatorium Column Repairs** in the Township of Egg Harbor, Atlantic County, New Jersey.

Bid forms, contracts and specifications are on file at the office of Remington and Vernick Engineers, 2819 Fire Road, 1st Floor, Egg Harbor Township, New Jersey, 08234. The office phone number is (609) 645-7110.

Said Bids will be received, opened and read aloud in public at the Board of Education Office, 13 Swift Drive, Egg Harbor Township, Atlantic County, New Jersey on **April 25, 2024, at 11:00 am prevailing time.**

Electronic copies of the bid forms, contracts and specifications may be obtained from said Remington and Vernick Engineers, by prospective bidders upon request, upon payment of the sum of \$50.00 for each set. Hard copies of the bid forms, contracts and specifications are available upon request. Please send requests for copies of electronic bid documents to EHTOffice@rve.com.

Prospective bidders must call Remington & Vernick Engineers at 609-645-7110 prior to obtaining the plans and specifications in order to schedule a time to obtain said plans and specifications.

PAYMENT MUST BE RECEIVED PRIOR TO OBTAINING SAID SPECIFICATIONS, EITHER BY MAIL OR IN PERSON.

NO BIDS ARE TO BE DROPPED OFF AT THE ENGINEER'S OFFICE.

The Board of Education reserves the right to reject any or all bids, either in whole or in part and also waive any informality in any bid or bids received, in accordance with applicable law.

Bids must be on the bid form prepared by Remington and Vernick Engineers, in the manner designated therein and required by the specifications, must be enclosed in sealed envelopes bearing the name and address of the bidder on the outside and also bearing on the outside reference to the particular work bid upon. Said bids shall be addressed to: **Daniel Smith, Business Administrator, Egg Harbor Township Board of Education, 13 Swift Drive, Egg Harbor Township, New Jersey 08234.**

ALL CONSTRUCTION MUST BE COMPLETE, DEMOBILIZED, AND THE SITE RESTORED ON OR BEFORE AUGUST 30, 2024. THE CONTRACTOR SHALL PROVIDE ADDITIONAL CREWS OR WORKFORCE AS NEEDED TO MEET THE MANDATORY PROJECT SCHEDULE AT NO ADDITIONAL COST TO THE OWNER.

Each bid shall be accompanied by a certified check, cashier's check or bid bond duly executed by the bidder as principal and having as surety thereon a surety company approved by the Board of Education in an amount not less than ten percent (10%) but in no case in excess of \$20,000.00 of the amount bid. Any such bid bond shall be without endorsement or conditions.

The bidder must be pre-qualified by the New Jersey Schools Development Authority and the New Jersey Department of the Treasury, Division of Property Management and Construction, and have a valid up-to-date notice of classification prior to the date that bids are received. Any bid submitted under the terms of the New Jersey statutes not including a copy of a valid and active pre-qualification/classification certificate will be rejected as being non-responsive to the bid requirements.

Each Bidder will submit with their bid a Certificate of Consent of Surety as per N.J.S.A. 18A:18A-25 from a Surety Company stating that it will provide the bidder, if successful, with a Performance/Payment Bond in the full amount of the contract.

The award of the contract shall be made subject to the necessary moneys to do the work being provided by the Egg Harbor Township Board of Education in a lawful manner. The contract to be executed by the successful bidder will provide that it shall not become effective until the necessary moneys to do the work have been provided by the Egg Harbor Township Board of Education in a lawful manner. The award shall further be subjected to the securing of necessary State, Federal or Local permits governing the work.

No bid may be withdrawn for a period of sixty (60) days after the date set for the opening thereof.

Bidding shall be in conformance with the applicable requirements of N.J.S.A. 18A:18A-1 et seq., pertaining to the "Public School Contracts Law".

All Bidders are placed on notice that they are required to comply with all requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27, Affirmative Action, current regulations, N.J.S.A. 34:11-56.25 et seq., New Jersey Prevailing Wage Act, and American With Disabilities Act of 1990 (42 U.S.C. S12101, et seq.).

All Bidders must comply with all requirements of Federal, State and Local and current applicable regulations.

The contractor is further notified that he must comply with N.J.S.A. 52:25-24.2 and submit a Disclosure Statement listing stockholders with his bid.

The contractor is further notified that he must comply with N.J.S.A. 34:11-56.48 et seq. Public Works Contractor Registration Act and he and any subcontractors must be registered in accordance with the act.

The contractor is also further notified that he must comply with N.J.S.A. 52:32-44 and submit proof of business registration and submit proof of business registration for any named subcontractors in accordance with the act.

A **Pre-Bid Meeting** will be held at the **Egg Harbor Township High School**, located 24 High School Drive, Egg Harbor Township, New Jersey 08234 on **Tuesday April 2, 2024 at 10:00AM prevailing time**. All potential bidders are strongly encouraged to attend this meeting that will consist of a brief project overview and a tour of the facility. All attendees shall check in at the main entrance and will be escorted over to the Natatorium for the meeting.

A **Questions Deadline** of **Tuesday April 9, 2024** has also been established. Question(s) received after this date shall not be reviewed and response(s) shall not be provided.

By Order of the
Egg Harbor Township Board of Education
Daniel Smith, Business Administrator

Dated: March 30, 2024

PROPOSAL SECTION

**(FORMS TO BE COMPLETED AND
SUBMITTED WITH THE BID)**

PROPOSAL SECTION

BID DOCUMENT SUBMISSION CHECKLIST

Egg Harbor Township High School
Natorium Column Repairs

(Project)

0108-C-013

(Project or Bid Number)

Required with
 Submission of Bid
 (Owner's checkmarks)

Initial Each Item
 Submitted With Bid
 (Bidder's Initials)

X	Bid Document Submission Checklist	
X	A statement of ownership disclosure, pursuant to <u>N.J.S.A. 52:25-24.2</u> (Stockholders Statement)	
X	A listing of subcontractors, pursuant to <u>N.J.S.A. 18A:18A-18</u> (Subcontractor's Declaration)	
X	A bid guarantee as required by <u>N.J.S.A. 18A:18A-24</u> (Bid Bond, Certified Check or Cashier's Check)	
X	A certificate from a surety company, pursuant to <u>N.J.S.A. 18A:18A-25</u> (Consent of Surety)	
X	Bidder's Classification, pursuant to <u>N.J.S.A. 18A:18A-28</u> and <u>N.J.S.A. 18A:7G-33</u> (Including subcontractors)	
X	State of New Jersey Department of the Treasury, Division of Property Management and Construction, Total Amount of Uncompleted Contracts form. (Including Subcontractors)	
X	State of New Jersey Schools Development Authority Contractor Notice of Prequalification (Including Subcontractors)	
X	Bidder Certificate showing ability to perform contract, pursuant to <u>N.J.S.A. 18A:18A-23</u>	
X	Statement of No Material Changes in Bidder's Classification, pursuant to <u>N.J.S.A. 18A:18A-32</u> and <u>N.J.S.A. 18A:7G-35</u>	
X	Affirmative Action Requirements	
X	Background Questionnaire	
X	Debarred List Affidavit	
X	Submission of a Non-Collusion Affidavit	
X	Public Works Contractor Registration Form	
X	New Jersey "Business Registration Certificate" Form	
	Disclosure of Investment Activities in Iran, pursuant to P.L. 2012, c. 25.	
	Prohibited Russia-Belarus Activities pursuant to P.L. 2022, c. 3.	
	Certification of Non-Debarment for Federal Government Contracts Form, pursuant to <u>N.J.S.A. 52:32-44.1</u>	
	Lowest Bidder Prevailing Wage Certification pursuant to <u>N.J.S.A. 34:11-56.25</u> , et seq., <u>N.J.A.C. 12.60-9.1</u>	

X	Submission of a W-9 - Request for Taxpayer Identification Number and Certification	
X	Submission of a Chapter 271 Political Contribution Disclosure Form	
X	Bid Form	

SIGNATURE: The undersigned hereby acknowledges and has submitted the above listed requirements .

Name of Bidder: _____

By Authorized Representative:

Signature: _____

Print Name and Title: _____

Date: _____

Company Name: _____

Mailing Address: _____

Physical Address: _____

Phone Number : _____

Fax Number: _____

E-Mail: _____

STATEMENT OF OWNERSHIP DISCLOSURE

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

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	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.**

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 noncorporate 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	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 **Egg Harbor Township 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 **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, permitting the **Board of Education** to declare any contract(s) resulting from this certification void and unenforceable.

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

SUBCONTRACTOR DECLARATION

Each bidder shall set forth in the bid the names, addresses and license number (when required) of each subcontractor for the furnishing of plumbing, and gas fitting and all kindred work, and of the refrigeration, heating and ventilating systems and equipment, and electrical work, including any electrical power plants, tele-data, fire alarm, or security system, and structural steel and ornamental iron work, if any, for the construction, alteration or repair of any public buildings.

A general contractor that intends to utilize a specific subcontractor to perform work in one or more of the specialty trade categories shall provide the required information with regard to that subcontractor in the appropriate space for each specialty trade category applicable to the contract

All bidders seeking to perform plumbing work on a publicly bid contract are required to comply with N.J.S.A. 45:14C-2 and N.J.A.C. 13:32-1.3. These provisions require that plumbing work on such contract may only be performed by an entity in which a licensed master plumber owns not less than 10% of the issued and outstanding shares of stock in the corporation, or not less than 10% of the capital of the partnership, or not less than 10% of the ownership of any other firm or legal entity. Accordingly, if a bidder intends to perform plumbing work on a publicly bid contract with its own employees or by the bidder himself, a master plumber must possess an ownership interest that complies with N.J.S.A. 45:14C-2 and N.J.A.C. 13:32-1.3 in the entity submitting the bid. Alternately, if a bidder intends to perform such work through a subcontractor, a master plumber must possess an ownership interest that complies with N.J.S.A. 45:14C-2 and N.J.A.C. 13:32-1.3 in the subcontractor.

There shall be submitted proof that each subcontractor is qualified in accordance with the rules and regulations of the State of New Jersey when such rules and regulations exist.

A general contractor that intends to perform work in one or more of the specialty trade categories through the use of its own employees or the general contractor himself rather than through the utilization of a subcontractor shall write the word “**IN-HOUSE**” next to each applicable category and then insert the name, and license number where required, of each such employee of the general contractor or the general contractor himself in the appropriate spaces for each specialty trade category applicable to the contract.

If the contract does not involve the any of the specialty trade categories below, please insert the word “**NONE**” in each appropriate space provided.

Plumbing Work: _____

Name _____ Phone # _____
Address _____
License Number: _____

Gas Fitting and All Kindred Work: _____

Name _____ Phone # _____
Address _____
License Number: _____
Certification Number (for Medical Gas Piping Installation): _____

Refrigeration, Heating and Ventilating Systems and Equipment: _____

Name _____ Phone # _____
Address _____
License Number: _____

Electrical Work, including any Electrical Power Plants

Name _____ Phone # _____
Address _____
License Number: _____

Tele-data Systems:

Name _____ Phone # _____
Address _____
License Number: _____
Telecommunications Exemption (Provide copy of letter and ID card) Number: _____

Fire Alarm Systems:

Name _____ Phone # _____
Address _____
License Number: _____
Fire Protection Equipment Business or Fire Protection Contractor Business Permit Number: _____

Security Systems:

Name _____ Phone # _____
Address _____
License Number: _____

Structural Steel and Ornamental Iron Work:

Name _____ Phone # _____
Address _____
License Number: Not Applicable

BID SECURITY

Attach bid bond, cashier's check or certified check in the amount of 10% of the bid, but not in excess of \$20,000.00.

CONSENT OF SURETY

Attach Consent of Surety from a Surety Company, meeting the requirements, described herein, stating that if the bidder is awarded the contract that the surety company will supply the bonds for the contract.

1. Must be an irrevocable, unconditional commitment by the surety to issue on behalf of the bidder the bond or bonds set forth in the contract documents upon award of the project in the full amounts specified.
2. Must include all bonds required by the contract documents i.e. performance, labor and material payment, maintenance, environmental, etc.
3. Certificate (Consent) of Surety is not waiveable and will be considered a material defect resulting in rejection of bid if omitted from bid package.
4. Must not contain any provision that would serve to limit the surety’s liability to the “spread to second” bidder in the event the bidder fails to enter into a contract upon award.

Sample wording is as shown below:

CONSENT OF SURETY

KNOW ALL MEN BY THESE PRESENTS, that for and consideration of the sum of \$_____, lawful money of the United States of America, the receipt whereof is hereby acknowledged, paid the undersigned, and for other valuable consideration, the

SAMPLE

_____ Insurance Company,
(Name)

(Address)

existing under the laws of the State of New Jersey and licensed to do business in the State of New Jersey certifies and agrees, that if the contract for (Board of Education) _____
for: (Project) _____
is awarded to (Bidder) _____

the undersigned will execute the bond or bonds as required of the contract documents and will become Surety in the full amount set forth in the contract documents for the faithful performance of all obligations of the Bidder, provided however, that this commitment shall expire sixty (60) days from the bid opening, unless agreed upon by Bidder, Owner and Surety to be extended.

Signed, sealed and dated this _____ day of _____, 20_____ .

_____ INSURANCE COMPANY
(Name)

By _____
(Name)
Attorney in Fact

(To be accompanied by the usual proof of Authority of Officers of officers of the Surety Company to execute same)

BIDDER'S CLASSIFICATION

All bidders must be pre-qualified by the New Jersey Schools Development Authority and the State of New Jersey, Department of the Treasury. All Bidders must submit with their bid a current copy of their "Notice of Classification: and the "Total Amount of Uncompleted Contracts" from the State of New Jersey, Department of the Treasury, Division of Property Management and Construction, including the same documentation for all subcontractors.

CERTIFICATE OF BIDDER SHOWING ABILITY TO PERFORM CONTRACT

STATE OF _____

COUNTY OF _____

ss:

I, _____ of the (City, Town, Township, Borough, etc.)
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:

- 1. I am a(n) owner, partner, shareholder or officer of the company set forth below and am duly authorized to execute this affidavit on its behalf.

(Check appropriate Statement(s))

_____ I own, lease or control the necessary equipment required by the plans, specifications, and advertisements under which bids are asked for.

_____ I do not own, lease or control all the necessary equipment required by the plans, specifications, and advertisements under which bids are asked for.
If the bidder is not the actual owner or lessee of all the necessary equipment provide the source from which the equipment will be obtained (Attach additional sheets if necessary)

(Attach certification from the owner or 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)

(Insert Name, Telephone No., Fax No. and Address of Contractor)

(Insert Name and Title of Affiant)

Subscribed and sworn
before me this _____ day
of _____ 20 __ .

Notary Public of _____

My Commission Expires _____ , 20 ____.
(Seal)

NO MATERIAL CHANGE OF CIRCUMSTANCES

STATE OF _____

COUNTY OF _____

ss:

I, _____ of the (City, Town, Township, Borough)
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:

1. I am a(n) owner, partner, shareholder or officer of the company set forth below and am duly authorized to execute this affidavit on its behalf.
2. A statement to the financial ability, adequacy of plant and equipment, organization and prior experience of the bidder, as required by N.J.S.A. 18A:18A-28 has been submitted to the Department of Treasury within the last twelve (12) months preceding the date of opening of bids for this contract.
3. I certify, as required by N.J.S.A. 18A:18A-32 that there has been no material adverse change in qualification except: _____

(Insert Name, Telephone No., Fax No. and Address of Contractor)

(Insert Name and Title of Affiant)

Subscribed and sworn
before me this _____ day
of _____ 20 __ .

Notary Public of _____

My Commission Expires _____, 20 ____.
(Seal)

AFFIRMATIVE ACTION REQUIREMENTS

CONSTRUCTION CONTRACTS

“Bidder is required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27.

1. All successful contractor(s) must submit, to the agencies named below, after notification of award but prior to the signing of the contract an Initial Project Workforce Report (Form AA201) for any contract award that meets or exceeds the Public Agency bidding threshold.
2. The successful contractor(s) must submit the appropriate copies of the Initial Project Workforce Report (Form AA201) to the Division of Contract Compliance and the appropriate copy to the Public Agency.
3. The successful contractor(s) must submit a copy of the Monthly Workforce Report (Form AA 202) once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The undersigned certifies that he/she is aware of the commitment to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 and agrees to furnish the required forms of evidence.

The undersigned further understands that his/her bid may be rejected as non-responsive if the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 are not complied with.

(Insert Name, Telephone No., Fax No. and Address of Contractor)

(Insert Name and Title of Affiant)

Subscribed and sworn
before me this ____ day
of _____ 20 __ .

Notary Public of _____

My Commission Expires _____, 20 ____.
(Seal)

BACKGROUND QUESTIONNAIRE

In accordance with paragraph entitled "Qualifications of Bidders" of "Information for Bidders", provide the following information:

Date of Organization of Company _____

Name and address of officers:

President _____

Vice President _____

Secretary _____

Treasurer _____

EXPERIENCE

1. How many years has your organization been in business as a general contractor under your present business name? _____
2. How many years experience in this type of construction work has your organization had? _____
3. What are the latest projects (within the last five years) your organization has completed?
(Attach additional pages if necessary)

	<u>Contract Amount</u>	<u>Date Work Completed</u>	<u>For Whom</u>
A.	\$ _____	_____	_____
B.	\$ _____	_____	_____
C.	\$ _____	_____	_____
D.	\$ _____	_____	_____
E.	\$ _____	_____	_____

Names, Addresses and Telephone Numbers of Reference for items listed above:

	<u>Name and Address</u>	<u>Telephone No.</u>
A.	_____	_____
B.	_____	_____

Background Questionnaire

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Name and Address

Telephone No.

- C. _____
- D. _____
- E. _____

4. Have you ever failed to complete any work awarded to you (within the last ten years)?
If so, where and why?

5. Have you or has any officer of your organization ever been an officer or partner of some other contracting organization that failed to complete any work (within the last ten years)? _____

If so, state the name of individual, position and the name of the other organization _____

Did this other contracting organization ever fail to complete any work awarded it
(within the last ten years)? _____

If so, where and why? _____

6. Give list of uncompleted contracts at present held by you:

<u>Name of Contract</u>	<u>Contracting Agency</u>	<u>Amount</u>
_____	_____	\$ _____
_____	_____	\$ _____
_____	_____	\$ _____

<u>Name of Contract</u>	<u>Contracting Agency</u>	<u>Amount</u>
_____		\$ _____
_____		\$ _____

7. State approximately the largest amount of work you have done in any one year (within the last five years) of a similar nature to the work being bid on.

Remarks

DEBARRED LIST AFFIDAVIT

STATE OF _____

COUNTY OF _____

ss:

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

I am _____ an officer of the firm of _____ the bidder making the bid for the above named work, and that I executed said bid with full authority to do so; that said bidder at the time of making of this bid is not debarred at the federal level from contracting with a federal government agency as indicated in N.J.S.A. 52:32-44.1 or included on the State of New Jersey, State Treasurer’s List of Debarred, Suspended and Disqualified Bidders; and that all statements contained in said bid and in this affidavit are true and correct, and made with the full knowledge that the **Egg Harbor Township Board of Education**, as the Owner relies upon the truth of the statements contained in said bid and in the statements contained in this affidavit in awarding the contract for said work.

The undersigned further warrants that should the name of the firm making this bid be debarred at the federal level from contracting with a federal government agency or appear on the State Treasurer’s List of Debarred, Suspended and Disqualified Bidders at anytime prior to, and during the life of this Contract, including Guarantee Period, that the Local Unit shall be immediately so notified by the signatory of this Eligibility Affidavit.

The undersigned understands that the firm making the bid as Contractor is subject to debarment, suspension and/or disqualification in contracting with the State of New Jersey, if the Contractor, pursuant to N.J.A.C. 12:60-7.1 et seq., commits any of the acts listed therein, and as determined according to applicable law and regulation.

(Insert Name, Telephone No., Fax No. and Address of Contractor)

(Insert Name and Title of Affiant)

Subscribed and sworn
before me this _____ day
of _____ 20 __ .

Notary Public of _____

My Commission Expires _____ , 20 ____.
(Seal)

NON-COLLUSION AFFIDAVIT

STATE OF _____

COUNTY OF _____

ss:

I, _____ of the (City, Town, Township, Borough, etc.)
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:

I am _____
of the firm of _____
the bidder making the Proposal for the above named project, and that I executed the said Proposal with full authority to do so; that said bidder had not, directly or indirectly, entered into any agreement(s), participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in said Proposal and in this affidavit are true and correct, and made with full knowledge that the **Egg Harbor Township Board of Education** relies upon the truth of the statements contained in said Proposal and in this affidavit in awarding the contract for the said Project.

I further warrant that no person(s) 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 bidder)

(Insert Name, Telephone No., Fax No. and Address of Contractor)

(Insert Name and Title of Affiant)

Subscribed and sworn
before me this _____ day
of _____ 20 __ .

Notary Public of _____

My Commission Expires _____, 20 ____.
(Seal)

PUBLIC WORKS CONTRACTOR REGISTRATION FORM

N.J.S.A. 34:11-56.48 requires that contractors and subcontractors, be registered with the New Jersey Department of Labor, Division of Wage and Hour Compliance. The definition in the law is as follows:

“Contractor means a person, partnership, association, joint stock company, trust, corporation, or other legal business entity or successor thereof who enters into a contract which is subject to the provisions of the “New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq. and includes any subcontractor or lower tier subcontractor of a contractor as defined herein.”

1. All named contractors in a bid proposal (including out-of-state contractors) must be registered with the Department of Labor’s Division of Wage and Hour Compliance at the time proposals are received by the public entity.
2. All named sub-contractors must be registered with the Department of Labor pursuant to the PWCRA at the time the proposal is received, or the proposal will be determined to be non-responsive.
3. Any non-listed sub-contractor must be registered with the Department of Labor prior to physically starting work.
4. The law requires contractors to submit certificates after a bid proposal is received and prior to awarding the contract. (N.J.S.A. 34:11-56.55)
5. After bid proposals are received, and prior to contract award, the contractor must submit to the public entity copies of certifications of all listed sub-contractors.
6. Prior to the work being performed by non-listed subcontractors, the contractor must submit to the public entity copies of certifications of all non-listed subcontractors.

Please indicate below, for the bidder and all subcontractors listed on the “Subcontractor Declaration” herein, as to their registration with the NJ Department of Labor, Division of Wage and Hour Compliance in accordance with N.J.S.A. 34:11-56.48.

<u>Name</u>	<u>Not Registered</u>	<u>Registration Number</u>
Bidder_____	___	_____
(Subcontractor)_____	___	_____
(Subcontractor)_____	___	_____
(Subcontractor)_____	___	_____
(Subcontractor)_____	___	_____

Subscribed and sworn
before me this ____ day
of _____ 20 ____.

Notary Public of _____
My Commission Expires _____, 20____.
(Seal)

Signature

Name and Title
(Type or Print)

NEW JERSEY "BUSINESS REGISTRATION CERTIFICATE" FORM

N.J.S.A. 52:32-44 requires that Business Organization's, be registered with the New Jersey Department of Treasury, Division Revenue. The definition in the law is as follows:

“Contractor” means a business organization that seeks to enter, or has entered into, a contract with a contracting agency;

“Contract” means any agreement, including but not limited to a purchase order or a formal agreement for the provision of goods, performance of services, or construction of a construction project, which is a legally binding relationship enforceable by law, between a contractor and a contracting agency that agrees to compensate the contractor, as defined by and subject to the terms and conditions of the agreement; and where the goods that are received, services that are delivered, and construction that is constructed is within the geographic borders of the State of New Jersey; and where:

- (1) the value of a single contract with the contractor is in excess of 15 percent of the amount of the contracting agency's bid threshold; or
- (2) when the aggregate amount of contracts with the contractor, during the fiscal year of the contracting agency, exceeds 15 percent of the amount of the contracting agency's bid threshold.

Please indicate below, for the bidder and all subcontractors listed on the “Subcontractor Declaration” herein, as to their registration with the NJ Department of Treasury, Division of Revenue in accordance with N.J.S.A. 52:32-44.

The contractor shall provide the contracting agency with the business registration certificate 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.

<u>Name</u>	<u>Not Registered</u>	<u>Registration Number</u>
Bidder_____	___	_____
(Subcontractor)_____	___	_____
(Subcontractor)_____	___	_____
(Subcontractor)_____	___	_____
(Subcontractor)_____	___	_____

Subscribed and sworn
before me this _____ day
of _____ 20 ____.

Notary Public of _____

My Commission Expires _____, 20____.

Signature

Name and Title
(Type or Print)

(Seal)

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

PART 1: CERTIFICATION

BIDDERS MUST COMPLETE PART 1 BY CHECKING EITHER BOX.

In accordance with Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury’s Chapter 25 list as a person or entity engaging in investment activities in Iran.

The Chapter 25 list is found on the Division’s website at <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>. Bidders **must** review this list prior to completing the below certification. **This certification shall be completed, certified to, and submitted to the contracting unit prior to contract award.** If the Director 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.

PLEASE CHECK EITHER BOX:

I certify, pursuant to Public Law 2012, c. 25, that neither the person/entity listed below nor any of the entity’s parents, subsidiaries, or affiliates is listed on the N.J. Department of the Treasury’s list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 (“Chapter 25 List”). I further certify that I am the person listed below, or I am an officer or representative of the entity listed below and am authorized to make this certification on its behalf. **I will skip Part 2 and sign and complete the Certification**

OR

I am unable to certify as above because I or the bidding entity and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department’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. Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

Part 2

PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

You 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 below.

PROVIDE INFORMATION RELATIVE TO THE ABOVE QUESTIONS. PLEASE PROVIDE THOROUGH ANSWERS TO EACH QUESTION. IF YOU NEED TO MAKE ADDITIONAL ENTRIES, USE ADDITIONAL PAGES

Name: _____

Relationship to Bidder/Vendor: _____

Description of Activities: _____

Duration of Engagement: _____ Anticipated Cessation Date _____

Bidder/Vendor _____

Contact Name: _____ Contact Phone Number: _____

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the below-referenced person or entity. I acknowledge that the **Egg Harbor Township Board of Education** is relying on the information contained herein and thereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of contracts with the **Egg Harbor Township Board of Education** to notify the **Egg Harbor Township Board of Education** in writing of any changes to the answers of information contained herein. I acknowledge 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 recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreements(s) with the **Egg Harbor Township Board of Education** and that the **Egg Harbor Township Board of Education** at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print): _____ Signature: _____

Title: _____ Date: _____

Bidder/Vendor: _____

PROHIBITED RUSSIA-BELARUS ACTIVITIES

Person or Entity: _____

Part 1: Certification

COMPLETE PART 1 BY CHECKING ONE OF THE THREE BOXES BELOW

Pursuant to law, any person or entity that is a successful bidder or proposer, or otherwise proposes to enter into or renew a contract, for goods or services must complete the certification below prior to contract award to attest, under penalty of perjury, that neither the person or entity, nor any parent entity, subsidiary, or affiliate, is identified on the Department of Treasury's Russia-Belarus list. Before a contract for goods or services can be amended or extended, a person or entity must certify that neither the person or entity, nor any parent entity, subsidiary, or affiliate, is identified on the Department of Treasury's Russia-Belarus list. The list is found on Treasury's website at the following web address:

<https://www.nj.gov/treasury/administration/pdf/RussiaBelarusEntityList.pdf>

As applicable to the type of contract, the above-referenced list must be reviewed prior to completing the below certification.

A person or entity unable to make the certification must provide a detailed, accurate, and precise description of the activities of the person or entity, or of a parent entity, subsidiary, or affiliate, engaging in prohibited activities in Russia or Belarus. The person or entity must cease engaging in any prohibited activities and provide an updated certification before the contract can be entered into.

If a vendor or contractor is found to be in violation of law, action may be taken as appropriate and as may be 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.

CONTRACT AWARDS AND RENEWALS

- I certify, pursuant to law, that neither the person or entity listed above, nor any parent entity, subsidiary, or affiliate appears on the N.J. Department of Treasury's lists of entities engaged in prohibited activities in Russia or Belarus pursuant to P.L. 2022, c. 3. I further certify that I am the person listed above, or I am an officer or representative of the entity listed above and am authorized to make this certification on its behalf. (Skip Part 2 and sign and complete the Certification below.)

CONTRACT AMENDMENTS AND EXTENSIONS

- I certify, pursuant to law, that neither the person or entity listed above, nor any parent entity, subsidiary, or affiliate is listed on the N.J. Department of the Treasury's lists of entities determined to be engaged in prohibited activities in Russia or Belarus pursuant to P.L. 2022, c. 3. I further certify that I am the person listed above, or I am an officer or representative of the entity listed above and am authorized to make this certification on its behalf. (Skip Part 2 and sign and complete the Certification below.)

IF UNABLE TO CERTIFY

I am unable to certify as above because the person or entity and/or a parent entity, subsidiary, or affiliate is listed on the Department's Russia-Belarus list. I will provide a detailed, accurate, and precise description of the activities as directed in Part 2 below, and sign and complete the Certification below. Failure to provide such will prevent the award of the contract to the person or entity, and appropriate penalties, fines, and/or sanctions will be assessed as provided by law.

Part 2: Additional Information

PLEASE PROVIDE FURTHER INFORMATION RELATED TO PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS.

You must provide a detailed, accurate, and precise description of the activities of the person or entity, or of a parent entity, subsidiary, or affiliate, engaging in prohibited activities in Russia or Belarus in the space below and, if needed, on additional sheets provided by you.

Part 3: Certification of True and Complete Information

I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments there, to the best of my knowledge, are true and complete. I attest that I am authorized to execute this certification on behalf of the above-referenced person or entity.

I acknowledge that the **Egg Harbor Township Board of Education** is relying on the information contained herein and hereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the **Egg Harbor Township Board of Education** to notify the **Egg Harbor Township Board of Education** in writing of any changes to the answers of information contained herein.

I acknowledge 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 recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with the **Egg Harbor Township Board of Education** and that the **Egg Harbor Township Board of Education** at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name : _____
(Print)

Title: _____

Signature : _____

Date: _____

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

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

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	
Unique Entity ID (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			
<p>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 Egg Harbor Township 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 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, 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.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

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	
---	--

Physical 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	
---	--

Physical 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.
--------------------------	--

Section C – Part III Certification			
<p>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 _____.</p> <p style="text-align: center;">(name of organization)</p> <p>I further acknowledge: that I am authorized to execute this certification on behalf of the above-named organization; that the Egg Harbor Township 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 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, 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.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

Part IV – CERTIFICATION OF NON-DEBARMENT: Contractor – Controlled Entities	
Section A	
<input type="checkbox"/>	<p>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.</p>
Name of Business Entity	Physical Address
Add additional sheets if necessary	
OR	
<input type="checkbox"/>	<p>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.</p>

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		Physical 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			
<p>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 Egg Harbor Township 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 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, 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.</p>			
Full Name (Print):		Title:	
Signature:		Date:	

LOWEST BIDDER PREVAILING WAGE CERTIFICATION

In the matter of an award of a contract for public work for a project described as:)	STATE OF NEW JERSEY
)	DEPARTMENT OF LABOR AND
)	WORKFORCE DEVELOPMENT
)	DIVISION OF
Egg Harbor Township High School Natatorium Column Repairs)	WAGE & HOUR COMPLIANCE
)	
)	
)	Certification of Lowest Bidder

_____, of full age and under oath, duly provides the following sworn statement:

(1). I am the owner and/or highest-ranking official or officer of a company or firm named _____, which holds a currently valid public works contractor registration pursuant to the New Jersey Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48 et seq., certificate number _____.

(2). I submitted a bid for a contract award in the above identified project and the public body has informed me that I am the lowest bidder by 10 percent or more as compared to the next lowest bid submitted.

(3). The amount of my bid does include paying the prevailing wage rate to all workers who perform work on the project at rates of pay, including both base wage and fringe benefits, set forth in applicable Wage Determinations, (1) for the appropriate locality, (2) for the appropriate work classification (e.g., carpenter, electrician, mason, plumber), and (3) for the appropriate job title (e.g., Apprentice, Journeyman, Forman), published by the New Jersey Department of Labor and Workforce Development (NJDOL) pursuant to the New Jersey Prevailing Wage Act (NJPWA), N.J.S.A. 34:11-56.25 et seq., and corresponding NJDOL rules, N.J.A.C. 12:60.

I certify under penalty of perjury that the foregoing statements made by me are true. I am aware that if any of the foregoing statements made by me are false, I am subject to punishment. See N.J.S.A. 2C:28-1 et seq., specifically, N.J.S.A. 2C:28-3, within the New Jersey Code of Criminal Justice.

Dated: _____ Signature: _____
Title: _____

POLITICAL CONTRIBUTIONS DISCLOSURE – PAY TO PLAY

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-20.13 (P.L. 2005 Chapter 271 section 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 (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.

The Egg Harbor Township 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 disclosable 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 P.L.1973, c83 (codified at 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, c83 (codified at 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 4.1(e) 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) (4)

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.

The Chapter 271 Political Contribution Disclosure form shall be submitted with the response to the bid/proposal or no later than ten (10) days prior to the award of contract. Failure to provide the completed and signed form shall be cause for disqualification of the bid/proposal.

To be completed, signed and returned with Bid.

Egg Harbor Township Board of Education

**Chapter 271
Political Contribution Disclosure Form**

**(Contracts that Exceed \$17,500.00)
Ref. N.J.S.A. 19:44A-20.26**

The undersigned, being authorized and knowledgeable of the circumstances, does hereby certify that _____ (Business Entity) has made the following **reportable** political contributions to any elected official, political candidate or any political committee as defined in N.J.S.A. 19:44-20.26 during the twelve (12) months preceding this award of contract:

Reportable Contributions

<u>Date of Contribution</u>	<u>Amount of Contribution</u>	<u>Name of Recipient Elected Official/ Committee/Candidate</u>	<u>Name of Contributor</u>

The Business Entity may attach additional pages if needed.

No Reportable Contributions (Please check (✓) if applicable.)

I certify that _____ (Business Entity) made no reportable contributions to any elected official, political candidate or any political committee as defined in N.J.S.A. 19:44-20.26.

Certification

I certify, that the information provided above is in full compliance with Public Law 2005—Chapter 271.

Name of Authorized Agent _____

Signature _____ Title _____

Business Entity _____

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.**

¹ 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.”

P.L. 2005, c.271

(Unofficial version, Assembly Committee Substitute to A-3013, First Reprint*)

AN ACT authorizing units of local government to impose limits on political contributions by contractors and supplementing Title 40A of the New Jersey Statutes and Title 19 of the Revised Statutes.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

40A:11-51 1. a. A county, municipality, independent authority, board of education, or fire district is hereby authorized to establish by ordinance, resolution or regulation, as may be appropriate, measures limiting the awarding of public contracts therefrom to business entities that have made a contribution pursuant to P.L.1973, c.83 (C.19:44A-I et seq.) and limiting the contributions that the holders of a contract can make during the term of a contract, notwithstanding the provisions and parameters of sections 1 through 12 of P.L.2004, c.19 (C. 19:44A-20.2 et al.) and section 22 of P.L.1973, c.83 (C.19:44A-22).

b. The provisions of P.L.2004, c.19 shall not be construed to supersede or preempt any ordinance, resolution or regulation of a unit of local government that limits political contributions by business entities performing or seeking to perform government contracts. Any ordinance, resolution or regulation in effect on the effective date of P.L.2004, c.19 shall remain in effect and those adopted after that effective date shall be valid and enforceable.

c. An ordinance, resolution or regulation adopted or promulgated as provided in this section shall be filed with the Secretary of State.

19:44A-20.26 2. a. Not later than 10 days prior to entering into any contract having an anticipated value in excess of \$17,500, except for a contract that is required by law to be publicly advertised for bids, a State agency, county, municipality, independent authority, board of education, or fire district shall require any business entity bidding thereon or negotiating therefor, to submit along with its bid or price quote, a list of political contributions as set forth in this subsection that are reportable by the recipient pursuant to the provisions of P.L.1973, c.83 (C.19:44A-I et seq.) and that were made by the business entity during the preceding 12 month period, along with the date and amount of each contribution and the name of the recipient of each contribution. A business entity contracting with a State agency shall disclose contributions to any State, county, or municipal committee of a political party, legislative leadership committee, candidate committee of a candidate for, or holder of, a State elective office, or any continuing political committee. A business entity contracting with a county, municipality, independent authority, other than an independent authority that is a State agency, board of education, or fire district shall disclose contributions to: any State, county, or municipal committee of a political party; any legislative leadership committee; or any candidate committee of a candidate for, or holder of, an elective office of that public entity, 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, or any continuing political committee.

The provisions of this section shall not apply to a contract when a public emergency requires the immediate delivery of goods or services.

b. When a 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. 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. When a business entity is other than a natural person, a contribution by: all principals, partners, officers, or directors of the business entity or their spouses; any subsidiaries directly or indirectly controlled by the business entity; or any political organization organized under section 527 of the Internal Revenue Code that is directly or indirectly controlled by the business entity, other than a candidate committee, election fund, or political party committee, shall be deemed to be a contribution by the business entity.

c. As used in this section:

"business entity" means a natural or legal person, business corporation, professional services corporation, limited liability company, partnership, limited partnership, business trust, association or any other legal commercial entity organized under the laws of this State or of any other state or foreign jurisdiction;

"interest" means the 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, as appropriate; and

"State agency" means any of the principal departments in the Executive Branch of the State Government, and any division, board, bureau, office, commission or other instrumentality within or created by such department, the Legislature of the State and any office, board, bureau or commission within or created by the Legislative Branch, and any independent State authority, commission, instrumentality or agency.

d. Any business entity that fails to comply with the provisions of this section shall be subject to a fine imposed by the New Jersey Election Law Enforcement Commission in an amount to be determined by the commission which may be based upon the amount that the business entity failed to report.

19:44A-20.13 3. a. Any business entity making a contribution of money or any other thing of value, including an in-kind contribution, or pledge to make a contribution of any kind to a candidate for or the holder of any public office having ultimate responsibility for the awarding of public contracts, or to a political party committee, legislative leadership committee, political committee or continuing political committee, which has received in any calendar year \$50,000 or more in the aggregate through agreements or contracts with a public entity, shall file an annual disclosure statement with the New Jersey Election Law Enforcement Commission, established pursuant to section 5 of P.L.1973, c.83 (C.19:44A-5), setting forth all such contributions made by the business entity during the 12 months prior to the reporting deadline.

b. The commission shall prescribe forms and procedures for the reporting required in subsection a. of this section which shall include, but not be limited to:

(1) the name and mailing address of the business entity making the contribution, and the amount contributed during the 12 months prior to the reporting deadline;

(2) the name of the candidate for or the holder of any public office having ultimate responsibility for the awarding of public contracts, candidate committee, joint candidates' committee, political party committee, legislative leadership committee, political committee or continuing political committee receiving the contribution; and

(3) the amount of money the business entity received from the public entity through contract or agreement, the dates, and information identifying each contract or agreement and describing the goods, services or equipment provided or property sold.

c. The commission shall maintain a list of such reports for public inspection both at its office and through its Internet site.

d. When a 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. 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. When a business entity is other than a natural person, a contribution by: all principals, partners, officers, or directors of the business entity, or their spouses; any subsidiaries directly or indirectly controlled by the business entity; or any political organization organized under section 527 of the Internal Revenue Code that is directly or indirectly controlled by the business entity, other than a candidate committee, election fund, or political party committee, shall be deemed to be a contribution by the business entity.

As used in this section:

"business entity" means a natural or legal person, business corporation, professional services corporation, limited liability company, partnership, limited partnership, business trust, association or any other legal commercial entity organized under the laws of this State or of any other state or foreign jurisdiction; and

"interest" means the 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, as appropriate.

e. Any business entity that fails to comply with the provisions of this section shall be subject to a fine imposed by the New Jersey Election Law Enforcement Commission in an amount to be determined by the commission which may be based upon the amount that the business entity failed to report.

4. This act shall take effect immediately.

* Note: Bold italicized statutory references of new sections are anticipated and not final as of the time this document was prepared. Statutory compilations of N.J.S.A. 18A:18A-51 is anticipated to show a reference to N.J.S.A. 40A:11-51 and to N.J.S.A. 19:44A-20.26

**List of Agencies with Elected Officials Required for Political Contribution Disclosure
N.J.S.A. 19:44A-20.26**

County Name: Atlantic

State: Governor, and Legislative Leadership Committees

Legislative District #: 1, 2 & 9

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

Atlantic City

Brigantine City

Buena Borough

Buena Vista Township

Corbin City

Egg Harbor City

Egg Harbor Township

Estell Manor City

Folsom Borough

Galloway Township

Hamilton Township

Hammonton Town

Linwood City

Longport Borough

Margate City

Mullica Township

Northfield City

Pleasantville City

Port Republic City

Somers Point City

Ventnor City

Weymouth Township

Boards of Education (Members of the Board):

Absecon City

Atlantic City

Buena Regional

Egg Harbor City

Egg Harbor Township

Estell Manor City

Folsom Borough

Galloway Township

Greater Egg Harbor Regional

Hamilton Township

Hammonton Town

Longport

Mainland Regional

Mullica Township

Northfield City

Pleasantville City

Somers Point City

Weymouth Township

Fire Districts (Board of Fire Commissioners):

Bargaintown Fire Company

Cardiff Fire Company

Farmington Fire Company

Scullville Fire Company

West Atlantic City Fire Company

BID FORM

Pursuant to and in compliance with your Advertisement for Bids and the Information for Bidders relating thereto, the undersigned hereby offers to furnish all plant, labor, materials, supplies, equipment and other facilities and things necessary for, or proper for, or incidental to the EGG HARBOR TOWNSHIP HIGH SCHOOL NATATORIUM COLUMN REPAIRS, as required by, and in strict accordance with the applicable provisions of plans and specifications and all addenda issued by the EGG HARBOR TOWNSHIP BOARD OF EDUCATION or its Engineer prior to the date of opening the bids, whether received by the undersigned or not, for the amount bid based on the following unit and/or lump-sum prices:

NOTE: Extension of Unit Prices must be exact.

Contract Time:

Notice to Proceed: On or before May 13, 2024
Completion: On or before August 30, 2024

Schedule of Liquidated Damages:

One (1) to Fifteen (15) Days: \$500.00 per calendar day
 Sixteen (16) to Thirty (30) Days: \$1,000.00 per calendar day
 Greater Than Thirty (30) Days: \$2,000.00 per calendar day

ALL CONSTRUCTION MUST BE COMPLETE, DEMOBILIZED, AND THE SITE RESTORED IN ACCORDANCE WITH THE SCHEDULE IN THE SCOPE OF WORK. ALL BIDDERS MUST COMPLETE AND SIGN THE ACKNOWLEDGEMENT OF CONTRACT TIME FORM LOCATED ON THE SHEET IMMEDIATELY FOLLOWING THE BID FORM.

BASE BID

Item	Quantity	Units	Description	Unit Price	Amount
1	1	LS	MOBILIZATION & DEMOBILIZATION	\$	\$
2	1	LS	CONCRETE COMPRESSIVE STRENGTH TESTING	\$	\$
3	300	SF	REMOVAL OF EXISTING CMU WALL AROUND EXISTING COLUMNS (18 INCHES ON EACH SIDE OF COLUMN, 8 FOOT HEIGHT)	\$	\$
4	8	EA	TEMPORARILY SUPPORT EXISTING FRAMING AROUND EACH COLUMN	\$	\$
5	8	EA	CUT AND REMOVE EXISTING COLUMNS, 2 FEET ABOVE FINISHED FLOOR ELEVATION (INCLUDING BASE PLATE AND ANCHOR BOLTS)	\$	\$
6	110	SF	SAWCUT AND REMOVE EXISTING SLAB AT EACH COLUMN (3 FEET x 3 FEET)	\$	\$
7	20	CY	EXCAVATION OF EXISTING SOIL TO EXPOSE EXISTING COLUMN PIERS	\$	\$
8	8	EA	EXTEND EXISTING CONCRETE COLUMN PIERS TO 8 INCHES ABOVE FINISHED FLOOR ELEVATION, INCLUDING ALL STEEL REINFORCEMENT	\$	\$
9	8	EA	FURNISH AND INSTALL NEW COLUMN BASES, INCLUDING SPLICE TO EXISTING COLUMN, BASE PLATES AND ANCHOR BOLTS	\$	\$

Item	Quantity	Units	Description	Unit Price	Amount
10	4	EA	EXTEND EXISTING CONCRETE COLUMN PIERS, KEEP EXISTING COLUMN BASE/ANCHOR BOLTS AND ENCASE IN CONCRETE, 8 INCHES ABOVE FINISHED FLOOR ELEVATION	\$	\$
11	300	SF	FURNISH AND INFILL CMU WALLS INCLUDING ALL VERTICAL STEEL REINFORCEMENT	\$	\$
12	20	CY	FURNISH AND INSTALL CONCRETE SLAB WHERE PREVIOUSLY SAWCUT, INCLUDING ALL DOWELS, STEEL REINFORCEMENT, STONE BASE COURSE, AND 10-MILL VAPOR BARRIER	\$	\$
13	100	SF	REMOVE AND REPLACE EXISTING EXTERIOR BRICK FAÇADE, 8 FOOT HEIGHT FOR EXTERIOR COLUMNS	\$	\$
14	110	SF	TILE FLOORING RESTORATION	\$	\$
15	1	LS	GENERAL ALLOWANCE (IF & WHERE DIRECTED)	\$ 100,000.00	\$ 100,000.00

TOTAL CONSTRUCTION COST, BASE BID Items #1 - #15, Inclusive

\$ _____

TOTAL AMOUNT BID WRITTEN OUT

SIGNATURE

NAME & TITLE

BID DATE

COMPANY NAME

ACKNOWLEDGEMENT OF CONTRACT TIME

MANDATORY PROJECT COMPLETION:

All construction must be complete and contractor must demobilize, restore the site, obtain a certificate of occupancy, satisfy all requirements of the Township construction office, and guarantee the Natatorium is in a safe and functional condition equal to or better than the pre-construction condition on or before August 30, 2024 to ensure that the natatorium can be occupied immediately after the commencement of the 2024-2025 school year

The undersigned bidder hereby acknowledges the following:

Bidder's Initials

It is anticipated that a Notice to Proceed will be issued on or before **May 13, 2024**. If for any reason the Owner is unable to issue a Notice to Proceed by May 13, 2024, the contract completion date will remain **August 30, 2024**. The contractor will be required to take all necessary measures to ensure completion of the project prior to the above mentioned completion date. The contractor will only be compensated for documented additional costs incurred due to the reduced contract time. Any such additional costs must be pre-approved by the Owner prior to being incurred.

No work shall take place during the school year which, at the sole discretion of the Owner, will disrupt school operations. The owner will permit the contractor full access to the Natatorium building on June 4, 2024. The Owner may permit the contractor to work on site prior to this date, but cannot guarantee any access prior to June 4, 2023.

The Natatorium will be fully vacated by the District starting on June 4, 2024 and during the entire summer recess to allow for the construction work to be completed. The contractor shall be granted full access to the Natatorium starting on June 4, 2024. The contractor will be permitted to work the following hours starting on June 4, 2024, and during summer recess:

- On weekdays from 7:00 a.m. to 11:00 p.m.*
- On weekends from 7:00 a.m. to 11:00 p.m.*

*If required, the Owner shall consider a start time earlier than 7:00 a.m.

No access shall be given to the Natatorium building on **June 20, 2024** due to commencement ceremonies. Work will not be permitted in the building or anywhere on the property on this date. Work shall be permitted on all other dates listed in the project schedule.

As set forth in the General Conditions, the Owner is only responsible for paying inspection and contract management costs during the contract time period. The contractor is responsible for all costs of inspection and contract management beyond the contract time limit. These costs are in addition to any liquidated damages that may be charged to the contractor.

SIGNATURE

NAME & TITLE (TYPE OR PRINT)

BID DATE

COMPANY NAME (TYPE OR PRINT)

END PROPOSAL SECTION

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INFORMATION FOR BIDDERS

1.0 BID PREPARATION

1.01 EXAMINATION AND RESPONSIBILITY

Bidders are directed to examine for themselves the drawings, specifications, estimated quantities and the location of the proposed work. They shall exercise their own judgement as to the scope and nature of the work; the difficulties to be encountered and the quantities that may actually be encountered in the work. Each bidder is fully responsible for having reviewed and understood these specifications previous to submitting his bid, that his bid covers and complies with all requirements of the Contract Documents, and shall not at any time thereafter assert any claim related to any misunderstanding of the nature or amount of work to be done.

1.02 CONDITION OF WORK

Each bidder must inform himself fully of the conditions relative to the construction under which the work is now being or will be performed. Failure to do so will not relieve a successful bidder of his obligation to furnish all materials and labor necessary to carry out the provisions of the contract documents and to complete the contemplated work for the construction as set forth in his bid. The Contractor in the carrying out of his work must employ such methods or means that will not cause any interruptions or interference with the work of any other contractor (if applicable).

1.03 OBLIGATIONS OF BIDDERS

At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the drawings and contract documents (including all addenda). The failure or omission of any bidder to receive or examine any form, instrument or documents, shall in no way relieve any bidder from any obligations contained therein.

1.04 ADDENDA, BID SPECIFICATION CHALLENGES AND INTERPRETATIONS

The Table of Contents indicates the number of pages of each section of the document. If any bidder finds that a page was mis-copied or is missing, please contact the Engineer. The page(s) will be faxed to the bidder. Issuance of any such pages will not be considered an Addendum to the contract or specifications.

No interpretations of the meaning of the drawings, specifications or other contract documents will be made to any bidder orally. Every request for such interpretation should be made in writing, addressed to the Engineer, and to be given consideration, must be received at least ten (10) days prior to the final date fixed for receiving bids. Any and all such interpretations and/or supplemental instructions will be in the form of written addenda to the specifications, which if issued, will be issued in accordance with applicable State Laws.

Any bidder who wishes to challenge a bid specification shall file such challenges in writing with the Engineer no less than three business days prior to the opening of the bids. Challenges filed after that time shall be considered void and having no impact on the board of education or the award of a contract.

Failure of any bidder to receive any such addendum or interpretations shall not relieve any bidder from any such obligations therein under his bid submitted. All addenda so issued shall become part of the contract documents, and shall be attached to the bid form when submitted

1.05 QUALIFICATIONS OF BIDDERS

The owner may make such an investigation as is necessary to determine the responsibility of the bidder and/or the ability of the bidder to perform the work. The bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that said bidder is responsible or properly qualified to carry out the obligations of the contract and to complete the work therein contemplated.

All bidders shall be classified in accordance with Article 6 of the N.J.S.A. 18A, for work exceeding \$20,000, as to the character and amount of public work or which bidders shall be qualified to submit bids. So long as such requirement is in effect, the Owner shall accept bids only from persons qualified in accordance with such classification.

Conditional bids will not be accepted. Bids which are incomplete or obscure may be rejected at Owner's option.

1.06 DISCLOSURE STATEMENT 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 materials or supplies, the cost of which is to be paid with or out of any public funds, by the State, 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 exercises governmental functions, unless prior to the receipt of the bid or accompanying the bid, of said corporation, said partnership, or said limited liability company 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 noncorporate 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 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 websites 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 on each person that holds a 10 percent or greater beneficial interest.

1.07 MANUFACTURED ARTICLES

In the specifications and on accompanying drawings, there are specified and shown certain pieces of equipment and materials, deemed most suitable for the service anticipated. This is not done, however, to eliminate other equipment and materials equally as good and efficient. When a bidder submits an equivalent, it shall be the responsibility of the bidder to document the equivalence claim.

Failure to submit such documentation shall be grounds for the rejection of the claim of equivalence. The bidder shall prepare his bid on the basis of the particular equipment and materials specified or shown, and shall be responsible for the coordination, arrangement and location of all equipment and material incorporated in the work.

1.08 BID SECURITY AND CONSENT OF SURETY

Each bid shall be accompanied by a Certified Check, Cashier's Check or Bid Bond duly executed by the bidder as principal, and having as surety thereon a Surety Company approved by the Owner, in an amount not less than ten percent (10%) of the amount bid but in no case in excess of \$20,000.00. Any such Bid Bond shall be without endorsement or conditions. Bid shall also be accompanied with a certificate letter from a surety company stating that it will provide the bidder with the requisite completion performance and payment bonds, i.e. a Consent of Surety.

Such bid guarantee will be returned to all bidders, except to the three apparent lowest responsible bidders, within ten days after the formal opening of bids, Sundays and holidays excepted.

The bid guarantee will be returned to the remaining unsuccessful bidders within three days, Sundays and holidays excepted, after the Owner and the accepted bidder have executed the contract and the Owner has approved the Bidder's Performance Bond, or if no contract has been accepted within 60 days after the date of opening of bids, any bidder upon demand made after the expiration of said 60 day period, shall be entitled to the return of his bid guarantee, so long as he has not been notified by the Owner of the acceptance of his bid.

Any such bid guarantee shall be forfeited and become the property of the Owner if the bidder whose bid is accepted shall fail: to give a satisfactory performance bond and labor and material payment bond, or a combination performance and labor and material payment bond, and/or fails to execute a contract within ten (10) days after notice from the Owner to do so.

1.09 NEW JERSEY BUSINESS REGISTRATION REQUIREMENTS

Pursuant to N.J.S.A. 52:32-44, Contracting Agency is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required 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 the Treasury.

Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

During the course of contract performance:

- (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- (2) 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.

- (3) the contractor and any subcontractor providing goods or performing services under the contract, 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, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.

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 provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

2.0 SUBMISSION OF BIDS

2.01 GENERAL

Bidder must submit their bid on the respective "Bid Form and Package" included hereto.

No bid will be accepted or opened if received after the designated time for receipt.

For each bid made, all blank spaces in the Bid Form must be filled in, in ink, with the unit prices of the item and its extension. All bid forms submitted will be checked for arithmetic accuracy. In the event of a discrepancy between the unit price bid for any Pay Item and the extension shown for that item under the column of the Proposal Form designated "Amount," the unit price is to govern. Where a unit price is bid for a Pay Item, but no extension is provided, the Owner will provide the extension based on the unit price bid and the estimated quantity for that Pay Item. Where an extension is provided by the Bidder in the "Amount" column, but no unit price appears in the "Unit Price" column of the Proposal Form, the Owner will provide the unit price by dividing the "Amount" figure provided by the Bidder by the estimated quantity.

Award will be made on the basis of Total Contract Price. The Total Contract Price means the correctly determined summation of lump sum bids and products of all quantities for Pay Items shown in the Proposal form multiplied by the unit prices bid.

If there are minimum unit prices included in the bid form, those prices shall be the minimum acceptable unit price for the work. If bidder fails to exceed the minimum unit price in his bid, the unit price will be set to the minimum price stated on the bid form, with the appropriate increase to the extension of the unit price and total bid price.

Where no figure is provided by the Bidder in both the "Unit Price" and "Amount" columns for one or more Pay Items, or where no figure is provided in the "Amount" column for one or more lump sum Pay Items the Owner will consider the amount bid to be zero (\$0.00) for that item.

Any bid may be submitted or withdrawn prior to the scheduled time for the opening of bids, or authorized postponement thereof. Any bid received after the time and date specified in the Notice to Bidders will not be considered. No bid may be withdrawn within 60 days after the actual date of opening thereof, unless otherwise provided for by law.

2.02 PRICE TO INCLUDE

The bid submitted must cover the entire cost of the contemplated construction and installation as illustrated on the drawings and in the manner and detail described in the specifications. The price bid for each item shall cover the entire cost of its installation, construction, and completion, including all materials, workmanship, and appurtenances necessary for its completion or as implied by illustration on the drawings, by description in the specifications, or to be reasonably inferred therefrom.

2.03 REJECTION OF BIDS

The owner reserves the right to reject all bids, to reject any bid or bids not complying with the specifications, and to waive any informality in any bid or bids if such waiver be deemed by the Owner to be in the best interests of the Owner in accordance with the requirements contained in N.J.S.A. 18A:18A et seq. Each bidder is instructed to be present in person or by representative at the time and place fixed for the opening of bids and at every subsequent meeting of the Owner at which the bidder is advised, or it has been publicly announced at the time of bids, that said bids shall receive further consideration or shall be acted upon, if said bidder desires an opportunity to be heard.

2.04 AWARD OF BID

The award of the contract will be made, subject to necessary monies to do the work being provided by the Owner either by Resolution, or in other lawful manner. The contract to be executed by the successful bidder will provide that it shall not become effective until the necessary monies to do the work have been provided by the Owner, either by Resolution or another lawful manner.

In accordance with NJSA 34:11-56.25 et seq., New Jersey State Prevailing Wage Act and NJSA 52:32-44.1 no contract shall be awarded to any contractor, subcontractor, or to any firm, corporation or partnership in which such contractor or subcontractor has an interest, who is debarred from public works or contracting with a federal government agency.

3.0 CONTRACTS

3.01 DRAWINGS AND SPECIFICATIONS FURNISHED

The Engineer shall furnish, at no additional cost to the successful bidder, one executed contract set of drawings and specifications, and two copies of the specifications and drawings. All additional copies of the drawing and/or specifications shall be furnished to the contractor at the cost of reproduction plus handling.

3.02 PERFORMANCE, PAYMENT AND MAINTENANCE BONDS

The bidder whose bid is accepted shall furnish to the Owner, a performance bond and labor and material payment bond, or a combination performance and labor and material payment bond, and upon final completion of the work, a two (2) year maintenance bond, each in the amount of 100% of the final contract price, with such sureties as shall be approved by the Owner and as detailed and described below.

All surety companies must be authorized to transact such business in New Jersey, pursuant to N.J.S.A. 17:17-10 or 17:32-1 et seq. The surety must designate a New Jersey agent on whom service of process can be made. The Contractor shall be responsible for updating the surety's expiration from the list or an agent change, to the Engineer or Owner. All surety companies must have the minimum capital and surplus or net cash assets required, pursuant to N.J.S.A. 17:17-6 or 17:17-7, whichever is applicable, on the date of advertisement for the project. All surety companies must complete a Surety Disclosure Statement and Certification for all payment and performance bonds, pursuant to N.J.S.A. 2A:44-143d.

In addition, for these public works project bids, including any and all alternates, that equals at least \$850,000.00 but not more than \$3.5 million, the surety company must hold a current certificate of authority issued by the U.S. Secretary of the Treasury that is valid in New Jersey as listed annually in the U. S. Treasury Circular 570.

However, if the surety company has been operational for a period in excess of five years, the surety company shall also be considered to have satisfied this requirement if it is rated in one of the three highest categories by an independent nationally recognized United States rating company that determines the financial stability of insurance companies. Such rating companies must meet standards promulgated by the N. J. Commissioner of Insurance N.J.A.C. 11:1-41.1 et seq.

In addition, for those public works project bids, including any and all alternates, is in excess of \$3.5 million, the surety company must hold a current certificate of authority issued by the United States Secretary of the Treasury that is valid in the State of New Jersey listed annually in U.S. Treasury Circular 570. And, if the surety company has been operational for a period in excess of five years, it must be rated in one of the three highest categories by an independent, nationally recognized United States rating company that determines the financial stability of insurance companies. Such ratings must meet standards promulgated in N.J.A.C. 11:1-41.1 et seq.

A surety company, which seeks to provide a payment and performance bond in excess of \$3.5 million, is exempt from the requirement of Treasury Circular 570 if it meets standards developed by the Commissioner of Insurance through regulations which, at least equal, and may exceed, the general criteria required for Treasury listing. These standards are found at N.J.A.C. 11:1-41.4.

3.03 LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable Federal, State, County and municipal laws ordinances, regulations, etc. and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though therein written out in full including, but not limited to the "Occupational Safety and Health Act of 1970" P.L. 91-596, as amended.

3.04 PERMITS

The Contractor shall determine which construction permits and licenses shall be needed, and shall procure and pay for all such construction permits and licenses necessary for the execution of his work.

3.05 CONTRACT DOCUMENTS

Attached hereto is the "Form of Contract" that will be executed between the Owner and the Contractor.

The Contractor shall execute and return these documents with the required bonds, insurance certificates, affirmative action forms and any other documents required within ten (10) days after receipt of the request for execution.

3.06 NOTICE TO PROCEED

After approval and execution of the contract documents by all parties and a preconstruction meeting, the contractor shall be sent a "Notice to Proceed". This document serves as formal authorization to proceed with the project.

Any and all work performed by the contractor prior to receipt of the Notice to Proceed is at the contractor's risk with no claim against the Owner for such work.

4.0 AFFIRMATIVE ACTION AGAINST DISCRIMINATION

4.01 BIDDER REFERRED TO LAW

The bidder is specifically referred to N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 as amended and the Regulations adopted pursuant thereto, relating to affirmative action in relation to discrimination.

4.02 SPECIFIC LANGUAGE REQUIRED

In accordance with the Affirmative Action Regulations adopted pursuant to N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27, the following is made a part of this Contract:

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

- a. 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, 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 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, up-grading, 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.
- b. 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.
- c. The contractor or subcontractor 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.
- d. 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.

e. 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 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 Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business 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 to 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 non-discrimination 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 appropriate 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 provisions 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) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union 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 numbers 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 ratio 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 Division 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 purposes 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.

4.03 CONTRACT PROCEDURES

The Contractor must sign a contract containing the mandatory language in Section 4.02 above entitled "Specific Language Required."

The construction contractors shall complete and submit an Initial Project Workforce Report Form AA-201 upon notification of award. 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 Dept. of LWD and to the Public Agency Compliance Officer.

The EEO/AA evidence must be submitted after notification of award, but prior to signing a construction contract. All Public Agencies must retain the affirmative action evidence in their files for review by the Division.

4.04 EQUAL OPPORTUNITY FOR INDIVIDUALS WITH DISABILITIES

The contractor and the Owner do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. S12101 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 thereto, are made 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 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 or 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 Act 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 practical after a claim has been made against it, give written notice thereof to the contractor along with the full 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 contract. 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 contract, 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 this contract or otherwise at law.

CONTRACT FOR
EGG HARBOR TOWNSHIP HIGH SCHOOL NATATORIUM COLUMN REPAIRS

THIS AGREEMENT, between the **Egg Harbor Township Board of Education**, a Board of Education in the State of New Jersey, having its principal offices located at 13 Swift Drive, Egg Harbor Township, New Jersey 08234, hereinafter referred to as Owner and (Insert Contractor Name) having its principal place of business located at (Insert Contractor Address) hereinafter referred to as "Contractor".

WITNESSETH;

That for and in consideration of the sum of (\$00,000.00. Dollars and 00/100 (\$....)), contractor agrees to furnish to the Owner, the labor, material, equipment and services in accordance with the contract documents hereinafter set forth.

That for and in consideration of the amount payable under this agreement by the Owner, the Contractor agrees, at its own proper cost and expense, and with due skill and diligence, that it will complete the **Egg Harbor Township High School Natatorium Column Repairs** in accordance with the contract documents and in compliance with this agreement.

Contractor agrees to receive as full compensation the amount stated herein, namely (Insert contract amount), for said services provided to the Owner. Contractor shall be responsible for all loss or damage arising out of the furnishing of the services aforesaid.

To prevent all disputes and litigation, it is agreed by and between the parties to the Contract that the Owner shall in all cases determine the quantity of the goods delivered and paid for under this contract, and as to the interpretation of any ambiguity in or intent of the drawings and specifications.

The Contract documents shall consist of the following:

1. Notice to Bidders.
2. Specifications.
3. Contractors Proposal (as accepted).
4. Contract Agreement.
5. Contract Drawings
6. All Addenda.

The parties to this contract agree to incorporate into this contract the mandatory language of the Regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27, as amended and supplemented from time to time and the contractor or subcontractor agrees to comply fully with the terms, provisions, and obligations of said Regulations.

This agreement, together with the contract documents, form the contract and they are as fully a part of this contract as if hereto attached or herein repeated.

(Insert Contractor Name) 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.

The Owner and the Contractor, for themselves, their heirs, executors, administrators, successors or assigns, hereby agree to the full performance of the covenants herein contained.

IN WITNESS WHEREOF, they have executed this Agreement.

CONTRACTOR:

ATTEST:

_____ BY _____

Print Name & Title

Print Name & Title (Seal)

Dated this ____ day of _____, 2023.

BOARD OF EDUCATION:

ATTEST:

_____ BY _____

(Seal)

Dated this ____ day of _____, 2023.

CERTIFICATE OF INSURANCE

Name & Address of Insured

Afforded	Required	Type of Insurance	Policy Number and Insuring Company(ies)	Policy Expiration Date	Limits of Liability		
					Amounts of Less Than \$1,000,000 Will Not Be Acceptable	Amount <u>Required</u> Each Occurrence	Amount <u>Provided</u> Each Occurrence
<input type="checkbox"/>	<input checked="" type="checkbox"/>	General Liability Comprehensive Gen. Form			General Aggregate	\$2,000,000	\$
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Premises-Operations			Bodily Injury	\$1,000,000	\$
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Explosion & Collapse Hazard			Property Damage	\$1,000,000	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Underground Hazard					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Products/Completed Operations Hazard					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Contractual Ins. (Blanket)			Bodily Injury and Property Damage Combined	\$1,000,000	\$
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Broad Form Prop. Damage					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Independent Contractors					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Personal Injury			Personal Injury	\$1,000,000	\$
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Automobile Liability Comprehensive Form			Bodily Injury (Each Person)	\$1,000,000	\$
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Owned			Bodily Injury (Each Accident)	\$1,000,000	\$
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Non-Owned			Property Damage	\$1,000,000	\$
<input type="checkbox"/>	<input type="checkbox"/>	Garagekeepers Insurance (Without regard to legal liability as direct coverage on a primary basis)			Bodily Injury and Property Damage Combined	\$1,000,000	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Excess Liability Umbrella Form			Bodily Injury and Property Damage Combined	\$1,000,000	\$
<input type="checkbox"/>	<input type="checkbox"/>	Other Than Umbrella Form					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Worker's Compensation and Employers' Liability	*All States Endorsement		Statutory NJ Coverage \$100,000/\$500,000		
					Minimum \$100,000	\$100,000	\$

Remarks: Additional Insured: **REMINGTON & VERNICK ENGINEERS, BOARD OF EDUCATION, and BOARD OF EDUCATION SOLICITOR**

It is understood and agreed that in the event of any material change in, cancellation of, or expiration of the above policy or policies the undersigned Insurance Company agrees to give a written notice to the Owner, at the above address thirty (30) days in advance of such change or cancellation.

This certificate is executed and issued to the Owner on the day and date herein below written certifying that the Insured has been issued the above policy or policies with Limits of Liability of at least the required amounts.

*** PLEASE PUT "X'S" IN AFFORDED COLUMN OR CERTIFICATE WILL BE RETURNED ***

Name of Agency

Street Address

City, State & Zip Code

Signature of Authorized Representative of Insurance Company

Address Date

Agency Telephone No.

TO: INSURANCE PRODUCER

Your client, as a supplier to the Owner is required to provide a certificate of insurance for the coverages and amounts indicated on the reverse side of this insurance certificate. It is important to your client that you respond quickly since continued business relationships depend upon valid insurance. Additionally, the minimum amount and type of coverage shown on our certificate is not negotiable and is not intended to imply that is all the insurance necessary to protect him/her from all losses or liability. It is the Owner's policy to require all suppliers who make deliveries or perform assembly, repair operations or a service in, on or upon our property/premises or property/premises under our care, custody and control to maintain the insurance coverage described below; such insurance must be obtained prior to the start of any such work the Owner.

A. Comprehensive General Liability (CGL)

This coverage must include: Premises-Operations, Products/Completed Operations Hazard, Contractual Insurance (Blanket Coverage), Broad Form Property Damage, Independent Contractors, and Personal Injury and all others shown on "X" in the required column.

Minimum Coverage

Bodily Injury and Property Damage combined - as shown in the amount required column

AMOUNTS OF LESS THAN \$1,000,000 WILL NOT BE ACCEPTABLE.

Contractual Insurance (Blanket Coverage)

Contractual Indemnification - Save Harmless Agreement which is incorporated into all Vouchers, General Purchase Agreements and Contracts.)

INDEMNIFICATION

Supplier shall defend, indemnify and save harmless, the Owner from and against all losses, costs, damages, expense claims or demands arising out of or caused or alleged to have been caused in any manner by a defect in any equipment or materials supplied hereunder or by doing the work herein provided, including all suits or actions of every kind of description brought against Owner, either individually or jointly with Supplier for or on account of any damage or injury to any person or persons or property, caused or occasioned or alleged to have been caused by or on account of the performance of any work pursuant to or in connection with this contract or through any negligence or alleged negligence in guarding the work or through any act, omission or fault or alleged act, omission or fault of the Supplier, its employees or agents, or others under Supplier's control.

B. Automobile Liability - Comprehensive Form (or as shown on reverse side)

Minimum Coverage

Bodily Injury and Property Damage combined - as shown in the amount required column.

C. Worker's Compensation - As required by New Jersey State Statute

and

Employer's Liability (minimum \$100,000)

D. Excess Liability

Commercial Umbrella Form - \$1,000,000.

E. Other Coverage(s)

As shown on reverse side.

THANK YOU

Important - Producer:

PLEASE CHECK THE AFFORDED BLOCK FOR EACH COVERAGE PROVIDED.

THE CERTIFICATE MUST BE SIGNED BY THE AGENT OF THE INSURER OR CERTIFICATE WILL BE RETURNED.

IT IS NECESSARY TO SUBMIT YOUR CLIENTS COVERAGE THIRTY (30) DAYS PRIOR TO THE EXPIRATION OF THE EXISTING COVERAGE ON OUR CERTIFICATE ONLY; ALL OTHERS WILL BE RETURNED TO THE SUPPLIER AND SERVE TO DELAY FUTURE BUSINESS DEALINGS BETWEEN THE OWNER AND YOUR CLIENT.

SUPPLEMENTAL INFORMATION FOR BIDDERS – EGG HARBOR TOWNSHIP
BOARD OF EDUCATION

ETHICS IN PURCHASING
Statement to Vendors

Board of Education Responsibility

Recommendation of Purchases

It is the desire of the Board of Education to have all Board employees and officials practice exemplary ethical behavior in the procurement of goods, materials, supplies, and services.

School officials and employees who recommend purchases shall not extend any favoritism to any vendor. Each recommended purchase should be based upon quality of the items, service, price, delivery, and other applicable factors in full compliance with N.J.S.A. 18A:18A-1 et.seq.

Solicitation/Receipt of Gifts – Prohibited

School officials and employees are prohibited from soliciting and receiving funds, gifts, materials, goods, services, favors, and any other items of value from vendors doing business with the Board of Education or anyone proposing to do business with the Board.

Vendor Responsibility

Offer of Gifts, Gratuities -- Prohibited

Any vendor doing business or proposing to do business with the Board of Education, shall neither pay, offer to pay, either directly or indirectly, any fee, commission, or compensation, nor offer any gift, gratuity, or other thing of value of any kind to any official or employee of the Board or to any member of the official's or employee's immediate family.

Vendor Influence -- Prohibited

No vendor shall cause to influence or attempt to cause to influence, any official or employee of the Board, in any manner which might tend to impair the objectivity or independence of judgment of said official or employee.

Vendor Certification

Vendors or potential vendors will be asked to certify that no official or employee of the Board of Education or immediate family members are directly or indirectly interested in this request or have any interest in any portions of profits thereof. The vendor participating in this request must be an independent vendor and not an official or employee of the Board of Education.

**EGG HARBOR TOWNSHIP BOARD OF EDUCATION
BUSINESS OFFICE**

TO: All Vendors

UNAUTHORIZED ORDERS

Official Notification

Authorized Purchases

The Egg Harbor Township Board of Education only recognizes purchases made through the approved purchase order process. All purchases require a:

Written Purchase Order with **authorized signatures** and a **Purchase Order Number**.

Unauthorized Purchases

Any Board of Education employee who orders and/or receives any materials, supplies or services without first going through the approved purchase order process has made an unauthorized purchase.

Vendors' Responsibility

• **Do NOT Honor Requests!**

Vendors are not to honor or accept any requests for goods or services unless the vendor receives a **written purchase order** with **authorized signatures** and a **purchase order number**.

• **Contact the Business Office!**

Please alert **Mrs. Jennifer Germana** at **609-646-8441 x 1070** if any Board employee attempts to place an order without an authorized purchase order.

• **You will NOT Get Paid!**

The Egg Harbor Township Board of Education will not be held responsible for any unauthorized orders or purchases.

Authorized Signatures

The Egg Harbor Township Board of Education will only recognize purchase orders signed by:

Daniel Smith, School Business Administrator

EGG HARBOR TOWNSHIP BOARD OF EDUCATION

ADVISORY INFORMATION FOR BIDDERS

1. PROMPTNESS OF BID SUBMITTAL

It is the responsibility of the bidder to ensure that their bid is presented in a sealed envelope to the Office of the School Business Administrator/Board Secretary, prior to the advertised bid date and time. The advertised bid date and time for this bid is on **March 30, 2023 @ 11:00 A.M.** No bids shall be received after the time designated in the bid advertisement. No extensions or exceptions will be made. The Business Office is open Monday through Friday from 8:00 am – 4:00 pm according to the school calendar. Bidders may submit bids to the School Business Administrator/Board Secretary at the Business Office, prior to the advertised bid opening date and time. Once again, bids will not be received after the time designated in the advertisement.

2. HAND DELIVER BIDS – SUGGESTED PRACTICE

Keeping the aforementioned items in mind, the Board suggests that bidders arrange to hand deliver their bid to the Office of the School Business Administrator/Board Secretary, before the advertised date and time. Please understand that bids arriving after the advertised bid date and time for any reason, cannot be accepted, opened or considered.

DISTRICT LOCATIONS:

A.	H.R. Swift School 5 Swift Drive Egg Harbor Township, NJ 08234 (609) 927-4141	G.	Alder Avenue Middle School 25 Alder Avenue Egg Harbor Township, NJ 08234 (609) 383-3366
B.	E.H. Slaybaugh Elementary School 11 Swift Drive Egg Harbor Township, NJ 08234 (609) 927-8222	H.	Fernwood Avenue Middle School 4034 Fernwood Avenue Egg Harbor Township, NJ 08234 (609) 383-3355
C.	E.H. Slaybaugh Primary School 13 Swift Drive Egg Harbor Township, NJ 08234 (609) 927-8222	I.	Egg Harbor Township High School 24 High School Drive Egg Harbor Township, NJ 08234 (609) 653-0100
D.	C.J. Davenport Elementary School 2501 Spruce Avenue Egg Harbor Township, NJ 08234 (609) 645-3550	J.	Eagle Academy 3517 Bargaintown Road Egg Harbor Township, NJ 08234 (609) 926-1235
E.	C.J. Davenport Primary School 2499 Spruce Avenue Egg Harbor Township, NJ 08234 (609) 645-3550	K.	Facilities Department (2 buildings) 7 Swift Drive Egg Harbor Township, NJ 08234 (609) 927-1911
F.	Joyanne D. Miller Elementary School 2 Alder Avenue Egg Harbor Township, NJ 08234 (609) 407-2500	L.	Transportation Department 9 Swift Drive Egg Harbor Township, NJ 08234 (609) 927-2443

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GENERAL CONDITIONS

1.0 GENERAL PROVISIONS

1.01 DEFINITIONS

The following words and expressions used in the contract documents shall be construed as follows:

Owner.....Egg Harbor Township Board of Education
13 Swift Drive
.....Egg Harbor Township, New Jersey 08234

Engineer.....Remington & Vernick Engineers
2819 Fire Road, 1st Floor
.....Egg Harbor Township, NJ, 08234

Contractor.....Party, firm, corporation with whom or which the contract is made, or authorized agent thereof.

Day.....Calendar day.

Legal Holiday.....Days which the owner does not conduct regular business hours. The Contractor is responsible to contact the Owner for a listing of these days.

Substantial Completion The work will not reach Substantial Completion until all project systems included in the work are operational as designed and scheduled, all designated or required inspections, certifications, permits, approvals, licenses and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial use and occupancy of the work are received, designated instruction of Owner’s personnel has been completed, and all final finishes within the Contract are in place. Any remaining work shall be minor in nature, so that the Owner can occupy the building on that date and the completion of the remaining work by the Contractor would not materially interfere or hamper the Owner’s (or those claiming by, through or under the Owner) normal operations. The contractor recognizes that normal operations require the use and occupancy of the work area without interruption and that any punch list or corrective work shall be done at times when the work area is not so occupied. As a further condition of reaching Substantial Completion, the Contractor shall certify that all remaining work will be completed within thirty (30) consecutive calendar days or as so agreed upon following the date of Substantial Completion. Site related projects and/or projects including facilities with site improvements shall not reach Substantial Completion until such time as all site amenities (i.e. lighting, top paving, striping, fencing, stormwater compliance, etc..) are placed into service leaving only minor improvements that will not hamper access or use to complete the project.”

Final CompletionAll warranties and guarantees required pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Owner as part of the final application for payment. The final Certificate for Payment will

not be issued by the Engineer until all warranties and guarantees have been received and accepted by the Owner.

1.02 SPECIAL NOTICE

The "Information for Bidders", the "General Conditions", the "Notice to Bidders", and "Proposal Section" shall be held equally binding with and are to be considered a part of the specifications and contract and the party of the second part, the Contractor, will be held responsible for neglect in attending to any part, paragraph or item therein.

1.03 REPRESENTATION OF CONTRACTOR

The Contractor represents and warrants:

- (a) That he is financially solvent and that he is experienced in and competent to perform the type of work to furnish the labor, plant, materials and supplies or equipment to be so performed or furnished by him and
- (b) That he is familiar with all Federal, State, County, Municipal and Department Laws, Ordinances and Regulations, which may in any way affect the work or those employed therein, including, but not limited to, any special Acts relating to the work or to the project of which it is a part, and
- (c) That such temporary and permanent work required by the contract documents and is to be done by him can be satisfactorily constructed and used for the purpose for which it is intended, and that such construction will not injure any persons or damage any property, and
- (d) That he has carefully examined the drawings, specifications, and the site of the work, and that from his own investigations he has satisfied himself as to the nature and location of the work, the character, quality and quantity of surface and subsurface materials likely to be encountered, the character of equipment and other facilities needed for the performance of the work, the general and local conditions and all other items which may in any way affect the work or its performance.

1.04 SUBLETTING OR ASSIGNING OF CONTRACT

The Contractor shall not assign, sell or transfer or otherwise dispose of the contract or any portion thereof or of the work provided therein or his right, title or interest therein, to any persons, firm or corporation, without prior written consent of the Owner.

1.05 CONSTRUING THE SPECIFICATIONS

To avoid disputes and litigation, it must be distinctly understood by the Bidder/Contractor that the Engineer shall construe or interpret the specifications and explain any ambiguity therein and shall have the right to decide as to their purpose and intent and his decision upon any such ambiguity shall be final, conclusive and binding.

1.06 NECESSARY TO COMPLETE

If any work or materials are required which are obviously necessary to carry out the full intent and meaning of the said specifications although the same may not be either directly or indirectly in the specifications, the Contractor is hereby bound to furnish the same without charge or claim.

1.07 DRAWINGS AND SPECIFICATIONS

The Contractor shall keep at the site of the work one copy of the drawings and specifications signed and identified by the Engineer and shall at all times give the Engineer and other representatives of the Owner access thereto. Anything shown on the drawings and not mentioned in the specifications or mentioned in the specifications and not shown on the drawings, shall have the same effect as if shown or mentioned respectively in both. In case of any conflict between the drawings and specifications, the specifications shall govern. Any ambiguity or discrepancy between drawings and specifications shall be submitted by the Contractor to the Engineer whose decision shall be conclusive.

The general arrangement and location of equipment, the various pipe, duct, and conduit runs, etc. are shown on the drawings. All dimensions or the scales of the drawings shall be considered as approximate and shall be checked by each bidder to his own satisfaction prior to bid. The exact location of all parts of the work shall be governed by existing conditions, and the Contractor shall coordinate and locate all work at the time of installation. Any changes in location, etc. from that shown on the drawings, necessary by existing conditions, shall be made by the Contractor at no increase of the contract sum.

1.08 RIGHT-OF-WAY

All rights-of-ways through private property required shall be secured by the Owner. Contractor shall not start construction in right-of-ways until directed by the Engineer. No claim shall be made by the Contractor for damage due to delay in securing right-of-ways.

1.09 TIME LIMITS

The Contractor agrees to start the work herein contracted for within ten (10) days from the date of the Owner's Notice to Proceed to the Contractor directing him to proceed with the work. The time to complete the work contracted for, from the date of the Proceed Order, shall be limited to the following:

Notice to Proceed:	On or before May 13, 2024
Full Access to Natatorium:	June 4, 2024
Project Completion:	On or before August 30, 2024 (see Note 1)

Note 1: All construction must be complete and contractor must demobilize, restore the site, obtain a certificate of occupancy, satisfy all requirements of the Township construction office, and guarantee the Natatorium is in a safe and functional condition equal to or better than the pre-construction condition on or before this date to ensure that the natatorium can be occupied immediately after the commencement of the 2024-2025 school year.

No extension of time will be allowed for delay from any cause whatsoever, including normal weather conditions unless the Contractor shall have notified the Engineer in writing of such delay and his intention to claim an extension of time within two (2) days after the beginning of such delay. Such notice shall give complete information concerning the nature, extent and cause of the delay. If, in the opinion of the Owner, an extension of time is warranted the Owner or Owner's representative, will issue a written extension, setting a new time limit for the completion of the work. Additionally, should the Owner grant the Contractor an extension of Contract time, the Contractor shall not be due any compensation for the extended contract time unless specifically indicated in writing at the time of the extension. Failure of Owner or Owner's Representative to expressly respond to a reservation of rights letter from Contractor reserving a right to additional compensation shall in no way be deemed an admission that Contractor is entitled to additional

fees. Any costs associated with increased contract time due to approved change order work must be specifically identified included in the change order at the time of submission.

1.10 LIQUIDATED DAMAGES

In case the Contractor fails to complete the work contracted for, satisfactory to and acceptable to the Owner within the stipulated time limit, then the Contractor shall and will pay to the Owner for each and every calendar day determined to be in default, the following sums, which are agreed upon, fixed and determined by the parties hereto to be liquidated damages. Liquidated damages shall not be assessed beyond substantial completion.

One (1) to Fifteen (15) Days beyond Contract Time Limits

Five Hundred (\$500.00) dollars per calendar day.

Sixteen (16) to Thirty (30) Days beyond Contract Time Limits

One Thousand (\$1,000.00) dollars per calendar day

Greater than Thirty (30) Days beyond Contract Time Limits

Two Thousand (\$2,000.00) dollars per calendar day

The Owner shall recover said damages by deducting the amount thereof out of any money which may be due or become due to the Contractor, or by an action of law against the Contractor, his surety or by either or both of these methods.

In case the Contractor shall be delayed due to the failure on the part of the Owner to furnish anything on its part to be furnished or for any other cause beyond the control of the Contractor, he shall be entitled to such an extension of time for the delivery of equipment, materials, work and supplies as in the judgment of the Engineer shall be fair and just.

1.11 OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

The Owner has the right to stop work or terminate the contract, if:

- (a) The Contractor shall be adjudged bankrupt or make an assignment for the benefit of creditors, or
- (b) A receiver or liquidator shall be appointed for the Contractor or for any of his property and shall not be dismissed within 20 days after such appointment or the proceedings in connection therewith shall not be stayed on appeal within the said 20 days, or
- (c) The Contractor shall refuse or fail, after notice or warning from the Engineer, to supply enough properly skilled workmen or proper materials, or
- (d) The Contractor shall refuse or fail to prosecute to work or any part thereof with such diligence as will ensure its completion within the period herein specified (or any duly authorized extension thereof) or shall fail to complete the work within said period, or
- (e) The Contractor shall fail to make prompt payment to persons supplying labor or materials for the work, or
- (f) The Contractor shall fail or refuse to regard laws, ordinances or regulations or otherwise to be guilty of a violation of any provisions of the contract or the Scope of Work therein, then and in such event,

the Owner, without prejudice or any rights or remedy it may have, may give seven (7) days' notice to the Contractor to terminate the employment of the Contractor and his right to proceed, either as to the entire work or at the option of the Owner as to any portion thereof as to which delay shall have occurred, and may take possession of the work and complete the work by the Contractor or otherwise, as the Owner may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the compensation to be paid the Contractor hereunder shall exceed the expense of so completing the work, including compensation for additional managerial, administrative and inspection services and any damages for delay, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor and his sureties shall be liable to the Owner for such expenses. If the right of the Contractor to proceed with the work is terminated, the Owner may take possession of and utilize in completing the work such materials, appliances, supplies, drawings, and equipment, as may be on the site of the work and necessary therefore. If the Owner does not terminate the right of the Contractor to proceed, the Contractor shall continue the work.

If the work shall be stopped by order of the Court or any other public authority, for a period of three (3) months without act or fault of the Contractor or of any of his agents, servants, employees, or Subcontractor, the Contractor may, upon ten (10) days' notice to the Owner, discontinue his performance of the work and/or terminate the contract, in which event the liability of the Owner to the Contractor shall be determined as provided in the paragraphs immediately preceding, except that the Contractor shall not be obligated to pay to the Owner any excess of the expense of completing the work over the unpaid balance of the compensation to be paid by the Contractor hereunder.

1.12 REFERENCE TO THE STANDARD SPECIFICATIONS

- (a) All applicable portions of the work performed under this contract shall comply with the requirements of the current New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, as amended or supplemented and whose specifications are made part of these specifications. The New Jersey Department of Transportation Standard Construction Details shall govern except insofar as same are expressly modified, amended or changed in detail drawings prepared specifically for this particular project.
- (b) The Standard Specifications are made part of these specifications by this reference as if were set forth in full. It is the responsibility of the prospective bidder to be familiar with these Standard Specifications. The Contractor is required to follow only the electronic version, effective September 1, 2019, as referenced in Baseline Document Change announcement BDC19S-01 of the New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, 2019, unless modified in the technical specifications of this contract. Copies may be examined in the Engineer's office or may be obtained from the New Jersey Department of Transportation.

1.13 DEPARTMENT OF EDUCATION REPORTING

The Board of Education, through its authorized agent, shall upon completion of the contract, for contracts exceeding \$20,000.00, report to the Department of Education 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.

2.0 INSURANCE

2.01 STATE LAW AND REGULATIONS AND INSURANCE

The Contractor must assume all risks connected with his work. He shall comply with all State Laws and Regulations concerning Workmen's Compensation and shall maintain such insurance as will protect him against all claims for damages for personal injury, including death which may arise during prosecution of the contract, either by himself or by any Subcontractor or anyone directly or indirectly employed by either of them.

2.02 CONTRACTOR'S INSURANCE

The Contractor shall not commence work under this contract, until he has obtained all insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work, in his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved.

Insurance coverage shall remain in effect until the project is accepted by the Owner, and at all times thereafter when the Contractor may be removing or replacing defective work.

The Contractor shall furnish the Owner with proof of insurance by execution of the Certificate of Insurance, of which a copy is included herein. The Owner, Remington & Vernick Engineers and the Solicitor shall be a named additional insured.

The Certificate of Insurance shall give the Owner and Engineer 30 days written notice of any material change in, cancellation of, or expiration of the policies.

The following types of insurance are required:

- a. General Liability
- b. Automobile Liability
- c. Excess Liability
- d. Worker's Compensation and Employer's Liability

The amounts for property damage and bodily injury for each type of insurance are as shown on the Certificate of Insurance herein.

The Contractor's insurance shall apply to and provide coverage for all Subcontractors and/or suppliers unless the Contractor forwards to the Owner and Engineer the Certificate of Insurance for the Subcontractor and/or supplier.

Any insurance company providing coverage must be licensed, admitted and authorized to do business in the State of New Jersey.

2.03 SUIT OR CLAIMS

The Contractor agrees to indemnify and save harmless the Owner and the Engineer and all their agents and employees from actions and suits of every kind and description brought against them, or on account of the use of patented rights, and from any damages or injuries received or sustained by any party, or parties, arising out of any act or omission of the Contractor, his workmen or agents in performance of the work

under this agreement, including the furnishing of equipment, materials and supplies at the site of the proposed work.

2.04 DAMAGES TO PERSONS AND PROPERTY

Contractor shall fully and completely indemnify and same harmless the Owner from damages or injury to persons or property resulting from the performance of the work, or through negligence to the contract, or through the use of any improper or defective machinery implements or appliances or through any act of omission of the Contractor, or his agents, or his employees.

3.0 CONDUCT OF THE WORK

3.01 ROLE OF THE ENGINEER

The Engineer may verify, by observation and/or required tests, the amount, quality, acceptability and fitness of the materials, equipment and supplies furnished; and shall interpret any ambiguities in the drawings and specifications, contract documents, and any extra work order. Upon request, the Engineer shall confirm in writing any oral direction, requirement or determination.

All work of refilling sunken ditches, repaving over trenches and keeping the streets and sidewalks in passable condition shall be satisfactorily performed by the Contractor during the construction of the work as well as during the maintenance period. If any work is not done within 48 hours after written notice given by the Engineer, the work may be done by the Owner and charged to the Contractor.

3.02 SURVEYS

Unless otherwise expressly provided for in the specifications, the Contractor will furnish all surveys necessary for the execution of the work. The Owner will furnish a base line and datum bench marks as required. The Contractor shall measure and lay out his work and be responsible for the accuracy thereof from bench marks and base lines established by the Engineer which shall constitute the surveys hereinbefore referred to. The contractor shall submit cut sheets for curb, sidewalk and roadway construction projects unless specifically waived in writing by the Engineer.

3.03 PRESERVATION OF STAKES

The Contractor shall carefully preserve benchmarks, reference points and stakes, and in case of willful or careless destruction, he will be charged with the resulting expense and shall be responsible, for any mistakes that may be caused by their unnecessary loss or disturbance.

3.04 USES OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

- (a) To take every precaution against injuries to persons or damage to property.
- (b) To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the administration of Owner's affairs.
- (c) To place upon the work any part thereof only such loads as are consistent with the safety of that portion of the work.

- (d) To frequently clean up all refuse, scrap material and debris caused by his operations and at all times the site of the work shall present a neat, orderly condition.
- (e) Before final payment to remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations and to put the site in a neat orderly condition.
- (f) To affect all cutting, fitting, or patching of his work required to make the same conform to the drawings and specifications, and except with the consent of the Engineer, not to cut or otherwise alter the work.

3.05 INJURY TO EXISTING STRUCTURES

The Contractor shall be responsible for all injury to existing structures met within the prosecution of the work, including the delivery to the site of the proposed improvements of materials and supplies. In case of accident to existing structures met within the prosecution of the work, the Contractor will be required to immediately notify the proper authorities and as soon as possible thereafter also notify the Engineer.

3.06 CORRECTION OF WORK

The Contractor expressly warrants that his work shall be free from any defects in materials or workmanship and agrees to correct any such defects which may appear in such materials or workmanship within two years or the term of the maintenance bond, whichever is longer, following the final acceptance of the work by the Owner, such final acceptance to be evidenced by an appropriate resolution of the governing body in the case of municipal corporation, quasi municipal corporation, municipal board, municipal commission or other municipal authority or by the issuance of final payment in the case of any Owner other than a municipal corporation, quasi municipal corporation, municipal board, municipal commission or other municipal authority.

Neither, the acceptance of the completed work nor payment therefore shall operate to release the Contractor or his surety or sureties from any obligation or obligations under this contract or the bonds required under these Contract Documents.

3.07 PUBLIC UTILITIES

The contract drawings indicate the approximate location of known overhead and subsurface utilities in the vicinity of the work. The bidder is advised to investigate and ascertain for himself all the facts concerning the actual location of these utilities.

The Contractor shall cooperate with the utility Owners in the adjustment of their facilities and shall notify the utility Owners not less than ten (10) days in advance of the time he proposes to perform any work that will endanger or affect their facilities.

The Contractor shall permit the Owners of utilities, or their agents, access to the site of the work at all times in order to relocate, construct or protect their lines and he shall cooperate with them in performing this work.

Separate payments will not be made for the following:

1. Coordination and cooperation of the Contractor with the utility companies, nor for the protection or replacement of utilities as specified hereinbefore.
2. Damages for delay caused by conflicts with utilities outside the jurisdiction of the Owner (ex: gas mains, telephone or electric lines, county storm sewer, water mains, etc.).

The bidder shall include all such costs in the prices bid for the various scheduled items in the Bid form.

3.08 PROTECTION OF WORK AND PROPERTY

The Contractor shall continuously maintain adequate protection of his work and shall protect Owner's property from injury or loss arising in connection with his work. He shall also protect all adjacent property as provided by law, and shall be responsible for all injury to property and existing structures sustained during the prosecution of his work, including delivery to the site of the equipment, materials and supplies. He shall repair and replace any such damage, injury or loss equal or better than the condition of the item prior to the Contractor's action.

All passageways, guard fences, light and other facilities required for protection by local authorities or local conditions must be provided and maintained.

3.09 CONTRACTOR TO ACT IN AN EMERGENCY

In case of any emergency which threatens loss or injury of property, and/or safety of life, the Contractor is required to act as he sees fit. He shall notify the Engineer thereof immediately thereafter.

3.10 EXTRA WORK

The Contractor further agrees that the Engineer may make such alterations as he may see fit in the form, dimensions, plans for materials of the work, materials and supplies bid upon or any part thereof, either before or after work. If such alterations diminish the quantity of the equipment, materials and supplies to be furnished and delivered to the site or work to be executed, they shall not constitute a claim for damages for anticipated profits on the work that may be dispensed with. If the extra work, change or alteration increases the amount of work to be performed or equipment, they shall be paid for at the price bid. If prices for such extra work are not included in the lump sum prices or unit prices bid, the Contractor hereby agrees to furnish the necessary materials and perform such labor as extra work, and agrees to accept in full payment therefore a price which shall be fixed by the Engineer previous to its commencement. The basis of such price will be the estimated actual cost of materials, labor, equipment, and a maximum 10% overhead plus a maximum 10% profit. Contractor shall furnish a detailed cost breakdown for proposed extra work for review by the Engineer. The Owner and/or Engineer has the sole authority to unilaterally direct extra work to be performed on a force account basis. The basis of payment for force account work shall be the actual cost of the materials, labor and equipment, and a maximum 10% overhead plus a maximum 10% profit. Contractor shall furnish a detailed cost estimate of the extra work to be paid by force account previous to its commencement. Contractor shall submit daily or shift reports for actual force account costs. Payment for markup on subcontracted work shall be at a maximum rate of 5% of the total amount for all costs on the subcontracted work, for both fixed price and force account extra work. Change Orders and Open End Contracts will be in accordance with N.J.A.C. 5:30-11 et seq.

The Contractor shall not be entitled to receive payment for any extra work unless the same is certified in writing by the Engineer.

3.11 DISPUTE RESOLUTION

For construction contracts, the Owner and Contractor agree that in the event of a dispute arising under this contract, it shall be submitted to mediation, pursuant to industry standards, prior to being submitted to a Court for adjudication.

During any dispute the Contractor shall diligently proceed with completing the contract unless otherwise directed, in writing, by the Owner or Engineer.

4.0 CONTRACTOR'S PERSONNEL

4.01 PERSONAL ATTENTION

The Contractor shall give his personal supervision to the prosecution of the work, or have a competent representative on the work who shall have written authority to carry out the requirements of the Contract Documents. He shall also supply all manpower, materials and equipment as they may be required in the furnishing and delivery to the site of the proposed work, the equipment, materials and supplies bid upon.

4.02 CONTRACTOR'S SUPERINTENDENT

The Contractor shall attend to the work personally or through a competent, English-speaking superintendent, who shall be continually present on the project site whenever work is in progress. Such a superintendent shall be satisfactory to the Owner and Engineer and shall not be removed or replaced without due notice being given the Owner and Engineer. The Superintendent shall have full authority to act for the Contractor without the need to consult any higher level of authority.

4.03 LABOR LAWS

The Contractor and any Subcontractors shall comply with all the requirements of the Labor Laws of the State of New Jersey applicable to contracts on behalf of this Owner for construction, alteration or repair of any building or public work, including particularly, but without limitation of the foregoing, the provisions of New Jersey Administrative Codes and related statutes including N.J.S.A. 10:2-1 to 10:2-4, inclusive and N.J.S.A. 34:11-56.25 et seq., New Jersey Prevailing Wage Act

The Contractor hereby agrees to comply in all respect with the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq. as amended. A copy of the prevailing wage rates pertaining to the work and issued by the New Jersey Department of Labor entitled, "Prevailing Wage Rate Determination" is on file in the Engineer's office and is included herein. Pursuant to N.J.S.A. 34:11-56.25 et seq. – New Jersey Prevailing Wage Act, no public works contract may be awarded to any contractor and subcontractor or to any firm, corporation or partnership in which they have an interest on the attached disbarred bidders list located at the end of this specification, until expiration date given. Workmen shall be paid not less than such prevailing wage rate.

In accordance with N.J.A.C. 12:60-9.1, if the Contractor who makes the lowest bid for the contract is 10% or more under the amount of the next lowest bid, they must, prior to the award, certify to the Owner via the "Lowest Bidder Prevailing Wage Certification" that the prevailing wage rates required by the Prevailing Wage Act shall be paid in performing the work under the contract. If the Contractor does not provide the Certification required prior to the award of the contract, the Owner shall award the contract to the next lowest responsible and responsive bidder.

Before final payment is made by or on behalf of the Owner of any sum or sums due to the work, the Contractor or Subcontractor shall file with the treasurer of the Owner, written statements in form

satisfactory to the Commissioner of Labor certifying to the amounts then due and owing from such contractor or subcontractor filing such statement to any and all workmen for wages due on account of the work, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively which statement shall be certified by the oath of the Contractor or Subcontractor as the case may be in accordance with the said New Jersey Prevailing Wage Act.

The prevailing wage rate shall be determined by the Commissioner of Labor or his duly authorized representative.

Contractors or Subcontractors performing public work of a public body subject to the provisions of this act shall post the prevailing wage rates for each craft and classification involved as determined by the Commissioners of Labor including the effective date of any changes thereof, in prominent and easily accessible places at the site of the work or at such place or places as are used by them to pay workmen their wages.

In the event it is found that any workmen, employed by the Contractor or any Subcontractor, on this project, has been paid a rate of wages less than the prevailing wage required, the Department of Labor along with the Owner may 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 surety(ies) shall be liable to the Department of Labor along with the Owner for any excess costs occasioned thereby.

Prior to final payment, the Contractor shall be required to execute and deliver an Affidavit of Compliance in a form provided by the Engineer, as required by the Act.

4.04 CONTRACTOR'S EMPLOYEES

All workmen must be competent and fully qualified in the type of work to be performed. Any employee of the Contractor, who is found by the Engineer to be incompetent, or who is performing his work in an unsightly manner or contrary to the specifications or the Engineer's instructions, or who is disorderly, shall be removed from the project and shall not again be employed on the project without the Engineer's consent.

4.05 EIGHT HOUR DAY: PREVAILING WAGE RATE

All mechanics, workers, laborers, employed or engaged in the work hereunder shall work no more than eight (8) hours in any one day. In case of necessity for the protection of property or human life, mechanics, workmen and laborers may be employed for longer periods than eight hours per calendar day, if paid extra compensation on the basis of eight hours constituting a day's work, in accordance with the Prevailing Wage Act, N.J.S.A. 34:11-56-25 et seq., and all State and Federal laws.

4.06 PAYMENT OF EMPLOYEES

The Contractor and each of his Subcontractors shall pay each of his employees engaged in work on the project under this contract in full (less deductions made mandatory by law) in legal tender and not less often than once each month.

4.07 SAFETY AND HEALTH REGULATIONS

The Contractor shall comply with the Department of Labor, Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (P.L.91-596) and under Section 107 of the Contract Work Hours and Safety Standards for Construction (P.L.91-54).

4.08 ACCIDENT PREVENTION

Precautions shall be exercised at all times for the protection of persons (incl. employees) and property. The safety provisions of applicable laws, buildings and construction codes shall be observed. Machinery, equipment, and all hazards shall be guarded or eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Association General Contractors in America and Part VI "Temporary Traffic Control" of the U.S. Dept. of Transportation. Federal Highway Administration "Manual on Uniform Traffic Control Devices", latest edition, whichever is more stringent to the extent that such provisions are not in contravention of applicable law. Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances and methods and for any damage which may result from their failure for their improper construction, maintenance or operation. The cost of "Accident Prevention" shall be included in the lump sum or unit price bid whichever is applicable.

5.0 MATERIALS

5.01 CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the work shall be purchased by the Contractor or by Subcontractor that are subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work.

5.02 ROYALTIES AND PAYMENTS

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringements of any patent rights and shall save the Owner harmless from loss or account thereof.

5.03 USE OF DOMESTIC MATERIAL

In the performance of the work, the Contractor and all Subcontractors shall use only manufactured materials and farm products of the United States of America, wherever available

All Contractors and Subcontractors shall comply with the provisions of N.J.S.A. 18A:18A-20, which relate to the use of domestic materials on Board of Education work.

5.04 ORDERING MATERIALS

Before ordering materials, the Contractor shall obtain the Engineer's approval of their conformity to the specifications. In the case of concrete aggregate, and similar materials, samples must accompany the request for approval. The Contractor must forward to the Engineer copies of all shipping lists, invoices or delivery slips accompanying such deliveries.

5.05 SAMPLES

The Contractor shall submit to the Engineer any samples of materials before or during the progress of the work that may be required by the Contract Documents and all materials and workmanship must be equal in every respect to the samples submitted and approved.

5.06 SHOP OR SETTING DRAWINGS

(a) The Contractor shall submit promptly six copies of each shop or setting drawings prepared in accordance with the schedule predetermined under the provisions of the preceding paragraph hereof with the

Contractor's approval stamp and date thereon. After examination of such drawings by the Engineer, and the return thereof, the Contractor shall make such corrections to the drawings as have been indicated and shall furnish the Engineer with two corrected copies. If requested by the Engineer, the Contractor must furnish additional copies, regardless of corrections made in or approval given to such drawings by the Engineer. The Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the drawings and specifications unless he notified the Engineer in writing of any deviations, at the time he furnished such drawings.

(b) The Contractor shall likewise submit, in writing, the type, kind and name of the manufacturer of all materials to be used in the work for the written approval of the Engineer prior to the installation of same.

(c) Any equipment or materials installed without this written approval of the Engineer will be required to be removed by the Contractor at his own expense and replaced with equipment and materials as approved.

5.07 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

The Contractor will be furnished additional instructions and detail drawings to carry out the work included in the contract as required. The additional drawings and instructions thus supplied to the Contractor, will coordinate with the contract documents and will be so prepared that they can be reasonably interpreted as a part thereof. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions.

The Contractor and the Engineer will prepare, jointly (a) a schedule fixing the date at which special drawings will be required and by whom they will be made, such drawings, if any, to be furnished by the Engineer in accordance with said schedule, and (b) a schedule fixing the respective dates for the submission of shop or setting drawings; the beginning of manufacture, testing and installation of materials, supplies and equipment and the completion of the various parts of the work, each such schedule to be subject to change from time to time in accordance with the progress of the work.

5.08 OR EQUAL CLAUSES

Wherever in these contract documents a particular brand, make of materials, device or equipment is shown or specified, such brand, make of material, device or equipment should be regarded merely as a standard.

When a bidder submits an equivalent, it shall be the responsibility of the bidder to document the equivalence claim.

Failure to submit such documentation shall be grounds for rejection of the claim of equivalence.

If two or more brands, makes of material, devices or equipment are shown or specified, each should be regarded as the equal of the other. Any other brand, make of material, devices or equipment, which in the opinion of the Engineer is the recognized equal of that specified, considering quality, workmanship and economy of operation, and is suitable for the purpose intended, will be accepted. All material and workmanship shall, in every respect be in accordance with what, in the opinion of the Engineer is in conformity with approved modern practice.

Whenever the drawings, specifications or other contract documents or the direction of the Owner or its authorized agent admit of doubt as to what is permissible, and/or fail to note the quality of any work, that interpretation will be made by the Engineer which is in accordance with approved modern practice to meet the particular requirement of the contract.

In all cases, new materials shall be used unless this provision is waived by notice from the Engineer.

5.09 SUBSTITUTIONS

After the execution of the contract, substitution of equipment or materials of makes other than those named in the contract will be considered for one reason only. That the equipment proposed for substitution is superior or equal in construction and/or efficiency to that named in the contract.

Complete data, to include: shop drawings, specifications, performance curves, test results, list of similar installation with years of service, operating and maintenance instruction, a statement that the Contractor agrees to pay all costs that will result directly or indirectly from acceptance of the substitute, and all other necessary information; shall be submitted in triplicate to enable the Engineer to evaluate the proposed substitution equipment or material. The determination as to whether or not such changes will be permitted rests solely with the Engineer.

The Contractor shall take and assume full responsibility and bear any extra expense or cost incurred by changes advocated by him. Those costs include, but are not limited to, review time by the Engineer or the Engineer's Consultants, costs of redesign, and claims of other contractors affected by the resulting change. It will be assumed that the cost to the Contractor of the equipment or materials proposed to be substituted is less than the equipment or materials named in the contract, and if the substitution is approved, the contract price shall be reduced by an amount equal to the savings.

5.10 MATERIAL SAFETY DATA

In accordance with the requirements of N.J.S.A. 34:5A-1 et seq., "Workers and Community Right to Know Act", the State Department of Health has adopted a Workplace Hazardous Substance List (N.J.A.C. 8:59-9) which includes substances that pose a threat to the health and safety of employees. Therefore, under the provisions of N.J.A.C. 8:59-7, the contractor must furnish the Owner a "Material Safety Data Sheet" for each product which is supplied to the Owner which contains a substance listed on the Hazardous Substance List (N.J.A.C. 8:59-9). The Owner reserves the right to request a copy of the applicable Material Safety Data Sheet be forwarded with the delivery of each product. Furthermore, under the provisions of N.J.A.C. 8:59-5, each product shall have a label affixed or stenciled onto any container that contains any substance listed on the Hazardous Substance List (N.J.A.C. 8:59-9).

6.0 INSPECTION AND TESTING

6.01 INSPECTION

The Contractor shall afford every facility for inspection of the equipment, materials and supplies at all times by the Business Manager as provided by N.J.S.A. 18A:17-28, or appropriate officer of the board as provided in N.J.S.A. 18A:16-1.2, prior to the delivery of same to the site of the work. All equipment, supplies and materials shall be tested in the presence of Owner, if so desired.

Any equipment, materials, supplies or workmanship deemed of inferior quality, or not in accordance with the finally approved specifications, brought to or incorporated in the work may be rejected by the Owner. The equipment, materials and supplies and workmanship may be re-inspected at any time, prior to delivery to the site of the proposed improvements. The Contractor shall bear all the expense of testing materials.

When construction is not continuous through the normal work week, (Monday through Friday), Contractor must notify Owner or Owners designee at least 24 hours in advance of any stopping or starting of the work. Notification may be by writing, telephone, facsimile, telegraph or personal visit to the Owner's or Owners designee listed office.

Contractor shall notify Owner or Owners designee Engineer at least forty-eight (48) hours in advance to any work on Saturdays. There will be no work permitted on Sundays or holidays. If the project receives inspection by the Engineer, the normal working hours for the Engineers inspector are from 7:30 a.m. to 4:00 p.m., Monday through Friday. Any overtime inspection costs for the Engineers inspector which are avoidable shall be reimbursed by the Contractor.

Should the contractor have an emergency or need to cancel scheduled work, notification of the cancelled work must be received by the Engineer's inspector no later than 6:00 am the morning of the cancellation. Failure of the contractor to provide the required notification will require the contractor to pay for eight (8) hours of inspection at the rate of the Engineer's local inspector. The costs for cancellation of inspection without the required notification will be deducted from the contractor's payment application.

As the Owner is only paying for the contract time in the Contract Documents, the Contractor shall be responsible for all costs of inspection and contract management beyond the contract time limits, unless a written extension of time has been granted by the Owner. These costs are in addition to any liquidated damages that may be charged to the Contractor.

6.02 DAILY REPORTS

On a daily basis, the Contractor shall have his Authorized Representative complete, sign and present the Engineer with a Certificate of Site Safety Conditions, attached hereto as Form GC-6.02S.

At the Engineers discretion, the Contractor may be directed to furnish a daily report, on a form, which will include the date, the weather, a general description of the work performed, line item quantities involved, number and skill type of workers, equipment utilized, location of work, and any pertinent remarks affecting the work.

6.03 INSPECTORS

The work shall be conducted under the general observation of the Owner or Owners designee through such Inspectors as the Owner or the Owners designee employs. Inspectors are stationed on the site of the work to represent the Owner and to report to him concerning the observation of progress of the work and the workmanship and materials being furnished. Such Inspectors shall inform the Owner and/or Owners designee and the Contractor when they observe that work being performed and/or the materials being furnished do not conform to the requirements of the Contract Documents. Such observation, if and when provided, shall not relieve the Contractor of any responsibility to furnish materials and perform work in complete accordance with the requirements of the Contract Documents, nor does such observation create any duty or obligation to any employee or invitee of Contractor, any Subcontractor, or to any third party. The Contractor is prohibited from relying upon the Engineer's site inspections or raising the engineer's observations as a defense to claims of defective work.

The Inspector is not authorized to revoke, alter, enlarge, relax or release any requirements of the Contract Documents or to issue instructions contrary to the Contract Documents.

6.04 ACCESS TO THE WORK

The Contractor shall furnish the Owner and/or Owners designee with every reasonable facility for observing the work as performed.

The Owner or the Owners designee shall have the right to inspect all work done and all materials furnished either in the field or at the point of manufacture. The Contractor shall furnish or cause to be furnished safe access at all times to the places where preparation, fabrication or manufacture of materials and/or construction of the work is in progress.

When the Owner or his representative are in or about the premises mentioned above in the course of their duties, they shall be deemed conclusively to be an invitee of the Contractor. If the Contractor is not the Owner of the premises mentioned above, the Owner thereof shall be deemed an agent of the Contractor with respect to the obligation assumed hereby. The Contractor or his agent, as described above, shall be liable for the payment of claims for injuries, damages, etc, for death of the Owner or his representative due to the negligence on the part of the Contractor or his agent.

6.05 COVERING UNINSPECTED WORK

If any work be buried, covered or otherwise concealed prior to observation by Owner or Owners designee or contrary to the orders and direction of the Owner or Owners designee and such work is not subject to testing and approval by any acceptable alternate method it must, if required by the Owner or Owners designee, be uncovered for examination. Such uncovering and all necessary restoration regardless of the final acceptability of the work, uncovered, shall be at the expense of the Contractor.

6.06 TESTING MATERIALS

Except as may be provided elsewhere, tests or analysis of materials which are usually tested after delivery to the site, such as concrete aggregate, mixed-in-place concrete, and similar materials; will be performed by the Owner or Owners designee or testing laboratories which will be approved by the Owner or Owners designee and selected and paid for by the Contractor. The preliminary testing of concrete mixtures and tests or analysis of other materials, samples of which are to be submitted prior to delivery, will also be performed by the laboratory and paid for by the Contractor at the Owner or Owners designees request.

If the Owner or Owners designee orders sampling and analysis or tests of materials which are usually accepted on certification of the manufacturer but which appear defective or not conforming to the requirements of the Specifications, the Contractor will bear the reasonable costs of sampling, transportation, tests and analysis.

7.0 PAYMENTS

7.01 CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner or Owners designee an estimated construction progress schedule in form satisfactory to the Owner or Owners designee, showing proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due to the Contractor in accordance with the progress schedule. The Contractor shall also furnish the Owner or Owners designee (a) a detailed estimate giving a complete breakdown of the contract price on Lump Sum Contracts and (b) periodic itemized estimates of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only in determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

Approval of the progress schedule by the Engineer does not modify the Contract or constitute Acceptance of the feasibility of the Contractor's logic, activity durations, or assumptions used in creating the schedule. If the schedule reflects a completion date different than that defined by the date of Notice to Proceed and

Contract Time, this does not change the specified completion date. If the Engineer approves a schedule that reflects a completion date earlier than that specified as the Contract Time, the Owner will not accept claims for additional Contract Time or compensation as the result of failure to complete the Work by the earlier date shown on the progress schedule. Float is the amount of time that an activity may be delayed from its early start without delaying Completion. Float belongs to the Project and is not for the exclusive use of the Contractor or the Owner.

7.02 PAYMENTS

Unless otherwise specified, on the first day of each month or within thirty (30) days thereafter, the Owner or Owners designee will estimate approximately the value of the work performed, and equipment, materials and supplies delivered on the ground inspected and accepted during the preceding month, according to these specifications, less any retainage, and shall be certified by the Owner or Owners designee for payment to the Contractor. The value of the work, as estimated, will be determined by the lump sum and/or unit price bid. Requests for payment for materials on hand shall be accompanied with receipted invoice from supplier. Prior to such payment being made, the Contractor shall execute an agreement, provided by the Owner or Owners designee and Solicitor on behalf of the Owner, which details the conditions of payment.

If, in the opinion of the Owner or Owners designee, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Owner or Owners designee shall be equitable.

No request for payment shall be approved until a Certification of Site Safety Conditions showing no unsafe conditions for each day worked in the payment request period has been furnished by the Contractor. When the work performed under this contract has been completed by the Contractor and accepted by the Owner, Owner or Owners designee shall make a final estimate of the work and certify the same to the Owner which shall for causes herein specified, pay to the Contractor the balance due, said payment, unless otherwise specified, to be made within thirty (30) days from the date of the final acceptance, excepting therefrom such sum as may be lawfully retained under any provisions of this contract. All prior estimates and payments including those relating to extra work shall be subjected to corrections by this payment.

The Owner shall pay the amount due to the prime contractor for each periodic payment, final payment or retainage monies not more than 30 calendar days after the billing date, except as provided herein, which for periodic billing shall be established at the pre-construction meeting and memorialized in the minutes of the pre-construction meeting. The billing shall be deemed approved and certified 20 days after the Owner or Owner's Representative receives it, as indicated by the date stamped received on the billing by the Owner or Owner's Representative, except as provided herein, unless the Owner or Owner's Representative provides, before the end of the 20 day period, a written statement of the amount withheld and the reason for withholding payment. The Owner is a public or governmental agency that requires the governing body to vote on authorizations for each periodic payment, final payment or retainage monies, the amount due may be approved and certified at the next scheduled public meeting of the Owner's governing body, and paid during the Owner's subsequent payment cycle.

7.03 RETAINAGE

The Contractor is advised that the Public-School Contracts Law, NJSA 18A:18A-40.1, 40.2 and 40.3 are applicable if the total amount of the contract awarded for this project exceeds \$100,000.00. The provisions of NJSA 18A:18A-40.2 provide that the Contractor may:

1. Agree to the withholding of payments in the manner prescribed in the contract. Such agreement will be indicated by signing of estimate or payment certificates unless written communication to the contrary is made to the Owner and Engineer, or
2. Deposit with the Owner negotiable bearer bonds of the State of New Jersey, or negotiable bearer bonds or notes of any political subdivision of the State of New Jersey.
 - a. The value of such bonds or note will be equal to the full amount that would otherwise be withheld.
 - b. If the amount of the contract is increased, additional bonds or notes will be provided or withholding shall be made on the amount of any such increase.
 - c. The nature and amount of such bonds and/or notes will be subject to approval by the Owner.
 - d. The term "value" shall mean par value or current market value, whichever is lower.

If the Contractor agrees to the withholding of payments, the amount withheld shall be deposited, with a banking institution or savings and loan association insured by an agency of the Federal Government, in an account bearing interest at the rate currently paid by such institutions or associations on time or savings deposits. Any interest accruing on such cash withholdings shall be credited to the Owner.

If the Contractor deposits bonds and/or notes, the interest on such bonds and/or notes shall accrue to the Contractor. The amount withheld, or the bonds and/or notes deposited, and any interest accruing on such bonds and notes, shall be returned to the Contractor in accordance with the law after fulfillment of the terms and conditions of the contract relating to final acceptance and payment.

Furthermore, NJSA 18A:18A-40.3 provides that for contracts over \$100,000.00 for improvement to real property:

1. From the total amounts due as ascertained through a current Owner or Owners designee estimate will be deducted an amount equivalent to two percent (2%) of the whole when the outstanding balance of the contract exceeds \$500,000.00, and five percent (5%) of the amount due on each partial payment shall be withheld by the Board of Education when the outstanding balance of the contract is \$500,000 or less.
2. This amount shall be retained by the Owner until after the balance of the sum of 98% or 95% as applicable of the whole shall be certified by the Owner or Owners designee for payment within thirty (30) days of the date of certification by the Owner or Owners designee.
3. Any interest accruing on such cash withholdings shall be credited to the Owner.

7.04 ACCEPTANCE OF FINAL PAYMENT AS RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as the Contractor's release of the Owner from all claims and all liability to the Contractor, other than claims in stated amounts as may be specifically excepted by the Contractor, for all things done or furnished in connection with the work and for every act and neglect of the Owner, or Owners designee and others relating to or arising out of this work. Any payment, however, final or otherwise, shall not release the Contractor or its sureties from any obligations under the contract documents, and/or arising out of performance of the work, and/or arising out of the obligations undertaken by the surety under performance, payment and/or maintenance bonds.

7.05 OWNER'S RIGHT TO WITHHOLD PAYMENTS

Owner may withhold from the Contractor as much of any approved payments due him as may, in the judgment of the Owner, be necessary, to

- (a) Secure the payment of just claims then due and unpaid by any persons supplying labor or materials for the work.
- (b) Protect the Owner from loss due to defective work not remedied, or
- (c) Protect the Owner from loss due to injury to persons or damage to the work or property of other Contractors, Subcontractors or others caused by the act or neglect of the Contractor or any of his Subcontractors that the Owner may deem proper to satisfy such claims or to secure such protection. Such application of such money shall be deemed payment for the amount of the Contractor.
- (d) Protect the Owner from enforcement action by others or from being in non-compliance with laws or regulations due to the failure of the Contractor to supply the Engineer and or Owner with Monthly Manning Reports, Certified Payroll Reports or other submittals required by the Engineer or Owner.

7.06 COSTS OF ENGINEERING AND INSPECTION

There will be deducted from the contract and retained by the Owner an amount to defray the cost of wages and overhead paid by the Owner to the Resident Engineer, Inspector or Inspectors employed on the work for any avoidable time in excess of eight (8) hours per day or on Saturdays, Sundays or legal holidays. This amount shall be determined at the rate of the hourly rate contract with the Owner per man hour for each Inspector or Resident Engineer for in excess of 8 hours per day and at the rate of the hourly rate contract with the Owner per man hour for Saturday, Sunday and Holidays for each Inspector or Resident Engineer.

In addition, there will be deducted from the contract and retained by the Owner an amount equal to the cost paid by the Owner to the Engineer, for all inspection and contract administration performed in excess of the completion time stipulated for the contract, or as amended by approved change orders.

7.07 LIENS

Final payment of retained percentage shall not become due until the Contractor, if required, shall furnish the Owner a complete release of liens arising out of his contract, or receipts in full, in lieu thereof covering claims of any kind or character for work or labor done, or labor or materials furnished by the Subcontractor, materialman, persons or corporations whatsoever. The form attached entitled "Full Release and Waiver of Liens" shall be submitted with the final voucher prior to final payment.

7.08 PREVAILING WAGE PAYMENT CERTIFICATE

The form attached hereto, entitled "Prevailing Wage Payment Certification" shall be executed by the Contractor and submitted with the final voucher prior to final payment.

7.09 CERTIFIED PAYROLL REPORTS

The Contractor shall submit original certified payroll reports within 10 days of the payment of wages to the Owner with a copy to the Owners designee, in compliance with N.J.A.C. 12:60.

PREVAILING WAGE PAYMENT CERTIFICATION

This form must be executed by Contractor and submitted with final voucher prior to final payment.

PROJECT **Egg Harbor Township High School Natatorium
Column Repairs**

TO **Egg Harbor Township Board of Education**

(NAME OF OWNER AS IT APPEARS IN CONTRACT)

RE: Contract for Certification of Contractor of Payment of Prevailing Wages to Workmen Pursuant to New Jersey Prevailing Wage Act. Chapter 150 Laws of 1963 of New Jersey and all other claims.

The undersigned Contractor hereby certifies that any and all workmen employed by the undersigned Contractor and all Subcontractors have been paid in full and prevailing wages for their respective crafts or trades as determined and computed by the Commissioner of Labor and Industry, of the State of New Jersey, and that all suppliers and material men have been paid in full all amounts claimed by them, and there remains no outstanding claim, lien, or dispute; nor any contingent claim by any of the foregoing:

DATED: _____

CONTRACTOR

STATE OF NEW JERSEY

COUNTY OF _____

_____, being duly sworn according to law, upon his oath disposes and says that he is the _____ (Owner-pres. or authorized agent) of _____ (name of corporation) that he has read the aforesaid statement of certification and knows the content thereof, and that the same is true of his own knowledge and this affidavit is being executed by him pursuant to the New Jersey Prevailing Wage Act (Chapter 150 of Laws of 1963).

Signature

Sworn and subscribed
Before me this _____ day of _____ 20 _____

Notary Public of New Jersey

CERTIFICATION OF SITE SAFETY CONDITIONS

Form GC-6.02S

TOWN: Egg Harbor Township PROJECT NAME: Egg Harbor Township High School Natatorium Column Repairs

COUNTY: Atlantic JOB #: 0108-C-013

I hereby certify that site safety conditions and the means and methods of construction have been and are in accord with the provisions of the Contract Documents and all requirements contained and referenced therein since the last executed Certificate of Site Safety Conditions, except as noted:

- Unsafe Trench Condition
- Unsafe Entry to Live Manhole
- Unsafe Traffic Control
- Unsafe Equipment
- Inadequate Fall Protection
- Proximity to Electric
- Other _____

None _____

Comments/Resolutions _____

Contractor: _____

By: _____
Authorized Representative

I executed this form at _____ on _____
Time Date

FULL RELEASE AND WAIVER OF LIENS

WHEREAS, the undersigned is a subcontractor, supplier or other person furnishing work, services, materials or equipment upon real estate owned by **Egg Harbor Township Board of Education** in **Egg Harbor Township** State of New Jersey in furtherance of that certain **Egg Harbor Township High School Natatorium Column Repairs** sponsored by the (Owner) (hereinafter referred to as "Owner").

Receipt is acknowledged of \$ Tap to enter amount, which represents full payment, for work, services, materials and/or equipment furnished and installed by us at the above referenced project, the undersigned does hereby waive, release and relinquish the Owner and the Building/Land from any and all claims and/or construction liens pursuant to N.J.S.A. 2A:44A-1 *et seq.* relating to this Project, to the extent of \$Tap to enter amount.

We agree to hold the Owner and the Building/Land harmless against any claim made or lien filed by any of our material suppliers and subcontractors who performed work or supplied materials for the Project to-date.

In addition, the undersigned warrants: (a) that any claims for payment for work, services, materials and/or equipment furnished in the construction or repair of the aforesaid real estate and improvements have not been assigned; (b) that all laborers, subcontractors and suppliers of the undersigned who have furnished work, services, materials and/or equipment in the construction or repair of the aforesaid real estate and improvements have been fully paid and that none of such laborers, subcontractors or suppliers have or will have any claim, demand or lien against the aforesaid real estate and improvements; and (c) that no financing statement, chattel mortgage, security interest, conditional bill of sale or retention of title agreement has been given or executed or will be given or executed for or in connection with any materials, appliances, machinery, fixtures or furnishings placed upon or installed, or to be placed upon or installed, in the aforesaid real estate and improvements by the undersigned.

IN WITNESS WHEREOF, the undersigned has executed and sealed this Full Release and Waiver of Liens this

On this Day: _____

Paid to Date: \$ _____

NAME OF SUBCONTRACTOR/SUPPLIER: _____

By: _____

Title: _____

Sworn and subscribed to:

Before me this _____ On the date: _____

Notary Public of New Jersey

SUPPLEMENTAL GENERAL CONDITIONS

2.0 INSURANCE

2.05 - EGG HARBOR TOWNSHIP BOARD OF EDUCATION ADDITIONAL INSURANCE REQUIREMENTS

INSURANCE AND INDEMNIFICATION REQUIRED NOT REQUIRED

The bidder to whom the contract is awarded for any service work or construction work, and when required by the Board of Education, shall secure, pay the premiums for and keep in force until the contract expires, insurance of the types and amounts such as those listed below:

Commercial General Liability \$2,000,000 General Aggregate
\$2,000,000 Products
\$1,000,000 Personal Injury
\$1,000,000 Each Occurrence Combined Single Limit
for Bodily Injury and Property Damage
\$ 100,000 Pollution Cleanup
\$ 50,000 Fire Damage
\$ 5,000 Medical Expense

Insurance Limits Continued:

Excess Umbrella Liability \$4,000,000
\$1,000,000 Sexual Harassment

Comprehensive Automobile Liability Insurance
\$1,000,000 Combined Single Limit for Bodily Injury and Property Damage

(A) Insurance Certificate – When Required

- a. The contractor must present to the Board of Education an insurance certificate in the above types and amounts before any work or service begins.
- b. Automobile liability insurance shall be included to cover any vehicle used by the insured.
- c. The certificate holder shall be as follows:

Egg Harbor Township Board of Education
c/o School Business Administrator/Board Secretary
13 Swift Drive
Egg Harbor Township, New Jersey 08234

- d. Additional Insured Claim -- The contractor shall include the following clause on the insurance certificate.

“Egg Harbor Township Board of Education is named as an additional insured”

OTHER INSURANCES

WORKERS COMPENSATION Evidence of adequate Workers Compensation Insurance as required by the laws of the State of New Jersey and the United States, must be available for perusal. The minimum limits are the following, unless a greater amount is required by law:

Bodily Injury by Accident	\$1,000,000. Each Accident
Bodily Injury by Disease	\$1,000,000. Policy Limit
Bodily Injury by Disease	\$1,000,000. Each Employee

(B) Indemnification

The contractor shall assume all risk of and responsibility for, and agrees to indemnify, defend, and save harmless the Board and its agents, employees and Board members, from and against any and all claims, demands, suits, actions, recoveries, judgments and costs and expenses (including, but not limited to, attorneys fees) in connection therewith on account of the loss of life or property or injury or damage to any person, body or property of any person or persons whatsoever, which shall arise from or result directly or indirectly from the work and/or materials supplied under this contract and the performance by contractor of services under the contract or by a party for whom the contractor is liable.

This indemnification obligation is not limited by, but is in addition to, the insurance obligations contained in this agreement.

The Contractor is to assume all liability of every sort incident to the work, including property damage caused by him or his men or by any subcontractor employed by him or any of the subcontractor's men.

Supplemental General Conditions

1. Page GC-13, section 6.03 shall be supplemented with the following: “There shall be no specific inspection by the Engineer’s office stationed at the project site. The Contractor is responsible for project oversight, safety, and management of the project to ensure all contract completion dates are met. In the event of a delay to a project subcontractor, the liability for such a delay resides with the Contractor, not the Owner. When requested by the Engineer, the Contractor shall meet with the Engineer’s representative on-site at the time requested and shall provide all information requested. These meetings shall be considered within the scope of the Contractor’s work and schedule.”
2. Clean-up – The Contractor shall keep the premises and surrounding areas free from accumulation of water materials. The contractor is responsible for clean-up throughout the construction period and final clean-up. The Contractor shall have the following completed prior to the Engineer’s inspection for final completion:
 - a. Removal of all manufacturer’s temporary labels from materials and equipment
 - b. Removal of all stains, spots, marks, dust & debris from glass, mirrors, painted, decorated or stained woodwork, plaster or plasterboard, acoustical tiles, flooring, metal or equipment surfaces.
 - c. Removal of floor protections.
 - d. Clean all interior finished surfaces including doors and window frames.
3. Project Manager – Should the Engineer deem that the quality and/or timeliness of the work progress is being hindered by the lack of supervision, the Contractor shall increase the number of supervisory personnel at no cost to the Owner.
4. Substantial Completion – The work will not be considered substantially completed until all project systems included in the work are operational as designed and scheduled, all designated or required inspections, certifications, permits, approvals, licenses and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial use and occupancy project are received, designated instruction of Owner’s personnel has been completed, and all final finishes within the Contract are in place. In general, the only remaining work shall be minor in nature, so that the Owner can occupy the building on that date and the completion of the work by the Contractor would not materially interfere or hamper the Owner’s (or those claiming by, through or under the Owner) normal operations. Contractor recognizes that normal operations require the use and occupancy of the work without interruption and that any punchlist or corrective work shall be done at times when the work is not so occupied. As a further condition of substantial completion acceptance, the Contractor shall certify that all remaining work will be completed within thirty (30) consecutive calendar days or as so agreed upon following the date of substantial completion.
5. Final Completion – All warranties and guarantees required pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Owner as part of the final application for payment. The final Certificate for Payment will not be issued by the Engineer until all warranties and guarantees have been received and accepted by the Owner.

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SCOPE OF WORK

1.01 DESCRIPTION

A. In general, the work on this project consists of the partial removal and repair of the twelve (12) structural steel columns in the natatorium of the Egg Harbor Township High School, located in Atlantic County, New Jersey as detailed in these specifications.

B. Project Location: Egg Harbor Township High School
24 High School Dr
Egg Harbor Township, NJ 08234

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. Owner Identification: Egg Harbor Township Board of Education
13 Swift Drive
Egg Harbor Township, NJ 08234

B. Engineer Identification: Remington & Vernick Engineers
2819 Fire Road, 1st Floor
Egg Harbor Township, NJ 08234

C. Contract Documents:

These Specifications indicate the extent of the Contract. Contract Documents were prepared for the Project by Remington & Vernick Engineers, 2819 Fire Road, Egg Harbor Township, NJ 08234

D. General:

1. Review of all existing site conditions is strongly recommended to fully understand the Scope of Work. Access to the school can be arranged by contacting Mr. Wayne Holt, Construction Coordinator, (856) 641-5871. Site visits requested less than forty-eight (48) hours before receipt of bids may not be entertained.
2. This project includes a single prime Contract.
3. **Prequalification - Contractor must be NJSDA pre-qualified at the time of bid submission.**
4. The Contractor is responsible and obligated to successfully complete the entire project and to complete every necessary detail of every item specified and/or is required to complete the specified work regardless of whether a particular detail is specifically mentioned in these specifications.

5. The Contractor will be required to submit upon award a proposed work schedule that shall be finalized to reflect actual project milestones after contract award. The project schedule shall follow the requirements of these specifications. Strict adherence to the agreed upon final work schedule will be required for this project. The schedule shall be generated by the Contractor in a Microsoft Project format and shall be updated weekly. Progress reports including the updated schedule (Gantt Chart) will be submitted to the Engineer on a weekly basis.
6. A Pre-Construction Meeting between Egg Harbor Board of Education, the Engineer, and the Contractor will be required prior to start of construction at a site chosen by the Owner. All allowances/costs for the pre-construction meeting must be included in the Contractor's proposal pricing and submitted with the bid. No additional payments will be made by the Owner for the pre-construction meeting.
7. Contracts:
 - a. The Project will be constructed under a single Prime Contracting arrangement.
 - b. The Contract will be awarded to one Contractor for the work required at the site contained herein. Contract award will be based on the sum of a Contractor's pricing.
 - c. The Contractor's completed Bid Form shall reflect the actual amount of work required at the sites. The amounts on the Contractor's Bid Form as submitted with their bid will be used to generate the project schedule of values for payment purposes.
 - d. The Specifications indicate the extent of the Contract Documents.
 - e. Only major items of work are given in the Bid Form, but it is the intent of the Specifications to secure a completely interconnected and functioning system, and if any workmanship or materials be required which are obviously necessary to carry out the full intent and meaning of the plans and specifications or to be reasonably inferred there from, the cost of such workmanship or materials shall be included in the unit price bid for the major items of work.
 - f. Local custom and trade-union jurisdictional settlements do not control the Scope of Work included in the Prime Contract. When a potential jurisdictional dispute or similar interruption of work is first identified or threatened, the affected Prime Contractor shall promptly negotiate a reasonable settlement to avoid interruption and delays at no additional cost to the Owner.
8. This Scope of Work outlines the general items and distribution of work and shall not be construed as being all-inclusive.
9. The Contractor shall be responsible for applying for and obtaining any and all permits required to satisfactorily complete this construction project. Any costs related to obtaining permits shall be included in the proposal.

10. Allowances:

- a. The following allowances are included in this Contract. The cost of any work to be paid under an allowance shall be approved by the Owner prior to Contractor initiating the work. Any unused allowance monies shall be retained by the Owner.
 1. Predetermined general allowance to be used if and where directed by the Owner/Engineer.

1.03 SCOPE OF WORK

EGG HARBOR TOWNSHIP HIGH SCHOOL

- A. The **BASE BID** work on this project is for the **natatorium only** as indicated in the project documents, and consists of the following:
1. Remove existing CMU block walls 18 inches on each side of the identified columns to create adequate working conditions and access. The existing CMU block shall be removed to the minimum height required to remove the existing column base and install the new column base.
 2. The Contractor shall temporarily support roof beams, girders, and any additional supplementary steel during the existing column repairs. The design of the temporary shoring/steel framing support shall be the responsibility of the Contractor. All temporary shoring/steel framing support and calculations shall be submitted to the Engineer for review and approval prior to any installation. The temporary shoring plans and calculations shall be signed and sealed by a professional engineer licensed in the state of New Jersey.
 3. The Contractor shall sawcut and remove the existing concrete slab on grade around twelve (12) existing columns as indicated on the Contract Documents. The existing concrete slab-on-grade shall be removed approximately 3'x3' around each indicated column.
 4. The Contractor shall properly torch-cut and remove the bottom of eight (8) existing steel columns as indicated on the Contract Documents. The cut shall be made 24" above finished floor and removed down to the existing concrete pier. This includes the removal of associated steel base plates and anchor bolts, and excavation as required.
 5. The Contractor shall furnish and install new steel column bases, including base plates and anchor bolts, for eight (8) existing columns as indicated on the Contract Documents. This includes splicing to the existing steel columns as detailed in the Contract Documents and connections to the concrete column piers. The new base plates and anchor bolts shall be attached to the existing exposed concrete column piers.

6. The Contractor shall furnish, pour and extend eight (8) existing concrete column piers to an approximate height of eight (8) inches above finished floor to match CMU coursings, as indicated on the Contract Documents. This includes the installation of all required steel reinforcement and encasement of the new column bases, base plates and anchor bolts. All poured concrete pedestals shall be coated with SikaTop Seal 107 or approved equal.

PLEASE NOTE: All poured concrete for this project shall include high strength/early hardening admixture to achieve 4000PSI compressive strength in a minimum of seven (7) calendar days.

The Contractor shall be responsible for hiring outside testing agency to perform concrete cylinder breaks at 3, 7 and 28 days. Once newly poured concrete has reached 4000PSI compressive strength, reconstruction of the sequence-area to pre-construction conditions may begin.

7. The Contractor shall extend the existing concrete column piers and encase the existing steel column bases of four (4) existing columns as indicated on the Contract Documents. Prior to the new concrete being poured, the existing columns must be properly cleaned of all rust and primed. The existing steel column bases shall then be coated with SikaDur 32 Hi-Mod bonding agent, or approved equal. The new concrete piers/encasement shall terminate at a height of approximately eight (8) inches above finished floor to match CMU coursings. This includes installation of all required steel reinforcement. All poured concrete pedestals shall be coated with SikaTop Seal 107 or approved equal.
8. The Contractor shall furnish and install a new concrete slab/infill in all areas where previously removed. This includes the installation of 10-mil vapor barrier, crushed stone base, all dowels and steel reinforcement as required. This also includes the installation of tile finish to match existing in the natatorium area. The finish and color of the tile to be installed shall be chosen by the Owner.
9. The Contractor shall be responsible for properly removing and reinstalling any supplementary equipment in the facility including but not limited to lockers, dehumidifiers, electrical conduit/light switches, ductwork covers and appurtenances.
10. There is one (1) existing shower stall in the boy's locker area that will need to be removed during construction. This individual shower stall shall be re-installed by the contractor at the end of construction. There will be no separate payment for this work.
11. The Contractor shall restore the demolished portions of the CMU walls and flooring system to match pre-construction conditions of the facility. This includes existing vertical and horizontal reinforcement.
12. The Contractor shall restore the demolished portions of the flooring system, including demolished sections of floor tiles, to match pre-construction conditions of the facility. The color and style of the floor tiles shall be chosen by the Owner.
13. The Contractor shall furnish and install new exterior brick façade to a height of 8 feet above grade for two (2) exterior columns that was previously removed for repairs. The color and style of brick shall be chosen by the Owner.

14. The Contractor shall restore any exterior concrete sidewalk, adjacent to the two (2) exterior columns, that is damaged during the construction. The concrete sidewalk shall be restored by demolishing each damaged panel in its entirety and constructing a complete new panel with a minimum thickness of 4 inches. This includes the installation of all required wire mesh reinforcement.
15. The Contractor is responsible for cleaning and restoration of the site to the pre-construction conditions.
16. The Contractor is responsible to prime and paint all new CMU wall sections and new steel column bases in accordance with the technical specifications included as part of the contract. There will be no separate payment for this work.
17. All work not specifically described or listed in the specifications that are incidental to work completion shall be considered as included within scope.
18. All work not specifically listed in a bid form pay item shall be incorporated into the lump sum/unit pay items listed.

1.04 SPECIAL CONDITIONS

- A. The Contractor shall be responsible for coordinating all work with the Engineer and the Egg Harbor Township School District.

The project shall be broken down into four (4) total sequences as follows:

1. Sequence #1 (18 calendar days): Columns O-9 and O-8; including demolition, installation, and restoration/clean-up.
2. Sequence #2 (18 calendar days): Columns O-3.3 and O-2; including demolition, installation, and restoration/clean-up.
3. Sequence #3 (18 calendar days): Columns O.8-1 and S.5-1; including demolition, installation, and restoration/clean-up.
4. Sequence #4 (18 calendar days): Columns T-9 and T-4; including demolition, installation, and restoration/clean-up.

The remaining calendar days in the Contract shall be utilized for exterior brick restoration and site restoration to original, pre-construction conditions.

- B. The Contractor shall be responsible for applying and obtaining the required building permits from Egg Harbor Township for this work, including all permit fees.
- C. The Contractor shall be responsible for installing new weep holes in brick façade, as existing weepholes will likely be demolished during Sequence #4.
- D. Prior to bidding, the Contractor shall visit the site and include all costs for a complete column repair project, including review of the existing conditions. The Owner is not responsible for additional costs based on Contractor failure to properly inspect the existing conditions and include all costs in his bid.
- E. The existing roof framing layout is provided in the project plans for the Contractor's reference only. These are based on the existing construction plans and may not reflect

the exact as-built conditions. The Contractor is responsible for verifying all existing information.

- F. All work not specifically described or listed in the specifications that are incidental to work completion shall be considered as included within the Scope.
- G. Extra work allowance is only to be used at the Owner's/Engineer's discretion.
- H. A pre-construction video or photographs are required.
- I. Contractor is responsible for clean-up of site and shall provide dumpsters as required.

1.05 PROJECT SCHEDULE

The mandatory project schedule shall be as follows:

- A. Notice to Proceed: On or Before May 13, 2024
- B. Full Access to Natatorium: June 4, 2024
- C. **No Access to Natatorium: June 20, 2024, ONLY (see Note 1)**
- D. Start of Summer Recess: June 21, 2024
- E. **Project Completion: On or Before August 30, 2024 (see Note 2)**

Note 1: No access shall be given to the building on this date due to commencement ceremonies. Work will not be permitted in the building or anywhere on the property on this date. Work is permitted on all other days listed in the project schedule.

Note 2: All construction must be complete and contractor must demobilize, restore the site, obtain a certificate of occupancy, satisfy all requirements of the Township construction office, and guarantee the Natatorium is in a safe and functional condition equal to or better than the pre-construction condition on or before this date to ensure that the natatorium can be occupied immediately after the commencement of the 2024-2025 school year.

Contractor shall submit all submittals to Remington & Vernick Engineers for review and approval no later than one week after the issuance of the notice to proceed.

Construction work shall not take place prior to June 4, 2024 or during the 2024/2025 school year. Dates provided for the start of full access to the school are tentative. These dates may move up or back depending on the District. Exact dates for full access should be provided to the contractor along with the Notice to Proceed.

The District reserves the right to extend the above end dates up to 2 weeks, and the contractor shall include all associated costs in his bid to accommodate potential adjustments in the District's schedule. The District may allow the contractor to perform work prior to June 4, 2024, however all work performed during the school year must not disrupt the daily activities at the school in any way and must be approved by the District a minimum of 1 week in advance.

The Natatorium will be fully vacated by the District starting on June 4, 2024 and during the entire summer recess to allow for the construction work to be completed. The contractor shall be granted full access to the Natatorium starting on June 4, 2024. The contractor will be permitted to work the following hours starting on June 4, 2024, and during summer recess:

- On weekdays from 7:00 a.m. to 11:00 p.m.
- On weekends from 7:00 a.m. to 11:00 p.m.

The District may consider an earlier start time if requested by the Contractor. Approval will be granted at the sole discretion of the District.

- 1.06 The above Scope of Work outlines the general items and distribution of work and shall not be construed as being all-inclusive.

END OF SCOPE OF WORK

SECTION 010000

GENERAL REQUIREMENTS

1.01 GENERAL

- A. Only major items of work are given in the Bid Form, but it is the intent of the specifications to secure a completely interconnected and functioning system, and if any workmanship or materials be required which are obviously necessary to carry out the full intent and meaning of the plans and specifications or to be reasonably inferred therefrom, the cost of such workmanship or materials shall be included in the unit price bid for the major items of work.
- B. Reproducible As-built drawings must be furnished by the Contractor to the Engineer prior to final payment in accordance with Section 010100.
- C. Contractor shall notify all utility companies prior to construction of utilities by contacting 1-800-272-1000.
- D. Prior to any excavation, the Contractor shall have all utilities marked and shall excavate or otherwise determine the exact location and elevations of said utilities. The Contractor shall notify the Engineer of any conflicts. The Contractor shall arrange for any necessary utility relocations or plan changes and shall reschedule his operations appropriately.
- E. The Contractor, in the construction of any project, shall not stockpile materials or his equipment on any private property; except areas designated by the drawings as directed by the Engineer. If so required, the Engineer may direct the Contractor to have his equipment removed from any project during weekend hours.
- F. All work of refilling sunken ditches, repaving over trenches and keeping streets and sidewalks in passable condition shall be done to the satisfaction of the Engineer during the construction of the above work as well as during the maintenance period. If any work is not done within five (5) days after written notice is given by the Engineer, the work may be done by the Owner and charged to the Contractor.
- G. Special care shall be taken to prevent contamination, siltation, or interfering in any way with the stream flows or ponds along the line of work. No waste matter of any kind will be allowed to discharge into the stream flows or impounded water of any ponds or other bodies of water.
- H. The Contractor shall apply and pay for all local permits that may be required for any of the work involved with this project.
- I. All notes on drawings shall be made a part of the specifications.
- J. Contractor shall notify Engineer at least forty-eight (48) hours in advance of any work on Saturdays. There will be no work permitted on Sundays or holidays. This project will receive inspection and the normal working hours for the Inspector are from 7:30 AM to 4:00 PM, Monday through Friday. Any overtime inspection costs which are not specifically mentioned in the drawings and specifications will be reimbursed by the Contractor. Holidays are New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving and Christmas.
- K. It shall be the Contractor's responsibility to keep the concrete curb clean of asphaltic tack coat.

1.02 PUBLIC UTILITIES

- A. The contract drawings indicate the approximate location of existing overhead and subsurface utilities in the vicinity of the work. The bidder is advised to ascertain for himself all the facts concerning the location of these utilities.
- B. The Contractor shall cooperate with the utility owners in the adjustment of their facilities and shall notify the utility owners not less than five (5) days in advance of the time he proposes to perform any work that will endanger or affect their facilities.
- C. The Contractor shall permit the owners of utilities, or their agents, access to the site of the work at all times in order to relocate, construct or protect their lines and he shall cooperate with them in performing this work.
- D. Separate payments will not be made for the coordination and cooperation of the Contractor with the utility companies, nor for the protection or replacement of utilities for the resequencing or delay of work due to a utility company and the bidder shall include all such costs in the prices bid for the various related items of work in the Bid Form.
- E. The Contractor is responsible for repairing all located utilities (water, sewer, storm sewer, gas lines, etc.) which are broken or damaged during construction.

1.03 PHOTOGRAPHS & VIDEO TAPES

The Contractor shall video tape in digital format the construction site prior to the commencement of construction. Two copies of the digital recording shall be forwarded and kept by Remington and Vernick Engineers to resolve any disputes arising over the restoration of all curbs, sidewalks, driveways, fences, lawns, landscaped areas, or any other items that may be disturbed during construction.

1.04 TESTING MATERIALS

- A. Except as may be provided elsewhere, test or analysis of materials which are usually tested after delivery to the site, such as concrete aggregate, mixed and placed concrete, and similar materials; will be performed by the Engineer or test laboratories which will be approved by the Engineer and selected and paid for by the Contractor. The preliminary testing of concrete mixtures and test or analysis of other materials, samples of which are to be submitted prior to delivery, will also be performed by the laboratory and paid for by the Contractor at the Engineer's request.
- B. If the Engineer orders sampling and analysis or tests of materials which are usually accepted on Certification of the manufacturer but which appear defective or not conforming to the requirements of the Specifications, the Contractor will bear the reasonable costs of sampling, transportation, test and analysis.

END OF SECTION 010000

SECTION 010100

AS-BUILT DRAWINGS

1.01 GENERAL

The Contractor shall provide a set of reproducible as-built drawings prior to final payment.

2.01 MATERIALS

- A. As-builts shall be a reproducible of the original contract drawings including any additional sheets required. All deviations from the original contract drawings shall be on the as-builts. The drawings shall be legible, neat, and of a quality acceptable to the Engineer.
- B. The Engineer shall provide a set of reproducibles at the beginning of the project.

3.01 EXECUTION

- A. The Contractor shall be responsible for keeping the as-built up-to-date as the project progresses.
- B. Building Construction: Actual installation with all items clearly identified shall be indicated. Location of installed items and any deviations from contract documents shall be so shown with boxes around the as-built numbers or labels.
- C. This section is intended to provide a minimum level of acceptance. Any section with more stringent requirements shall have precedence over this section.

4.01 PAYMENT

No separate payment will be made for work performed under this section.

END OF SECTION 010100

SECTION 017113

MOBILIZATION

PART 1 – DESCRIPTION

This Section describes requirements for mobilization.

PART 2 – MATERIALS

Not Applicable

PART 3 – EXECUTION

Mobilization consists of the preparatory work and operations, including moving personnel, equipment, supplies, and incidentals to the project site. It also includes all other work performed and costs incurred before beginning work on various items in the Contract.

PART 4 - QUANTITY AND PAYMENT

- A. Payment for mobilization will be made on a lump sum basis, regardless of the number of times the Contractor shuts down and returns to the Project.
- B. Payment for mobilization will be made as follows:

<u>Milestone</u>	<u>Payment</u>
Work begins on site	Lesser of 20% of bid price, or 2% of total contract price
5% of the work completed	Lesser of 25% of bid price, or 2.5% of total contract price
10% of the work completed	Lesser of 50% of bid price, or 5% of total contract price
15% of the work completed	Lesser of 75% of bid price, or 7.5% of total contract price
20% of the work completed	Lesser of 100% of bid price, or 10% of total contract price
100% of the work completed	Amount of bid price not previously paid, if any

Note: Percentage of work completed will be calculated from the total of payments compared to the total contract price. The total of payments excludes the amount paid for mobilization and the amount paid for materials furnished but not incorporated into the work.

- C. All costs associated with the work in this section shall be included in the lump sum price for the item "Mobilization" in the bid form. No separate payment will be made for bonds, insurance, or for any other costs incurred before beginning work on various items in the Contract.

END OF SECTION

SECTION 017400

CLEANING AND RESTORATIONS

1.01 DESCRIPTION

- A. Contractor shall provide all equipment, labor & materials required to clear the site of all debris to match the natural grade conditions. Backfill shall be provided as required to provide positive drainage from any disturbed areas so that there is no ponding water on the site. All disturbed areas shall be seeded to establish vegetation and prevent erosion.
- B. Maintain premises and public properties free from accumulations of waste, debris and rubbish caused by work operations.
- C. 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.
- D. At completion of work, restore or replace, when and as directed by the Engineer, 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.

2.01 MATERIALS

- A. For restorations all materials shall comply with the following Articles of the New Jersey Department of Transportation Standard Specifications latest revision and these specifications.
- B. Pavement restorations: See Section 903 "Bituminous Concrete".
- C. Restoration of curbs and other concrete structures:
 - 1. Concrete:
 - a. Shall conform to Section 605 for Curbs, Section 607 for sidewalks and driveways, and Section 405 for concrete surface course.
 - b. Compressive Strength: 4,000 psi at 28 days.
 - c. Air-entrained.
 - 2. Joint Fillers: Section 908, bituminous cellular type.
 - 3. Curing Compound: Section 905.03, white-pigmented liquid.
- D. Driveway Restoration: Driveway Aprons shall be replaced in kind with Portland Cement Concrete, Bituminous Concrete or 3/4 inch stone. Dirt driveway aprons are to be upgraded to stone.
- E. All other Materials: As approved by the Engineer or authorities having jurisdiction.

3.01 METHODS OF CONDUCTING WORK – CLEANING

A. Requirements of regulatory agencies:

The Contractor shall comply with all Federal, State, and local anti-pollution laws, ordinances, codes and regulations when disposing of waste materials, debris and rubbish. All excess material shall be removed from the site and disposed of by the Contractor. Cost to be included in the unit price bid for all items.

The disposal site shall be in permanently established licensed OSWA (Office of Solid Waste Administration, New Jersey Department of Environmental Protection) landfills or a NJDEP certified recycling center if applicable.

B. Cleaning during construction:

Provide 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.

The Contractor is responsible for street sweeping as directed by the Engineer or Owner. The Contractor shall keep all public roadways free of dirt and debris from any trucks entering or leaving the demolition site.

Provide on-site containers for the collection of waste materials, debris and rubbish. Maintain containers as required.

C. Dust Control:

The Contractor will be required to maintain all excavations, embankments, stockpiles, haul roads, permanent access roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust which would cause a hazard or nuisance to others. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. If any dust control is not done within twenty-four (24) hours after written notice is given by the Engineer, the work may be done by Owner and charged to the Contractor.

3.02 METHODS OF CONDUCTING WORK - RESTORATIONS

A. General: 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. The methods of conducting this work shall, as a minimum, conform to the New Jersey Department of Transportation Standard Specifications, latest revision.

B. Pavement Restorations:

The methods of construction employed shall conform to the requirements set forth in Section 208, 304, 305 & 404 of the Standard Specifications as applicable to the type of material being utilized.

Restoration type and thickness shall be as shown on the contract drawings.

C. Restorations of Curbs and Other Concrete Structures:

1. Curbs: Section 605
2. Other concrete structures: Restore in accordance with applicable Sections of the Standard Specifications.

D. Fence Restorations:

Contractor shall remove all concrete from existing fence posts and appurtenances before reinstalling fence in kind.

E. All Other Restorations:

Restore in accordance with applicable Sections of the Standard Specifications, or as approved by the Engineer or authorities having jurisdiction.

END OF SECTION 017400

SECTION 024100

BUILDING DEMOLITION

1.01 DESCRIPTION

- A. The existing structures to be demolished, in general, consist of the following:
 - 1. Partial removal of eight (8) existing steel columns of the bottom four (4) feet in height. This includes the associated baseplates and anchor bolts.
 - 2. Partial removal of a 6'x6' area around twelve (12) existing columns. This includes, but is not limited to CMU walls, flooring systems, and concrete slabs.
- B. Adjacent areas required to remain shall be left in a safe condition, and shall not be defaced, marred, or jeopardized in any way and any damage done to them shall be repaired or restored to the satisfaction of the Engineer, without additional compensation.
- C. Contractor shall remove all equipment and excess materials during the process of demolition. This material shall be disposed of by the Contractor at his expense.
- D. The Contractor shall employ all possible methods to minimize the noise. All construction equipment powered by internal combustion engines shall be equipped with a properly maintained muffler. Air powered equipment shall be fitted with pneumatic exhaust silencers. Equipment powered by an internal combustion engine shall not be operated within 150 feet of residential properties without portable noise barriers placed between the equipment and the noise sensitive sites.

1.02 PERMITS

- A. Contractor is responsible to complete and file all required Uniform Construction Code and Township demolition permit applications, if required. No demolition work shall commence without a permit being issued.

2.01 EXECUTION

- A. Inspection:

Verify that areas of demolition work are unoccupied.

2.02 PREPARATION

- A. Prior to commencement of demolition operations, arrange for, and verify shut off of utility services, including electric, gas, telephone, water, and sewer, if required.

2.03 DEMOLITION

- A. Demolition of structures shall be in accordance with the demolition procedures submitted to and accepted by the Engineer.

- B. Suitable barriers shall be erected and maintained around all operations as long as such operations constitute a hazard or dangerous condition. "Keep Out" signs shall be maintained in places and locations where the placing of protective devices are warranted.
- C. Only methods of demolition will be permitted which will ensure that all phases of demolition are confined within the limits of the demolition area and without hazard to adjacent areas or to the public.
- D. Adjacent areas shall be left in a safe condition, and shall not be defaced, marred, or jeopardized in any way and any damage done to them shall be repaired or restored to the satisfaction of the Engineer, without additional compensation.
- E. Any additional materials required for repairs shall be furnished without any additional cost to the Owner.
- F. All materials, including fixtures and equipment, as well as debris and rubbish, except personal property belonging to Owners shall be removed as it accumulates and not stored on the Project. Materials and debris shall not be placed or stored within the limits of any existing streets.

3.01 QUANTITY AND PAYMENT

All costs for clearing and restorations shall be included in the prices bid for the various scheduled items in the Bid Form and no separate payment will be made thereto.

END OF SECTION 024100

SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

1.2 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.3 ACTION SUBMITTALS

A. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement
7. Aggregates.
8. Admixtures:
 - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
 - b. Include limitations of use. Admixtures that do not comply with reference ASTM International requirements must be submitted with test data for approval.
9. Color pigments.
10. Fiber reinforcement.
11. Vapor retarders.
12. Floor and slab treatments.
13. Liquid floor treatments.

14. Curing materials.
 - a. Include documentation from color pigment manufacturer, indicating that proposed methods of curing are recommended by color pigment manufacturer.
 15. Joint fillers.
 16. Repair materials.
- B. Design Mixtures: For each concrete mixture, include the following:
1. Mixture identification.
 2. Minimum 28-day compressive strength.
 3. Durability exposure class.
 4. Maximum w/cm.
 5. Calculated equilibrium unit weight, for lightweight concrete.
 6. Slump limit.
 7. Air content.
 8. Nominal maximum aggregate size.
 9. Steel-fiber reinforcement content.
 10. Synthetic micro-fiber content.
 11. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
 12. Include manufacturer's certification that permeability-reducing admixture is compatible with mix design.
 13. Include certification that dosage rate for permeability-reducing admixture matches dosage rate used in performance compliance test.
 14. Intended placement method.
 15. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Shop Drawings:
1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - a. Location of construction joints is subject to approval of the Engineer.
- D. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:
1. Concrete Class designation.
 2. Location within Project.
 3. Exposure Class designation.
 4. Formed Surface Finish designation and final finish.
 5. Final finish for floors.
 6. Curing process.
 7. Floor treatment if any.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Fiber reinforcement.
4. Curing compounds.
5. Floor and slab treatments.
6. Bonding agents.
7. Adhesives.
8. Vapor retarders.
9. Semirigid joint filler.
10. Joint-filler strips.
11. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement.
7. Aggregates.
8. Admixtures:

- a. Permeability-Reducing Admixture: Include independent test reports, indicating compliance with specified requirements, including dosage rate used in test.

D. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances.

E. Research Reports:

1. For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.
2. For sheet vapor retarder/termite barrier, showing compliance with ICC AC380.

F. Preconstruction Test Reports: For each mix design.

G. Field quality-control reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician with experience installing and finishing concrete, incorporating permeability-reducing admixtures.
 - 1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.
- B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
 - 1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.
 - 1. Personnel performing laboratory tests to be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor to be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
- D. Field Quality-Control Testing Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
 - 1. Personnel conducting field tests to be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

1.6 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.
 - 1. Include the following information in each test report:
 - a. Admixture dosage rates.
 - b. Slump.
 - c. Air content.
 - d. Seven-day compressive strength.
 - e. 28-day compressive strength.
 - f. Permeability.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with ASTM C94/C94M and ACI 301.

1.8 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.

1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.
5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:

1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

1.9 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement sheet vapor retarder/termite barrier material and accessories for sheet vapor retarder/ termite barrier and accessories that do not comply with requirements or that fail to resist penetration by termites within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
3. Obtain aggregate from single source.
4. Obtain each type of admixture from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type I Type II.
2. Fly Ash: ASTM C618, Class C or F.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.

C. Normal-Weight Aggregates: ASTM C33/C33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C260/C260M.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride in steel-reinforced concrete.

1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
2. Retarding Admixture: ASTM C494/C494M, Type B.
3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
7. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494/C494M, Type C.
8. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

2.3 VAPOR RETARDERS

- A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A; not less than 6 mils thick.

2.4 FLOOR AND SLAB TREATMENTS

- A. Slip-Resistive Emery Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive, crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.
- B. Slip-Resistive Aluminum Granule Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of not less than 95 percent fused aluminum-oxide granules.

2.5 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

2.6 CURING MATERIALS

- A. Clear, Solvent-Borne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ChemMasters, Inc.
 - b. Concrete Sealers USA.
 - c. Kaufman Products, Inc.

2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade and class to suit requirements, and as follows:
 - 1. Types I and II, nonload bearing Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.8 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
 - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
 - 4. Compressive Strength: Not less than 4100 psi at 28 days when tested in accordance with ASTM C109/C109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109/C109M.

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
 1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 1. Fly Ash or Other Pozzolans: 25 percent by mass.
 2. Slag Cement: 50 percent by mass.
 3. Silica Fume: 10 percent by mass.
 4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
 5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
- C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.
 1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
 4. Use permeability-reducing admixture in concrete mixtures where indicated.
- D. Color Pigment: Add color pigment to concrete mixture in accordance with manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.10 CONCRETE MIXTURES

- A. Class A: Normal-weight concrete used for footings, grade beams, and tie beams.
 1. Minimum Compressive Strength: 4000 psi at 28 days.
 2. Maximum w/cm: .48
 3. Slump Limit: 4 inches, plus or minus 1 inch.
 4. Air Content:

- a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
 - 5. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- B. Class B: Normal-weight concrete used for foundation walls.
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum w/cm: 0.45.
 - 3. Slump Limit: 4 inches, plus or minus 1 inch.
 - 4. Air Content:
 - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
 - 5. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- C. Class C: Normal-weight concrete used for interior slabs-on-ground.
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum w/cm: 0.45.
 - 3. Slump Limit: 4 inches, plus or minus 1 inch.
 - 4. Air Content:
 - a. Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.
 - 5. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and ASTM C1116/C1116M, and furnish batch ticket information.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 - 1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
 - 2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
 - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:

1. Daily access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
4. Security and protection for test samples and for testing and inspection equipment at Project site.

3.3 TOLERANCES

A. Comply with ACI 117.

3.4 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.5 INSTALLATION OF VAPOR RETARDER

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.

1. Install vapor retarder with longest dimension parallel with direction of concrete pour.

2. Face laps away from exposed direction of concrete pour.
 3. Lap vapor retarder over footings and grade beams not less than 6 inches, sealing vapor retarder to concrete.
 4. Lap joints 6 inches and seal with manufacturer's recommended tape.
 5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
 6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
 7. Protect vapor retarder during placement of reinforcement and concrete.
 - a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches on all sides, and sealing to vapor retarder.
- B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder in accordance with manufacturer's written instructions.

3.6 INSTALLATION OF CAST-IN-PLACE CONCRETE

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.
1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
 2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Engineer and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- C. Water addition in transit or at the Project site must be in accordance with ASTM C94/C94M and must not exceed the permitted amount indicated on the concrete delivery ticket.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
1. If a section cannot be placed continuously, provide construction joints as indicated.
 2. Deposit concrete to avoid segregation.
 3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
 4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
 - a. Do not use vibrators to transport concrete inside forms.
 - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer.
 - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
 - d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Do not place concrete floors and slabs in a checkerboard sequence.
 - 2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 3. Maintain reinforcement in position on chairs during concrete placement.
 - 4. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 5. Level concrete, cut high areas, and fill low areas.
 - 6. Slope surfaces uniformly to drains where required.
 - 7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
 - 8. Do not further disturb slab surfaces before starting finishing operations.

3.7 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
 - 1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Engineer.
 - 2. Place joints perpendicular to main reinforcement.
 - a. Continue reinforcement across construction joints unless otherwise indicated.
 - b. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 - 4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 - 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 6. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
 - 7. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 8. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action

does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.

- D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
 - 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
 - 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints:
 - 1. Install dowel bars and support assemblies at joints where indicated on Drawings.
 - 2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.
- F. Dowel Plates: Install dowel plates at joints where indicated on Drawings.

3.8 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.
 - 1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
 - 2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Engineer and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer in writing, but not to exceed the amount indicated on the concrete delivery ticket.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

- E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
1. If a section cannot be placed continuously, provide construction joints as indicated.
 2. Deposit concrete to avoid segregation.
 3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
 4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
 - a. Do not use vibrators to transport concrete inside forms.
 - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
 - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
 - d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Do not place concrete floors and slabs in a checkerboard sequence.
 2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 3. Maintain reinforcement in position on chairs during concrete placement.
 4. Screed slab surfaces with a straightedge and strike off to correct elevations.
 5. Level concrete, cut high areas, and fill low areas.
 6. Slope surfaces uniformly to drains where required.
 7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
 8. Do not further disturb slab surfaces before starting finishing operations.

3.9 FINISHING FORMED SURFACES

A. As-Cast Surface Finishes:

1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.
 - a. Patch voids larger than 1-1/2 inches wide or 1/2 inch deep.
 - b. Remove projections larger than 1 inch.
 - c. Tie holes do not require patching.
 - d. Surface Tolerance: ACI 117 Class D.
 - e. Apply to concrete surfaces not exposed to public view.
2. ACI 301 Surface Finish SF-2.0: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
 - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.

- b. Remove projections larger than 1/4 inch.
 - c. Patch tie holes.
 - d. Surface Tolerance: ACI 117 Class B.
 - e. Locations: Apply to concrete surfaces exposed to public view, to receive a rubbed finish.
3. ACI 301 Surface Finish SF-3.0:
- a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
 - b. Remove projections larger than 1/8 inch.
 - c. Patch tie holes.
 - d. Surface Tolerance: ACI 117 Class A.
 - e. Locations: Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
- B. Rubbed Finish: Apply the following to as cast surface finishes wherever these type of surfaces are shown on the Drawings:
- 1. Smooth-Rubbed Finish:
 - a. Perform no later than one day after form removal.
 - b. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture.
 - c. If sufficient cement paste cannot be drawn from the concrete by the rubbing process, use a grout made from the same cementitious materials used in the in-place concrete.
 - d. Maintain required patterns or variances as shown on Drawings.
 - 2. Grout-Cleaned Rubbed Finish:
 - a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
 - b. Do not clean concrete surfaces as Work progresses.
 - c. Mix 1 part portland cement to 1-1/2 parts fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
 - d. Wet concrete surfaces.
 - e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap, and keep surface damp by fog spray for at least 36 hours.
 - f. Maintain required patterns or variances as shown on Drawings.
- C. Related Unformed Surfaces:
- 1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
 - 2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

- A. Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish:
 - 1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied.
 - 2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.
 - 3. Apply scratch finish to surfaces to receive concrete floor toppings or to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish:
 - 1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
 - 2. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 tolerances for conventional concrete.
 - 3. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish:
 - 1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
 - 2. Continue troweling passes and restraighen until surface is free of trowel marks and uniform in texture and appearance.
 - 3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 4. Do not add water to concrete surface.
 - 5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
 - 6. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - 7. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:
 - a. Slabs on Ground:
 - 1) Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch and also no more than 1/16 inch in 2 feet.
 - 2) Specified overall values of flatness, F_F 25; and of levelness, F_L 20; with minimum local values of flatness, F_F 17; and of levelness, F_L 15.
 - 3) Specified overall values of flatness, F_F 35; and of levelness, F_L 25; with minimum local values of flatness, F_F 24; and of levelness, F_L 17.

- 4) Specified overall values of flatness, F_F 45; and of levelness, F_L 35; with minimum local values of flatness, F_F 30; and of levelness, F_L 24.
 - 5) Specified overall values of flatness, F_F 50; and of levelness, F_L 25; with minimum local values of flatness, F_F 40; and of levelness, F_L 17.
- b. Suspended Slabs:
- 1) Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.
 - 2) Specified overall values of flatness, F_F 25; and of levelness, F_L 20; with minimum local values of flatness, F_F 17; and of levelness, F_L 15.
 - 3) Specified overall values of flatness, F_F 35; and of levelness, F_L 20; with minimum local values of flatness, F_F 24; and of levelness, F_L 15.
 - 4) Specified overall values of flatness, F_F 45; and of levelness, F_L 35; with minimum local values of flatness, F_F 30; and of levelness, F_L 24.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated on Drawings and/or where ceramic or quarry tile is to be installed by either thickset or thin set method. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.
1. Coordinate required final finish with Engineer before application.
 2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
 2. Coordinate required final finish with Engineer before application.
- G. Slip-Resistive Finish: Before final floating, apply slip-resistive aggregate finish to concrete stair treads, platforms, ramps as indicated on Drawings
1. Apply in accordance with manufacturer's written instructions and as follows:
 - a. Uniformly spread 25 lb/100 sq. ft. of dampened slip-resistive aggregate over surface in one or two applications.
 - b. Tamp aggregate flush with surface, but do not force below surface.
 - c. After broadcasting and tamping, apply float finish.
 - d. After curing, lightly work surface with a steel wire brush or an abrasive stone and water to expose slip-resistive aggregate.
- H. Dry-Shake Floor Hardener Finish: After initial floating, apply dry-shake floor hardener to surfaces in accordance with manufacturer's written instructions and as follows:
1. Uniformly apply dry-shake floor hardener at a rate of 100 lb/100 sq. ft. unless greater amount is recommended by manufacturer.
 2. Uniformly distribute approximately two-thirds of dry-shake floor hardener over surface by hand or with mechanical spreader, and embed by power floating.

3. Follow power floating with a second dry-shake floor hardener application, uniformly distributing remainder of material, and embed by power floating.
4. After final floating, apply a trowel finish.
5. Cure concrete with curing compound recommended by dry-shake floor hardener manufacturer and apply immediately after final finishing.

3.11 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling In:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
3. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 4 inches high unless otherwise indicated on Drawings, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
3. Minimum Compressive Strength: 4000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices.
 - a. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - b. Cast anchor-bolt insert into bases.
 - c. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.

1. Cast-in inserts and accessories, as shown on Drawings.
2. Screed, tamp, and trowel finish concrete surfaces.

3.12 CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.

2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h, calculated in accordance with ACI 305.1, before and during finishing operations.

B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:

1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
2. Cure concrete containing color pigments in accordance with color pigment manufacturer's instructions.
3. If forms remain during curing period, moist cure after loosening forms.
4. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
 - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
 - b. Continuous Sprinkling: Maintain concrete surface continuously wet.
 - c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
 - d. Water-Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.
 - e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 1) Recoat areas subject to heavy rainfall within three hours after initial application.
 - 2) Maintain continuity of coating and repair damage during curing period.

C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:

1. Begin curing immediately after finishing concrete.
2. Interior Concrete Floors:
 - a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:
 - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - a) Lap edges and ends of absorptive cover not less than 12 inches.
 - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
 - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.

- a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - b) Cure for not less than seven days.
 - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - a) Water.
 - b) Continuous water-fog spray.
- b. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
- 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - a) Lap edges and ends of absorptive cover not less than 12 inches.
 - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
 - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
 - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - b) Cure for not less than seven days.
 - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - a) Water.
 - b) Continuous water-fog spray.
- c. Floors to Receive Polished Finish: Contractor has option of the following:
- 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - a) Lap edges and ends of absorptive cover not less than 12 inches.
 - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
 - 2) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:

- a) Water.
 - b) Continuous water-fog spray.
- d. Floors to Receive Chemical Stain:
- 1) As soon as concrete has sufficient set to permit application without marring concrete surface, install curing paper over entire area of floor.
 - 2) Install curing paper square to building lines, without wrinkles, and in a single length without end joints.
 - 3) Butt sides of curing paper tight; do not overlap sides of curing paper.
 - 4) Leave curing paper in place for duration of curing period, but not less than 28 days.
- e. Floors to Receive Urethane Flooring:
- 1) As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - 2) Rewet absorptive cover, and cover immediately with polyethylene moisture-retaining cover with edges lapped 6 inches and sealed in place.
 - 3) Secure polyethylene moisture-retaining cover in place to prohibit air from circulating under polyethylene moisture-retaining cover.
 - 4) Leave absorptive cover and polyethylene moisture-retaining cover in place for duration of curing period, but not less than 28 days.
- f. Floors to Receive Curing Compound:
- 1) Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
 - 3) Maintain continuity of coating, and repair damage during curing period.
 - 4) Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.
- g. Floors to Receive Curing and Sealing Compound:
- 1) Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
 - 3) Repeat process 24 hours later, and apply a second coat. Maintain continuity of coating, and repair damage during curing period.

3.13 APPLICATION OF LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 2. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.
 3. Rinse with water; remove excess material until surface is dry.
 4. Apply a second coat in a similar manner if surface is rough or porous.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller in accordance with manufacturer's written instructions.

3.14 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
1. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

3.15 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
1. Repair and patch defective areas when approved by Engineer.
 2. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
 - a. Limit cut depth to 3/4 inch.
 - b. Make edges of cuts perpendicular to concrete surface.
 - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
 - d. Fill and compact with patching mortar before bonding agent has dried.
 - e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.

- a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
 - b. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Engineer.

D. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.
 - a. Correct low and high areas.
 - b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
3. After concrete has cured at least 14 days, correct high areas by grinding.
4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
 - a. Finish repaired areas to blend into adjacent concrete.
5. Correct other low areas scheduled to receive floor coverings with a repair underlayment.
 - a. Prepare, mix, and apply repair underlayment and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - b. Feather edges to match adjacent floor elevations.
6. Correct other low areas scheduled to remain exposed with repair topping.
 - a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
 - b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
7. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.
 - a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
 - b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
 - c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
 - d. Place, compact, and finish to blend with adjacent finished concrete.

- e. Cure in same manner as adjacent concrete.
8. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
- a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
 - b. Dampen cleaned concrete surfaces and apply bonding agent.
 - c. Place patching mortar before bonding agent has dried.
 - d. Compact patching mortar and finish to match adjacent concrete.
 - e. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.16 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article. The scheduling and costs for all testing shall be the responsibility of the contractor.
- 1. Testing agency to be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
 - 2. Testing agency to immediately report to Engineer, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
 - 3. Testing agency to report results of tests and inspections, in writing, to Owner, Engineer, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
 - a. Test reports to include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
 - 1) Project name.
 - 2) Name of testing agency.
 - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
 - 4) Name of concrete manufacturer.
 - 5) Date and time of inspection, sampling, and field testing.
 - 6) Date and time of concrete placement.
 - 7) Location in Work of concrete represented by samples.
 - 8) Date and time sample was obtained.
 - 9) Truck and batch ticket numbers.
 - 10) Design compressive strength at 28 days.
 - 11) Concrete mixture designation, proportions, and materials.
 - 12) Field test results.
 - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.

- 14) Type of fracture and compressive break strengths at seven days and 28 days.
- B. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.
- C. Inspections:
1. Headed bolts and studs.
 2. Verification of use of required design mixture.
 3. Concrete placement, including conveying and depositing.
 4. Curing procedures and maintenance of curing temperature.
 5. Verification of concrete strength before removal of shores and forms from beams and slabs.
- D. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M to be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing to be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C143/C143M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - b. Perform additional tests when concrete consistency appears to change.
 3. Slump Flow: ASTM C1611/C1611M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - b. Perform additional tests when concrete consistency appears to change.
 4. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete;
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 5. Concrete Temperature: ASTM C1064/C1064M:
 - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
 6. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.

- a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 7. Compression Test Specimens: ASTM C31/C31M:
 - a. Cast and laboratory cure two sets of two 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample.
 - b. Cast, initial cure, and field cure two sets of three standard cylinder specimens for each composite sample.
 8. Compressive-Strength Tests: ASTM C39/C39M.
 - a. Test one set of two laboratory-cured specimens at seven days and one set of two specimens at 28 days.
 - b. Test one set of two field-cured specimens at seven days and one set of two specimens at 28 days.
 - c. A compressive-strength test to be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor to evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
 11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
 12. Additional Tests:
 - a. Testing and inspecting agency to make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
 - b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer.
 - 1) Acceptance criteria for concrete strength to be in accordance with ACI 301, Section 1.6.6.3.
 13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- E. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 48 hours of completion of floor finishing and promptly report test results to Engineer.

3.17 PROTECTION

A. Protect concrete surfaces as follows:

1. Protect from petroleum stains.
2. Diaper hydraulic equipment used over concrete surfaces.
3. Prohibit vehicles from interior concrete slabs.
4. Prohibit use of pipe-cutting machinery over concrete surfaces.
5. Prohibit placement of steel items on concrete surfaces.
6. Prohibit use of acids or acidic detergents over concrete surfaces.
7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.
8. Protect concrete surfaces scheduled to receive surface hardener or polished concrete finish using Floor Slab Protective Covering.

PART 4 - MEASUREMENT, QUANTITY & PAYMENT

Cost for work specified in this section shall be paid for under the bid form line items for which they are a part. Costs shall include all excavation, shoring, formwork, finishes, steel reinforcement, reinforcement accessories, concrete materials, admixtures, water stops, vapor barriers, treatments, curing materials, joint fillers, bonding agents, adhesives, repair materials, testing, and all related appurtenances as required per the contract documents.

END OF SECTION 033000

SECTION 033100

CAST-IN-PLACE CONCRETE BONDING AGENT FOR METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. This specification describes the bonding bridge between new portland-cement mortar or concrete and hardened portland-cement mortar or concrete with an epoxy adhesive.

1.2 QUALITY ASSURANCE

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by manufacturer, or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.4 JOB CONDITIONS

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified product.

1.5 SUBMITTALS

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).

1.6 WARRANTY

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Sikadur 32 Hi-Mod, as manufactured by Sika Corporation, is considered to conform to the requirements of this specification.

2.2 MATERIALS

- A. Epoxy resin adhesive shall be Sikadur 32 Hi-Mod:
 1. Component "A" shall be a modified epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 2. Component "B" shall be primarily a reaction product of a selected amine blend with an epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents, pigments, and accelerators.
 3. The material shall not contain asbestos.

2.3 PERFORMANCE CRITERIA

- A. Properties of the mixed epoxy resin adhesive:
 1. Pot Life: min. 30 minutes (60 gram mass) @ 73° F
 2. Contact Time: 90°F (32°C) 1.5 to 2 hours
 - 75°F (24°C) 3 to 4.5
 - 40°F (5°C) 12 hours
 3. Color: Concrete Gray
- B. Properties of the cured epoxy resin adhesive:
 1. Compressive Strength (ASTM D-695)
 - .min. a 3 day: 11300 psi (31.0 MPa)
 - b. 7 day: 11800 psi (44.8 MPa)
 - c. 28 day: 12200 psi (58.6 MPa)
 - Compressive Modulus, PSI :
 - .min. a. 7 day 2.6 x 10⁵ psi (1800 Mpa)
 2. Shear Strength (ASTM D-732)
 - a. 14 days: 6200 psi (43 MPa)
 3. Flexural Strength (ASTM D-790) min.
 - a. 14 days: 10700 psi (74 MPa)
 - Tangent Modulus of Elasticity in Bending
.min.
 - b. 14 days: 6.9 x 10⁵ psi (4800 Mpa)
 4. Bond Strength ASTM C-882
 - 14 days (moist cure) .min.
 - a. Plastic Concrete to Hardened Concrete 2200 psi (13.8 Mpa)
 - b. Plastic Concrete to Steel 2000 psi (13.8Mpa)
 5. Water Absorption (ASTM D-570)

.max. a. 24 hour 0.27%

6. Tensile properties (ASTM D-638) .min.

a. 7 day Tensile Strength 6900 psi (48

Mpa) Elongation at Break 1.9%

b. 14 day Modulus of Elasticity 5.4×10^5 psi (3723.3 Mpa)

Note: Tests above were performed with material and curing conditions at 73°F and 45-55% relative humidity.

PART 3 - EXECUTION

3.1 MIXING AND APPLICATION

- A. Mixing the epoxy resin: Premix each component. Proportion equal parts by volume of Component "A" & Component "B" into a clean, dry mixing pail. Mix thoroughly for 3 minutes with a jiffy paddle on a low-speed (400-600 rpm) drill. Mix only that quantity of material that can be used within its potlife (25-35 minutes 73F).
- B. Placement procedure:
1. Manually apply the mixed epoxy resin to the prepared surface at a approximate rate of 80 sq ft/gal. Use of rollers, brushes, or brooms. Always place the portland cement mortar or concrete before the epoxy adhesive becomes tack-free to touch.
 2. To spray apply, the mixed epoxy resin adhesive should be placed in a paint-type pressure pot or applied with a positive displacement pump. The spray gun should be atomized at the nozzle. Spray uniform coat at a approximately rate of 80 sq ft/gal. Always place the portland cement mortar or concrete before the epoxy adhesive becomes tack-free to the touch.
- C. Should circumstances prevent the placement of the cement mortar or concrete before the epoxy resin becomes tack-free to touch, within a 48 hour period clean the cured epoxy adhesive to remove any surface contaminates and re-apply the epoxy resin adhesive.
- D. Adhere to all limitations and cautions for the epoxy resin adhesive in the manufacturers current printed literature.

3.2 CLEANING

- A. The uncured epoxy resin adhesive can be cleaned from tools with approved solvent. The cured epoxy resin adhesive can only be removed mechanically.
- B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION 033100

SECTION 042100

BRICK MASONRY

1.01 DESCRIPTION

- A. Furnish all labor, superintendence, tools, materials, transportation, plant and equipment and all means of construction necessary and reasonably incidental to the installation of brick masonry as described herein and/or as shown on the drawings and/or as necessary to complete the project.
- B. Include miscellaneous accessories including, but not limited to, wire reinforcement, cutting, patching blocking, sealing of opening, grouting, pointing, rake out for caulking, etc., as may be necessary for complete and proper executing of the work.
- C. **The brick color selection shall be by the owner.**

1.02 QUALITY ASSURANCE

- A. Prior to the delivery of brick the Contractor shall submit certificates from the independent testing laboratories showing that the type of brick to be supplied complies with all requirements of this specification.
- B. Before installation of any materials the Contractor shall erect at the site of the work, where directed by the Engineer, a sample wall panel of sufficient size to show the proposed color range, texture, bond, mortar joint, mortar color, method of laying and workmanship. The sample wall shall not be smaller than four (4) feet by four (4) feet. No work shall be started before the sample panel is approved. The approved sample panel shall become the standard of comparison for brick material, method of laying, mortar color and workmanship. The panel shall not be altered, moved or destroyed until the work is complete.
 - 1. Should the masonry work of this panel not be approved, the Contractor shall be required to build an additional panel or panels, duplicating the above conditions until the masonry work and it's joining is approved.

1.04 SUBMITTALS

- A. A face brick brochure shall be submitted to the Engineer to allow selection of the type of bricks for which samples will be requested. The brochure shall illustrate all shades of color available that comply with the requirement of this specification.
- B. Samples, when requested, shall be submitted in sufficient number to show full range of color and texture.

1.05 STORAGE OF MATERIALS

- A. All materials shall be stored on planks clear of the ground and protected from damage, moisture and dirt. All materials shall be subject to inspection upon delivery and any varying from

standard limitations shall be rejected by the Engineer and be immediately removed from the site and not offered again for construction purposes.

2.01 MATERIALS

A. Face brick shall be used on all exposed surfaces of the building as shown on the contract drawings, shall be modular size (7-5/8" x 2-1/4" x 3-5/8") and conform to the following:

1. ASTM C216, type 'FBS', grade SW.
2. Manufacturers shall be:
 - a. Bowerston Shale – Bowerston, OH
 - b. McAvoy Brick – Phoenixville, PA
 - c. Redland Brick – Williamsport, MD

Final color and texture by Owner and Engineer.

3. Contact Church Brick, 118 Burlington Rd Bordentown, NJ 08505. Ph: 609-298-0090

B. Wire truss type reinforcement shall be three (3) wire with Class 3 mill galvanized cross wire. Galvanizing shall be in accordance with ASTM A 116 (0.80 ounces per square foot). Reinforcement shall be as manufactured by Dur-O-Wal Inc. or AA Wire Products Co., or approved equal.

C. Veneer anchors shall be constructed of 19 gauge spring steel with a non-corrosive finish. Hook shall be 3/16" diameter to receive 2 3/16" diameter triangular type galvanized wire tie. Drive pin hole to be not less than 1/4".

D. Flashing shall be factory formed 300 series stainless steel as manufactured by Keystone Flashing Co. or approved equal.

3.01 WORKMANSHIP

A. All work shall be accomplished by workmen skilled in their craft.

B. Cold Weather Precautions: Do not lay masonry when the temperature of the outside air is below 50 degrees F unless adequate means are provided to heat the masonry materials and protect the completed work from freezing. Protection shall consist of heating and maintaining the temperature of the masonry materials to at least 40 degrees F but not more than 160 degrees F and maintaining an air temperature above 40 degrees F on both side of the masonry for a period of at least 24 hours if high-early strength cement is used in the mortar mix in place of regular portland cement. No work shall be permitted with or upon frozen materials. No anti freeze ingredient shall be used in the mortar.

C. Wetting Brick: Brick having absorption rates more than 0.025 oz. per square inch per minute shall be wetted sufficiently so that the rate of absorption when laid does not exceed this amount. The method of wetting shall be such as to assure that each unit is nearly saturated, but surface dry when laid. Units shall be free from water adhering to their surfaces when laid.

- D. Joining of Work: Where fresh, masonry joins masonry that is partially set or totally set, clean the exposed surface of the set masonry and if of brick, wet lightly to obtain bond with the new work. Remove all loose mortar. If it is necessary to “stop off” a horizontal run of masonry, this shall be done by racking back one-half brick or block length in each course. Tothing will not be permitted.
- E. Protection: Protect facing material against staining and keep tops of walls covered with non-staining waterproof covering when work is not in progress. When work is resumed, top surface of work shall be cleaned of all loose mortar, and in drying weather thoroughly wet, except for concrete masonry units.
- F. Built-in Work: Consult other trades and make provisions that will permit the installation of their work in a manner to avoid cutting and patching. Build in work specified under other section, as necessary, and as the work progresses. Set steel lintels in beds of mortar.
- G. Flashing shall be provided under horizontal masonry surfaces such as sills and copings, at intersections of masonry walls with horizontal surfaces such as roof and parapet, over heads of openings such as door and windows, and at floor lines. Care shall be taken to protect all flashing. Weep holes shall be provided at intervals of eighteen inches (18”) to two feet (2’) to permit the water which accumulates on flashing to drain to the outside. No masonry shall be built on flashing or waterproofing until the flashing or weatherproofing has been approved by the Engineer.
- H. Laying Brick: Lay brick plumb level and true to line in full beds of mortar. Butter the ends of brick with sufficient mortar to fill the end joints. Where an adjustment must be made after the mortar has begun to harden, remove the hardened mortar and replace with fresh mortar. Unless indicated otherwise, units shall be laid in running bond vertical joints in each course breaking approximately in the center of the unit below.
- I. Unless otherwise shown, brick facing shall be carried at least three (3) courses below exterior finished grade.
- J. Anchors and Ties: Protect materials from the elements immediately before placing, ties and anchors shall be free from loose rust, ice or other foreign coatings that will destroy or reduce the bond. Space ties horizontally and vertically 24” on center. Secure ties by anchoring to existing wall. Ties shall extend to within one inch (1”) of the exposed face joints.
- K. Joints in brick work shall be uniform. Joints exposed on the exterior and interior shall be cut flush and tooled when “thumb print” hard with a round or other suitable jointer to form a concave joint. Exterior joints below grade shall be trowel pointed. All other joints shall be cut flush with the surface of the brick work.
- L. Protection and Stain Prevention: Prevent staining of masonry facing by immediately removing any misplaced grout or mortar. Protect all sills, ledges, offsets and similar items from mortar drippings or other damage during construction.

3.02 POINTING AND CLEANING MASONRY

- A. On completion, point all holes in exposed masonry. Cut out defective joints and repoint them with mortar. Remove excess loose mortar from all exposed masonry as the work progresses. Leave finished masonry surfaces free from loose mortar and stains.
- B. Brick work shall be cleaned when the mortar has achieved a permanent set, but no sooner than seven (7) days after construction of the walls are complete.
- C. All exposed brick surfaces shall be cleaned from the top down with a solution of trisodium phosphate and household detergent or muriatic acid and clean water of a commercially prepared cleaner. Cleaned surfaces shall be free from mortar stain, drippings, efflorescence, other foreign substances from the exposed surfaces. Wet walls before applying solution. Scrub walls with stiff fiber brushes. Rinse surfaces with clean water immediately after cleaning. Proportions for cleaning solutions shall be as follows:
 - 1. One-half ($\frac{1}{2}$) cup trisodium phosphate and one-half ($\frac{1}{2}$) cup household detergent dissolved in one (1) gallon of clear water.
 - 2. One (1) part of commercial grade of muriatic acid to nine (9) parts of clear water.
- D. Standard premixed commercial cleaners may be used in place of job mix specified above.
- E. Cleaner used shall be compatible with bricks used and shall be as approved by the brick manufacturer.

4.01 QUANTITY AND PAYMENT

- A. All costs for furnishing and installing the work of this section should be included in the prices bid for the item, "Existing Column Repair & Coating, Power Wash Concrete Floor, Limited Concrete Repair & Sealing", as listed on the bid form. The bid shall include all labor, equipment and materials necessary for repair of masonry column including replacing any missing brick.

END OF SECTION 042100

SECTION 042200

UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
 - 1. Concrete masonry units.
 - 2. Decorative concrete masonry units.
 - 3. Mortar and grout.
 - 4. Reinforcing steel.
 - 5. Masonry joint reinforcement.
 - 6. Ties and anchors.
 - 7. Embedded flashing.
 - 8. Miscellaneous masonry accessories.
 - 9. Masonry-cell insulation.
- B. Related Sections include the following:
 - 1. Division 7 Section "Water Repellents" for water repellents applied to unit masonry assemblies.
 - 2. Division 7 Section "Sheet Metal Flashing and Trim" for exposed sheet metal flashing.
- C. Products installed, but not furnished, under this Section include the following:
 - 1. Steel lintels for unit masonry, furnished under Division 5 Section "Metal Fabrications."
 - 2. Hollow-metal frames in unit masonry openings, furnished under Division 8 Section "Steel Doors and Frames"."

1.3 DEFINITIONS

- A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 SUBMITTALS

- A. Product Data: For each different masonry unit, accessory, and other manufactured product specified.
- B. Shop Drawings: Show fabrication and installation details for the following:

1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
 2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection: For the following:
1. Unit masonry Samples in small-scale form showing the full range of colors and textures available for each different exposed masonry unit required.
 2. Colored mortar Samples showing the full range of colors available.
- D. Samples for Verification: For the following:
1. Full-size units for each different exposed masonry unit required, showing the full range of exposed colors, textures, and dimensions to be expected in the completed construction.
 2. Colored mortar Samples for each color required, showing the full range of colors expected in the finished construction. Make samples using the same sand and mortar ingredients to be used on Project.
 3. Weep holes/vents in color to match mortar color.
 4. Accessories embedded in the masonry.
- E. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
1. Each type of masonry unit required.
 - a. Include test data, measurements, and calculations establishing net-area compressive strength of masonry units.
 2. Each cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
 3. Each material and grade indicated for reinforcing bars.
 4. Each type and size of joint reinforcement.
 5. Each type and size of anchor, tie, and metal accessory.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1093 to conduct the testing indicated, as documented according to ASTM E 548.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- D. Sample Panels: Before installing unit masonry, build sample panels, using materials indicated for the completed Work, to verify selections made under sample Submittals and to demonstrate

aesthetic effects. Build sample panels for each type of exposed unit masonry assembly in sizes approximately 48 inches (1200 mm) long by 48 inches (1200 mm) high by full thickness.

1. Locate panels in the locations indicated or, if not indicated, as directed by Architect.
2. Clean exposed faces of panels with masonry cleaner indicated.
3. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
4. Protect approved sample panels from the elements with weather-resistant membrane.
5. Maintain sample panels during construction in an undisturbed condition as a standard for judging the completed Work.
6. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels, unless such deviations are specifically approved by Architect in writing.
7. Demolish and remove sample panels when directed.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of **24 inches (600 mm)** down both sides and hold cover securely in place.
 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of **24 inches (600 mm)** down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
1. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface.
 2. Protect sills, ledges, and projections from mortar droppings.
 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is **40 deg F (4 deg C)** and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- E. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.
1. When ambient temperature exceeds **100 deg F (38 deg C)**, or **90 deg F (32 deg C)** with a wind velocity greater than **8 mph (13 km/h)**, do not spread mortar beds more than **48 inches (1200 mm)** ahead of masonry. Set masonry units within one minute of spreading mortar.

PART 2 - PRODUCTS

2.1 CONCRETE MASONRY UNITS

- A. General: Provide shapes indicated and as follows:
1. Provide special shapes for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.
 2. Provide square-edged units for outside corners, unless indicated as bullnose.

- B. Concrete Masonry Units: ASTM C90 and as follows:
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi (13.1 MPa)
 2. Weight Classification: Normal weight.
 3. Provide Type I, moisture-controlled units.
 4. Size (Width): Manufactured to the following dimensions as indicated on the plans:
 - a. 4 inches (102 mm) nominal; 3-5/8 inches (92 mm) actual.
 - b. 8 inches (203 mm) nominal; 7-5/8 inches (194 mm) actual.
 - c. 12 inches (305 mm) nominal; 11-5/8 inches (295 mm) actual.
 5. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
- C. Decorative Concrete Masonry Units: ASTM C90 and as follows:
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi (13.1 MPa).
 2. Weight Classification: Normal weight.
 3. Provide Type I, moisture-controlled units.
 4. Size: Manufactured to dimensions indicated for nondecorative units.
 5. Finish: Exposed faces of the following general description matching color, pattern, and texture of Architect's samples.
 - a. Normal-weight aggregate, split-face finish.
 6. Integral Water Repellent: Provide units made with liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of the test specimen.
 - a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - b. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Block Plus W-10; Addiment Inc.
 - 2) Dry-Block; W. R. Grace & Co., Construction Products Division.
 - 3) Rheopel; Master Builders.

2.2 MORTAR AND GROUT MATERIALS

- A. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
- B. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch (6.5 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
1. White-Mortar Aggregates: Natural white sand or ground white stone.

2. Colored-Mortar Aggregates: Natural-colored sand or ground marble, granite, or other sound stone; of color necessary to produce required mortar color.
- C. Aggregate for Grout: ASTM C 404.
- D. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
- E. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer.
- F. Water: Potable.
- G. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
1. Colored Portland Cement-Lime Mix:
 - a. Eaglebond; Blue Circle Cement.
 - b. Color Mortar Blend; Glen-Gery Corporation.
 - c. Rainbow Mortamix Custom Color Cement/Lime; Holnam, Inc.
 - d. Centurion Colorbond PL; Lafarge Corporation.
 - e. Lehigh Custom Color Portland/Lime; Lehigh Portland Cement Co.
 - f. Riverton Portland Cement Lime Custom Color; Riverton Corporation (The).
 2. Cold-Weather Admixture:
 - a. Accelguard 80; Euclid Chemical Co.
 - b. Morseled; W. R. Grace & Co., Construction Products Division.
 - c. Trimix-NCA; Sonneborn, Div. of ChemRex, Inc.
 3. Water-Repellent Admixture:
 - a. Mortar Tite; Addiment Inc.
 - b. Dry-Block Mortar Admixture; W. R. Grace & Co., Construction Products Division.
 - c. Rheopel; Master Builders.

2.3 REINFORCING STEEL

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M; **Grade 60**.

2.4 MASONRY JOINT REINFORCEMENT

- A. General: ASTM A951 and as follows:
1. Hot-dip galvanized, carbon-steel wire for both interior and exterior walls.
 2. Wire Size for Side Rods: W1.7 or 0.148 inch (3.8 mm).
 3. Wire Size for Cross Rods: W1.7 or 0.148 inch (3.8 mm).

4. Provide in lengths of not less than **10 feet (3 m)**, with prefabricated corner and tee units where indicated.
- B. For single-wythe masonry, provide either ladder or truss type with single pair of side rods and cross rods spaced not more than **16 inches (407 mm)** o.c.
- C. For multiwythe masonry, provide types as follows:
1. Ladder type with perpendicular cross rods spaced not more than **16 inches (407 mm)** o.c. and 1 side rod for each face shell of hollow masonry units more than **4 inches (100 mm)** in width, plus 1 side rod for each wythe of masonry **4 inches (100 mm)** or less in width.
 2. Tab type with single pair of side rods spaced for embedment within each face shell of backup wythe and rectangular box-type cross ties spaced not more than **16 inches (407 mm)** o.c. Size ties to extend at least halfway through outer wythe but with at least **5/8-inch (16-mm)** cover on outside face.

2.5 TIES AND ANCHORS, GENERAL

- A. General: Provide ties and anchors, specified in subsequent articles, made from materials that comply with this Article, unless otherwise indicated.
- B. Hot-Dip Galvanized Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.
- C. Steel Sheet, Galvanized after Fabrication: ASTM A 366/A 366M cold-rolled, carbon-steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153.
- D. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.6 BENT WIRE TIES

- A. General: Rectangular units with closed ends and not less than **4 inches (100 mm)** wide. Z-shaped ties with ends bent 90 degrees to provide hooks not less than **2 inches (50 mm)** long may be used for masonry constructed from solid units or hollow units laid with cells horizontal.
1. Where coursing between wythes does not align, use adjustable ties composed of 2 parts; 1 with pintles, the other with eyes; with maximum misalignment of **1-1/4 inches (32 mm)**.
- B. Wire: Fabricate from 3/16 inch (4.8 mm) diameter, hot-dip galvanized steel wire.

2.7 ADJUSTABLE ANCHORS FOR CONNECTING TO STEEL FRAME

- A. General: Provide two-piece assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section: Crimped **1/4-inch- (6.4-mm-)** diameter, hot-dip galvanized steel wire anchor section for welding to steel.
 2. Tie Section: Triangular-shaped wire tie, sized to extend within **1 inch (25 mm)** of masonry face, made from 0.1875 inch (4.8 mm) diameter, hot-dip galvanized steel wire.

2.8 ADJUSTABLE MASONRY-VENEER ANCHORS

- A. General: Provide two-piece assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, and as follows:
1. Structural Performance Characteristics: Capable of withstanding a 100-lbf (445-N) load in both tension and compression without deforming or developing play in excess of 0.05 inch (1.3 mm).
- B. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie section and a metal anchor section complying with the following requirements:
1. Anchor Section: Rib-stiffened, sheet metal plate with screw holes top and bottom, 2-3/4 inches (70 mm) wide by 3 inches (75 mm) high; with projecting tabs having slotted holes for inserting vertical legs of wire tie specially formed to fit anchor section.
 2. Anchor Section: Sheet metal plate with screw holes top and bottom and with raised rib-stiffened strap stamped into center to provide a slot between strap and plate for connection of wire tie.
 - a. Plate 1-1/4 inches (32 mm) wide by 6 inches (150 mm) long with strap 5/8 inch (16 mm) wide by 3-5/8 inches (92 mm) long; slot clearance formed between face of plate and back of strap shall not exceed diameter of wire tie by more than 1/32 inch (0.8 mm).
 3. Wire Tie Section: Triangular or Rectangular shaped wire tie sized to extend at least halfway through veneer but with at least 5/8-inch (16-mm) cover on outside face.
 4. Fabricate sheet metal anchor sections and other sheet metal parts from 0.0966 inch (2.5 mm), thick, steel sheet, galvanized after fabrication.
 5. Fabricate wire tie sections from 0.1875 inch (4.8 mm) diameter, hot-dip galvanized steel wire.
- C. Steel Drill Screws for Steel Studs: ASTM C 954 except manufactured with hex washer head and neoprene washer, No. 10 (4.8-mm) diameter by length required to penetrate steel stud flange by not less than 3 exposed threads, and with the following corrosion protective coating:
1. Organic polymer coating with salt-spray resistance to red rust of more than 800 hours per ASTM B 117.
- D. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
1. Screw-Attached, Masonry-Veneer Anchors:
 - a. D/A 213; Dur-O-Wal, Inc.
 - b. D/A 210 with D/A 700-708; Dur-O-Wal, Inc.
 - c. 315-D with 316; Heckman Building Products, Inc.
 - d. Pos-I-Tie; Heckman Building Products, Inc.
 - e. DW-10; Hohmann & Barnard, Inc.
 - f. DW-10HS; Hohmann & Barnard, Inc.
 - g. DW-10-X; Hohmann & Barnard, Inc.
 - h. 1004, Type III; Masonry Reinforcing Corporation of America.

- i. RJ-711; Masonry Reinforcing Corporation of America.
2. Organic-Polymer-Coated, Steel Drill Screws:
 - a. Dril-Flex; Elco Industries, Inc.
 - b. Traxx; ITW-Buildex.

2.9 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: Steel bolts complying with **ASTM A 307, Grade A (ASTM F 568, Property Class 4.6)**; with **ASTM A 563 (ASTM A 563M)** hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated and in the following configurations:
 1. Headed bolts.
 2. Nonheaded bolts, bent in manner indicated.
- B. Postinstalled Anchors: Anchors as described below, with capability to sustain, without failure, load imposed within factors of safety indicated, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
 1. Type: Expansion anchors.
 2. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (5 microns) for Class SC 1 service condition (mild).
 3. For Postinstalled Anchors in Grouted Masonry Units: Capability to sustain, without failure, a load equal to six times the loads imposed.

2.10 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Fabricate from the following metal complying with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim" and below:
- B. Solder and Sealants for Sheet Metal Flashings: As specified in Division 7 Section "Sheet Metal Flashing and Trim."

2.11 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane or PVC.
- B. Preformed Control-Joint Gaskets: Material as indicated below, designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
 1. Styrene-Butadiene-Rubber Compound: ASTM D 2000, Designation M2AA-805.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

- D. Round Plastic Weep/Vent Tubing: Medium-density polyethylene, 3/8-inch (9-mm) OD by 4 inches (100 mm) long.
- E. Wicking Material: Cotton or polyester rope, 1/4 to 3/8 inch (6 to 10 mm) in diameter, in length required to produce 2-inch (50-mm) exposure on exterior and 18 inches (450 mm) in cavity between wythes.
- F. Plastic Weep Hole/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, designed to fill head joint with outside face held back 1/8 inch (3 mm) from exterior face of masonry, in color selected from manufacturer's standard.
- G. Cavity Drainage Material: 3/4 inch (19 mm) thick, free-draining mesh; made from polyethylene strands and shaped to avoid being clogged by mortar droppings.
- H. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142 inch (3.6 mm) steel wire, hot-dip galvanized after fabrication.
 - 1. Provide units with either two loops or four loops as needed for number of bars indicated.
- I. Available Products: Subject to compliance with requirements, cavity drainage materials that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Plastic Weep Hole/Vent:
 - a. Cell Vent; Dur-O-Wal, Inc.
 - 2. Cavity Drainage Material:
 - a. Mortar Break; Advanced Building Products, Inc.
 - b. CavClear Masonry Mat; CavClear.
 - c. Mortar Net; Mortar Net USA, Ltd.
 - d. Mortar Stop; Polytite Manufacturing Corp.
 - 3. Reinforcing Bar Positioners:
 - a. D/A 811; Dur-O-Wal, Inc.
 - b. No. 376 Rebar Positioner; Heckman Building Products, Inc.
 - c. #RB Rebar Positioner; Hohmann & Barnard, Inc.
 - d. O-Ring Rebar Positioner; Masonry Reinforcing Corporation of America.

2.12 MASONRY-CELL INSULATION

- A. Molded-Polystyrene Insulation Units: Rigid, cellular thermal insulation formed by the expansion of polystyrene-resin beads or granules in a closed mold to comply with ASTM C 578, Type I. Provide specially shaped units designed for installing in cores of masonry units. Provide cell insulation in units as located in the architectural plans or specifications.

2.13 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of 1/2-cup (0.14-L) dry measure tetrasodium polyphosphate and 1/2-cup (0.14-L) dry measure laundry detergent dissolved in 1 gal. (4 L) of water.

2.14 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Add cold-weather admixture (if used) at the same rate for all mortar, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in the form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification.
 - 1. For masonry below grade, in contact with earth, and where indicated, use Type S.
 - 2. For reinforced masonry and where indicated, use Type S.
- D. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 5 of ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C 143.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Before installation, examine rough-in and built-in construction to verify actual locations of piping connections.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this Section and in other Sections of the Specifications.

- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to the opening.
- D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Wetting of Brick: Wet brick before laying if the initial rate of absorption exceeds **30 g/30 sq. in. (30 g/194 sq. cm)** per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at the time of laying.

3.3 CONSTRUCTION TOLERANCES

- A. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following:
- B. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than **1/4 inch in 20 feet (6 mm in 6 m)**, nor **1/2 inch (12 mm)** maximum.
- C. For vertical alignment of exposed head joints, do not vary from plumb by more than **1/4 inch in 10 feet (6 mm in 3 m)**, nor **1/2 inch (12 mm)** maximum.
- D. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than **1/4 inch in 20 feet (6 mm in 6 m)**, nor **1/2 inch (12 mm)** maximum.
- E. For exposed bed joints, do not vary from thickness indicated by more than plus or minus **1/8 inch (3 mm)**, with a maximum thickness limited to **1/2 inch (12 mm)**. Do not vary from bed-joint thickness of adjacent courses by more than **1/8 inch (3 mm)**.
- F. For exposed head joints, do not vary from thickness indicated by more than plus or minus **1/8 inch (3 mm)**. Do not vary from adjacent bed-joint and head-joint thicknesses by more than **1/8 inch (3 mm)**.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

- B. Bond Pattern for Exposed Masonry: Lay exposed masonry in the following bond pattern; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
 - 1. One-half running bond with vertical joint in each course centered on units in courses above and below.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches (50 mm). Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: In each course, rack back one-half-unit length for one-half running bond. Clean exposed surfaces of set masonry and remove loose masonry units and mortar before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
- F. Fill space between hollow-metal frames and masonry solidly with mortar, unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow concrete masonry units with grout for full height of wall under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
 - 1. Install compressible filler in joint between top of partition and underside of structure above.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow masonry units as follows:
 - 1. With full mortar coverage on horizontal and vertical face shells.
 - 2. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
 - 3. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
- B. Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
 - 1. At cavity walls, bevel beds away from cavity, to minimize mortar protrusions into cavity. As work progresses, trowel mortar fins protruding into cavity flat against the cavity face of the brick.

- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than the joint thickness, unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

3.6 BONDING OF MULTI-WYTHE MASONRY

- A. Use masonry joint reinforcement installed in horizontal mortar joints to bond wythes together.
- B. Corners: Provide interlocking masonry unit bond in each wythe and course at corners, unless otherwise indicated.
 - 1. Provide continuity with masonry joint reinforcement at corners by using prefabricated "L" units as well as masonry bonding.
- C. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:
 - 1. Provide continuity with masonry joint reinforcement by using prefabricated "T" units.

3.7 CAVITIES

- A. Keep cavities clean of mortar droppings and other materials during construction. Strike joints facing cavities flush.
 - 1. Use wood strips temporarily placed in cavity to collect mortar droppings. As work progresses, remove strips, clean off mortar droppings, and replace in cavity.

3.8 MASONRY-CELL INSULATION

- A. Install molded-polystyrene insulation units into masonry unit cells before laying units.

3.9 MASONRY JOINT REINFORCEMENT

- A. General: Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of **5/8 inch (16 mm)** on exterior side of walls, **1/2 inch (13 mm)** elsewhere. Lap reinforcement a minimum of **6 inches (150 mm)**.
 - 1. Space reinforcement not more than **16 inches (406 mm)** o.c.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.10 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
1. Provide an open space not less than **1 inch (25 mm)** in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar or other rigid materials.
 2. Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure.
 3. Space anchors as indicated, but not more than **16 inches (610 mm)** o.c. vertically and **32 inches (915 mm)** o.c. horizontally.

3.11 ANCHORING MASONRY VENEERS

- A. Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:
1. Fasten each anchor section through sheathing to wall framing with two metal fasteners of type indicated.
 2. Embed tie sections in masonry joints. Provide not less than **2 inches (50 mm)** of air space between back of masonry veneer and face of sheathing.
 3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
 4. Space anchors as indicated, but not more than **16 inches (406 mm)** o.c. vertically and **32 inches (813 mm)** o.c. horizontally with not less than 1 anchor for each **3.5 sq. ft. (0.33 sq. m)** of wall area. Install additional anchors within **12 inches (305 mm)** of openings and at intervals, not exceeding **36 inches (914 mm)**, around perimeter.

3.12 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joints in unit masonry as follows unless otherwise indicated on drawings. Build-in related items as masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.
1. Vertical control joints shall be spaced at maximum 20'-0" o.c. in any continuous run of wall.
- B. Form control joints in concrete masonry as follows:
1. Fit bond-breaker strips into hollow contour in ends of concrete masonry units on one side of control joint. Fill resultant core with grout and rake joints in exposed faces.
 2. Install preformed control-joint gaskets designed to fit standard sash block.
 3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake joint.
 4. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete.

3.13 LINTELS

- A. Install steel lintels where indicated or as required to provide support above all openings as shown on the architectural, structural, mechanical, plumbing or electrical plans.
- B. Provide masonry lintels where shown and where openings of more than **12 inches (305 mm)** for brick-size units and **24 inches (610 mm)** for block-size units are shown without structural steel or other supporting lintels.
 - 1. Provide prefabricated or built-in-place masonry lintels if required in the architectural plans. Use specially formed bond beam units with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.
- C. Provide minimum bearing of **8 inches (200 mm)** at each jamb, unless otherwise indicated.
- D. Fill cores in hollow concrete masonry units with grout for full height of wall under all lintels.

3.14 FLASHING, WEEP HOLES, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
- B. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
- C. Install flashing as follows:
 - 1. At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least **8 inches (200 mm)**, and behind air-infiltration barrier or building paper.
 - 2. At lintels and shelf angles, extend flashing a minimum of **4 inches (100 mm)** into masonry at each end. At heads and sills, extend flashing **4 inches (100 mm)** at ends and turn flashing up not less than **2 inches (50 mm)** to form a pan.
- D. Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:
 - 1. Use round plastic tubing, wicking material or plastic weep hole/vents to form weep holes.
 - 2. Use wicking material to form weep holes above flashing in brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.
 - 3. Space weep holes formed from plastic tubing or wicking material **16 inches (400 mm)** o.c.
 - 4. Place cavity drainage material immediately above flashing in cavities.
- E. Trim wicking material used in weep holes flush with outside face of wall after mortar has set.
- F. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

3.15 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores to support reinforced masonry elements during construction.
 - 1. Construct formwork to conform to shape, line, and dimensions shown. Make it sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements of ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
 - 1. Comply with requirements of ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

3.16 PARGING

- A. Parge predampened masonry walls, where indicated, with Type S or Type N mortar applied in 2 uniform coats to a total thickness of **3/4 inch (19 mm)**. Scarify first parge coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of **1/8 inch per foot (3 mm per 300 mm)**. Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect the parging until cured.

3.17 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
5. Clean brick by the bucket-and-brush hand-cleaning method described in BIA Technical Notes No. 20, using job-mixed detergent solution.

3.18 MASONRY WASTE DISPOSAL

- A. Recycling: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

END OF SECTION 042200

SECTION 051200

STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel materials.
2. Shrinkage-resistant grout.
3. Prefabricated building columns.
4. Shear stud connectors.

B. Related Requirements:

1. Section 053100 "Steel Decking" for field installation of shear stud connectors through deck.
2. Section 055000 "Metal Fabrications" for miscellaneous steel fabrications and other steel items not defined as structural steel.
3. Section 099113 "Exterior Painting" and/or Section 099123 "Interior Painting" for painting requirements.

1.2 DEFINITIONS

- ###### A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in ANSI/AISC 303.

1.3 COORDINATION

- ###### A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- ###### B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.4 ACTION SUBMITTALS

- ###### A. Product Data: For each type of product indicated.
- ###### B. Shop Drawings: Show fabrication of structural-steel components.
1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.

2. Include embedment Drawings.
 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
- C. Delegated Design Submittal: For structural-steel connections indicated on Drawings to comply with design loads, include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, fabricator, and testing agency.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Mill test reports for structural-steel materials, including chemical and physical properties.
- E. Product Test Reports: For the following:
 1. Bolts, nuts, and washers, including mechanical properties and chemical analysis.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172).
- B. Installer Qualifications: A qualified Installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
- C. Shop-Painting Applicator Qualifications: Qualified in accordance with AISC's Sophisticated Paint Endorsement P1 or to SSPC-QP 3.
- D. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.
- E. Preinstallation Conference: Conduct conference at Project site.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with applicable provisions of the following specifications and documents:
1. ANSI/AISC 303.
 2. ANSI/AISC 341.
 3. ANSI/AISC 360.
 4. RCSC's "Specification for Structural Joints Using High-Strength Bolts."
- B. Connection Design Information:
1. Fabricator's experienced steel detailer selects or completes connections in accordance with ANSI/AISC 303.
 - a. Select and complete connections using schematic details indicated and ANSI/AISC 360.
 - b. Use Load and Resistance Factor Design; data are given at factored-load level.
 2. Design connections and final configuration of member reinforcement at connections in accordance with ANSI/AISC 303 by fabricator's qualified professional engineer.
 - a. Use Load and Resistance Factor Design; data are given at factored-load level.
- C. Moment Connections: Type FR, fully restrained.

2.2 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A992/A992M
- B. Channels, Angles, M-Shapes, S-Shapes: ASTM A36/A36M
- C. Plate and Bar: ASTM A36/A36M Retain "Corrosion-Resisting (Weathering) Structural-Steel Shapes, Plates, and Bars" Paragraph below for corrosion-resisting (weathering) structural steel and indicate locations on Drawings.

- D. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade B structural tubing.
- E. Steel Pipe: ASTM A53/A53M, Type E or Type S, Grade B.
 - 1. Weight Class: Standard.
 - 2. Finish: Black except where indicated to be galvanized.
- F. Steel Castings: ASTM A216/A216M, Grade WCB, with supplementary requirement S11.
- G. Steel Forgings: ASTM A668/A668M.
- H. Welding Electrodes: Comply with AWS requirements.

2.3 BOLTS AND CONNECTORS

- A. High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325 (Grade A325M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
 - 1. Direct-Tension Indicators: ASTM F959/F959M, Type 325-1 (Type 8.8-1), compressible-washer type with plain finish.
- B. High-Strength A490 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A490 (Grade A490M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
 - 1. Direct-Tension Indicators: ASTM F959/F959M, Type 490-1 (Type 10.9-1), compressible-washer type with plain finish.
- C. Zinc-Coated High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325 (Grade A325M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.
 - 1. Finish: Hot-dip zinc coating.
 - 2. Direct-Tension Indicators: ASTM F959/F959M, Type 325-1 (Type 8.8-1), compressible-washer type with mechanically deposited zinc coating finish.
- D. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F3125/F3125M, Grade F1852, Type 1, heavy-hex head assemblies, consisting of steel structural bolts with splined ends; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.
 - 1. Finish: Plain.
- E. Shear Stud Connectors: ASTM A108, AISI C-1015 through C-1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

2.4 RODS

- A. Unheaded Anchor Rods: ASTM F1554, Grade 36 or ASTM F1554, Grade 55, weldable (whichever specified on Drawings).
 - 1. Configuration: Straight or Hooked.
 - 2. Nuts: ASTM A563 (ASTM A563M) hex carbon steel.
 - 3. Plate Washers: ASTM A36/A36M carbon steel.
 - 4. Washers: ASTM F436 (ASTM F436M), Type 1, hardened carbon steel.
 - 5. Finish: Plain or Hot-dip zinc coating, ASTM A153/A153M, Class C.
- B. Headed Anchor Rods: ASTM F1554, Grade 36 or ASTM F1554, Grade 55, weldable (whichever specified on Drawings), straight.
 - 1. Nuts: ASTM A563 (ASTM A563M) hex carbon steel.
 - 2. Plate Washers: ASTM A36/A36M carbon steel.
 - 3. Washers: ASTM F436 (ASTM F436M), Type 1, hardened carbon steel.
 - 4. Finish: Plain or Hot-dip zinc coating, ASTM A153/A153M, Class C.
- C. Threaded Rods: ASTM A36/A36M or ASTM A572/A572M, Grade 50 (Grade 345).
 - 1. Nuts: ASTM A63 (ASTM A563M) hex carbon steel.
 - 2. Washers: ASTM F436 (ASTM F436M), Type 1, hardened carbon steel.
 - 3. Finish: Plain or Hot-dip zinc coating, ASTM A153/A153M, Class C.

2.5 FORGED-STEEL STRUCTURAL HARDWARE

- A. Clevises and Turnbuckles: Made from cold-finished carbon-steel bars, ASTM A108, AISI C-1035.
- B. Eye Bolts and Nuts: Made from cold-finished carbon-steel bars, ASTM A108, AISI C-1030.
- C. Sleeve Nuts: Made from cold-finished carbon-steel bars, ASTM A108, AISI C-1018.

2.6 SLIDE BEARINGS

- A. Structural Slide Bearings: Low-friction assemblies, of configuration indicated, that provide vertical transfer of loads and allow horizontal movement perpendicular to plane of expansion joint while resisting movement within plane of expansion joint.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Amscot Structural Products Corp.
 - b. Fluorocarbon Company Limited.
 - c. GRM Custom Products.
 - d. R.J. Watson Bridge & Structural Engineered Systems.
 - e. Approved Equivalent.
 - 2. Mating Surfaces: PTFE and PTFE.

3. Coefficient of Friction: Not more than 0.05.
4. Design Load: Not less than 5,000 psi (34 MPa).
5. Total Movement Capability: 2 inches (50 mm).

2.7 PRIMER

- A. Steel Primer:
 1. Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.
- B. Galvanized-Steel Primer: MPI#26.
 1. Etching Cleaner: MPI#25, for galvanized steel.
 2. Galvanizing Repair Paint: MPI#18, MPI#19, or SSPC-Paint 20.

2.8 SHRINKAGE-RESISTANT GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.9 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate in accordance with ANSI/AISC 303 and to ANSI/AISC 360.
 1. Camber structural-steel members where indicated.
 2. Fabricate beams with rolling camber up.
 3. Identify high-strength structural steel in accordance with ASTM A6/A6M and maintain markings until structural-steel framing has been erected.
 4. Mark and match-mark materials for field assembly.
 5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted in accordance with SSPC-SP 1.
- F. Shear Stud Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Weld using automatic end welding of headed-stud shear connectors in accordance with AWS D1.1/D1.1M and manufacturer's written instructions.

- G. Steel Wall-Opening Framing: Select true and straight members for fabricating steel wall-opening framing to be attached to structural-steel frame. Straighten as required to provide uniform, square, and true members in completed wall framing. Build up welded framing, weld exposed joints continuously, and grind smooth.
- H. Welded-Steel Door Frames: Build up welded-steel doorframes attached to structural-steel frame. Weld exposed joints continuously and grind smooth. Plug-weld fixed steel bar stops to frames. Secure removable stops to frames with countersunk machine screws, uniformly spaced not more than 10 inches (250 mm) o.c. unless otherwise indicated on Drawings.
- I. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
 - 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 - 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.10 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.
 - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 - 1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

2.11 PREFABRICATED BUILDING COLUMNS

- A. Prefabricated building columns, consisting of load-bearing structural-steel members protected by concrete fireproofing encased in an outer non-load-bearing steel shell.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Black Rock Fireproof Column, a division of United Steel.
 - b. Dean Lally LLC / FireTrol Columns.
 - c. Approved Equivalent.
- B. Fire-Resistance Ratings: Provide prefabricated building column listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for ratings indicated, based on testing in accordance with ASTM E119.

1. Fire-Resistance Rating: As indicated on Drawings.

2.12 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel in accordance with ASTM A123/A123M.
 1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
 2. Galvanize lintels, shelf angles, and welded door frames attached to structural-steel frame and located in exterior walls.

2.13 SHOP PRIMING

- A. Shop prime steel surfaces, except the following:
 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches (50 mm).
 2. Surfaces to be field welded.
 3. Surfaces of high-strength bolted, slip-critical connections.
 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
 5. Galvanized surfaces.
 6. Corrosion-resisting (weathering) steel surfaces.
 7. Surfaces enclosed in interior construction.
- B. Surface Preparation of Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces in accordance with the following specifications and standards:
 1. SSPC-SP 2.
 2. SSPC-SP 3.
 3. SSPC-SP 7 (WAB)/NACE WAB-4.
 4. SSPC-SP 14 (WAB)/NACE WAB-8.
 5. SSPC-SP 11.
 6. SSPC-SP 6 (WAB)/NACE WAB-3.
 7. SSPC-SP 10 (WAB)/NACE WAB-2.
 8. SSPC-SP 5 (WAB)/NACE WAB-1.
 9. SSPC-SP 8.
- C. Surface Preparation of Galvanized Steel: Prepare galvanized-steel surfaces for shop priming by thoroughly cleaning steel of grease, dirt, oil, flux, and other foreign matter, and treating with etching cleaner.
- D. Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

2.14 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform shop tests and inspections.
 1. Allow testing agency access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
 2. Bolted Connections: Inspect and test shop-bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
 3. Welded Connections: Visually inspect shop-welded connections in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 - a. Liquid Penetrant Inspection: ASTM E165/E165M.
 - b. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
 - c. Ultrasonic Inspection: ASTM E164.
 - d. Radiographic Inspection: ASTM E94/E94M.
 4. In addition to visual inspection, test and inspect shop-welded shear stud connectors in accordance with requirements in AWS D1.1/D1.1M for stud welding and as follows:
 - a. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear stud connector.
 - b. Conduct tests in accordance with requirements in AWS D1.1/D1.1M on additional shear stud connectors if weld fracture occurs on shear stud connectors already tested.
 5. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
 1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated on Drawings.
 - 1. Do not remove temporary shoring supporting composite deck construction and structural-steel framing until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.
- B. Baseplates, Bearing Plates, and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Weld plate washers to top of baseplate.
 - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 4. Promptly pack shrinkage-resistant grout solidly between bearing surfaces and plates, so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for grouting.
- C. Maintain erection tolerances of structural steel within ANSI/AISC 303.
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure. Slope roof framing members to slopes indicated on Drawings.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection unless approved by Engineer. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.
- G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt and joint type specified.
 - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 - 1. Comply with ANSI/AISC 303 and ANSI/AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
 - 2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
 - 3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.
- C. Shear Stud Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Weld using end welding of headed-stud shear connectors in accordance with AWS D1.1/D1.1M and manufacturer's written instructions.

3.5 INSTALLATION OF PREFABRICATED BUILDING COLUMNS

- A. Install prefabricated building columns to comply with ANSI/AISC 360, manufacturer's written recommendations, and requirements of testing and inspecting agency that apply to the fire-resistance rating indicated.

3.6 REPAIR

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing, and repair galvanizing to comply with ASTM A780/A780M.
- B. Touchup Painting:
 - 1. Immediately after erection, clean exposed areas where primer is damaged or missing, and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
 - 2. Cleaning and touchup painting are specified in Section 099113 "Exterior Painting." Section 099123 "Interior Painting."

3.7 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:

1. Verify structural-steel materials and inspect steel frame joint details.
 2. Verify weld materials and inspect welds.
 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
1. Bolted Connections: Inspect and test bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
 2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.
 - a. In addition to visual inspection, test and inspect field welds in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 - 1) Liquid Penetrant Inspection: ASTM E165/E165M.
 - 2) Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
 - 3) Ultrasonic Inspection: ASTM E164.
 - 4) Radiographic Inspection: ASTM E94/E94M.
 3. Shear Stud Connectors: In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
 - a. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
 - b. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

PART 4 - MEASUREMENT, QUANTITY & PAYMENT

Cost for work specified in this section shall be paid for under the bid form line items for which they are a part. Costs shall include all furnishment and installation of structural steel materials as required per the contract documents. This includes but is not limited to fabrication of structural steel girders and columns, all connections and anchors, priming and galvanizing as required, and erection of all structural steel.

END OF SECTION 051200

SECTION 055000

METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous framing and supports.
2. Prefabricated building columns.
3. Shelf angles.
4. Metal ladders.
5. Alternating tread devices.
6. Metal ships' ladders and pipe crossovers.
7. Metal floor plate.
8. Elevator pit sump covers.
9. Structural-steel door frames.
10. Miscellaneous steel trim.
11. Metal bollards.
12. Vehicular barrier cable systems.
13. Pipe and downspout guards.
14. Abrasive metal nosings, treads, and thresholds.
15. Cast-iron wheel guards.
16. Metal downspout boots.
17. Loose bearing and leveling plates.

B. Products furnished, but not installed, under this Section include the following:

1. Loose steel lintels.
2. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.
3. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

C. Related Requirements:

1. Section 042000 "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.
2. Section 051200 "Structural Steel Framing" for steel framing, supports, elevator machine beams, hoist beams, divider beams, door frames, and other steel items attached to the structural-steel framing.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Nonslip aggregates and nonslip-aggregate surface finishes.
2. Fasteners.
3. Shop primers.
4. Shrinkage-resisting grout.
5. Prefabricated building columns.
6. Slotted channel framing.
7. Manufactured metal ladders.
8. Alternating tread devices.
9. Metal ships' ladders and pipe crossovers.
10. Metal bollards.
11. Vehicular barrier cable systems.
12. Pipe and downspout guards.
13. Abrasive metal nosings, treads, and thresholds.
14. Cast-iron wheel guards.
15. Metal downspout boots.

B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:

1. Miscellaneous framing and supports for applications where framing and supports are not specified in other Sections.
2. Elevator machine beams, hoist beams, and divider beams.
3. Steel shapes for supporting elevator door sills.
4. Steel girders for supporting wood frame construction.
5. Steel pipe columns for supporting wood frame construction.
6. Prefabricated building columns.
7. Shelf angles.
8. Metal ladders.
9. Alternating tread devices.
10. Metal ships' ladders and pipe crossovers.
11. Metal floor plate and supports.
12. Elevator pit sump covers.
13. Structural-steel door frames.

14. Miscellaneous steel trim including steel angle corner guards, steel edgings and loading-dock edge angles.
 15. Metal bollards.
 16. Loose steel lintels.
 17. Vehicular barrier cable systems.
- C. Delegated Design Submittals: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

- A. Mill Certificates: Signed by stainless steel manufacturers, certifying that products furnished comply with requirements.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Research Reports: For post-installed anchors.
- E. Delegated design engineer qualifications.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:
 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
 3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance of Aluminum Ladders: Ladders, including landings, are to withstand the effects of loads and stresses within limits and under conditions specified in ANSI/ASC A14.3.

2.2 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Stainless Steel Sheet, Strip, and Plate: ASTM A240/A240M or ASTM A666, Type 304.
- D. Stainless Steel Bars and Shapes: ASTM A276/A276M, Type 304.
- E. Rolled-Steel Floor Plate: ASTM A786/A786M, rolled from plate complying with ASTM A36/A36M or ASTM A283/A283M, Grade C or D.
- F. Rolled-Stainless Steel Floor Plate: ASTM A793.
- G. Abrasive-Surface Floor Plate: Steel plate with abrasive granules rolled into surface or with abrasive material metallicly bonded to steel.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. IKG.
 - b. Ohio Gratings, Inc.
 - c. SlipNOT Metal Safety Flooring, division of Traction Technologies Holdings, LLC.
 - d. Approved Equivalent.
 - 2. Source Limitations: Obtain floor plate from single source from single manufacturer.
- H. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.
- I. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.
- J. Zinc-Coated Steel Wire Rope: ASTM A741.
 - 1. Wire Rope Fittings: Hot-dip galvanized-steel connectors with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.
- K. Stainless Steel Wire Rope: Wire rope manufactured from stainless steel wire complying with ASTM A492, Type 316.
 - 1. Wire Rope Fittings: Stainless steel connectors, Type 316, with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.
- L. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - 1. Size of Channels: As indicated.

2. Galvanized Steel: ASTM A653/A653M, structural steel, Grade 33 (Grade 230), with G90 (Z275) coating; 0.064-inch (1.6-mm) nominal thickness.
 3. Cold-Rolled Steel: ASTM A1008/A1008M, structural steel, Grade 33 (Grade 230); 0.0677-inch (1.7-mm) minimum thickness; hot-dip galvanized after fabrication.
- M. Cast Iron: Either gray iron, ASTM A48/A48M, or malleable iron, ASTM A47/A47M, unless otherwise indicated.
- N. Aluminum Plate and Sheet: ASTM B209 (ASTM B209M), Alloy 6061-T6.
- O. Aluminum Extrusions: ASTM B221 (ASTM B221M), Alloy 6063-T6.
- P. Aluminum-Alloy Rolled Tread Plate: ASTM B632/B632M, Alloy 6061-T6.
- Q. Aluminum Castings: ASTM B26/B26M, Alloy 443.0-F.
- R. Bronze Extrusions: ASTM B455, Alloy UNS No. C38500 (extruded architectural bronze).
- S. Bronze Castings: ASTM B584, Alloy UNS No. C83600 (leaded red brass) or UNS No. C84400 (leaded semired brass).
- T. Nickel Silver Extrusions: ASTM B151/B151M, Alloy UNS No. C74500.
- U. Nickel Silver Castings: ASTM B584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
1. Provide stainless steel fasteners for fastening aluminum, stainless steel or nickel silver.
 2. Provide bronze fasteners for fastening bronze.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A (ISO 898-1, Property Class 4.6); with hex nuts, ASTM A563 (ASTM A563M); and, where indicated, flat washers.
- C. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325 (Grade A325M), Type 3, heavy-hex steel structural bolts; ASTM A563, Grade DH3, (ASTM A563M, Class 10S3) heavy-hex carbon-steel nuts; and where indicated, flat washers.
- D. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, ASTM F593 (ISO 3506-1); with hex nuts, ASTM F594 (ASTM F836M); and, where indicated, flat washers; Alloy Group 1 (A1).
- E. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563 (ASTM A563M); and, where indicated, flat washers.
1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.

- F. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.
- G. Cast-in-Place Anchors in Concrete: Either threaded or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A47/A47M malleable iron or ASTM A27/A27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F2329/F2329M.
- H. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless steel bolts, ASTM F593 (ISO 3506-1), and nuts, ASTM F594 (ASTM F836M).
- I. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches (41 by 22 mm) by length indicated with anchor straps or studs not less than 3 inches (75 mm) long at not more than 8 inches (200 mm) o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B633, Class Fe/Zn 5, as needed for fastening to inserts.

2.4 MISCELLANEOUS MATERIALS

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
 - 1. Use primer that contains pigments that make it easily distinguishable from zinc-rich primer.
- B. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- E. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- F. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained concrete with a minimum 28-day compressive strength of 4000 psi (27 MPa).

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. 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.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts for units installed after concrete is placed.
- C. Fabricate supports for operable partitions from continuous steel beams of sizes recommended by partition manufacturer with attached bearing plates, anchors, and braces as recommended by partition manufacturer. Drill or punch bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.
- D. Fabricate steel girders for wood frame construction from continuous steel shapes of sizes indicated.
 - 1. Provide bearing plates welded to beams where indicated.
 - 2. Drill or punch girders and plates for field-bolted connections where indicated.
 - 3. Where wood nailers are attached to girders with bolts or lag screws, drill or punch holes at 24 inches (600 mm) o.c.
- E. Fabricate steel pipe columns for supporting wood frame construction from steel pipe with steel baseplates and top plates as indicated. Drill or punch baseplates and top plates for anchor and connection bolts and weld to pipe with fillet welds all around. Make welds the same size as pipe wall thickness unless otherwise indicated.
 - 1. Unless otherwise indicated, fabricate from Schedule 40 steel pipe.
 - 2. Unless otherwise indicated, provide 1/2-inch (12.7-mm) baseplates with four 5/8-inch (16-mm) anchor bolts and 1/4-inch (6.4-mm) top plates.
- F. Galvanize miscellaneous framing and supports where indicated.

2.7 PREFABRICATED BUILDING COLUMNS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Black Rock Fireproof Column, a division of United Steel.
 - 2. Dean Lally LLC / FireTrol Columns.
 - 3. Approved Equivalent.
- B. Source Limitations: Obtain prefabricated building column from single source from single manufacturer.
- C. General: Provide prefabricated building columns consisting of load-bearing structural-steel members protected by concrete fireproofing encased in an outer non-load-bearing steel shell. Fabricate connections to comply with details shown or as needed to suit type of structure indicated.

- D. Fire-Resistance Ratings: Provide prefabricated building columns listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for ratings indicated, based on testing in accordance with ASTM E119.
 - 1. Fire-Resistance Rating: As indicated.

2.8 SHELF ANGLES

- A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch (19-mm) bolts, spaced not more than 6 inches (150 mm) from ends and 24 inches (600 mm) o.c., unless otherwise indicated.
 - 1. Provide mitered and welded units at corners.
 - 2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches (50 mm) larger than expansion or control joint.
- B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.
- C. Galvanize shelf angles located in exterior walls.
- D. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.

2.9 METAL LADDERS

- A. General:
 - 1. Comply with ANSI A14.3, except for elevator pit ladders.
 - 2. For elevator pit ladders, comply with ASME A17.1/CSA B44.
- B. Steel Ladders:
 - 1. Space siderails 18 inches (457 mm) apart unless otherwise indicated.
 - 2. Siderails: Continuous, 3/8-by-2-1/2-inch (9.5-by-64-mm) steel flat bars, with eased edges.
 - 3. Rungs: 3/4-inch- (19-mm-) diameter or 3/4-inch- (19-mm-) square, steel bars.
 - 4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
 - 5. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
 - 6. Nonslip Surfaces for Steel Ladders: Provide nonslip surfaces on top of each rung by coating with abrasive material metallically bonded to rung.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) IKG.
 - 2) SlipNOT Metal Safety Flooring, division of Traction Technologies Holdings, LLC.

3) Approved Equivalent.

7. Source Limitations: Obtain nonslip surfaces from single source from single manufacturer.
8. Provide platforms as indicated fabricated from welded or pressure-locked steel bar grating, supported by steel angles. Limit openings in gratings to no more than 3/4 inch (19 mm) in least dimension.
9. Support each ladder at top and bottom and not more than 60 inches (1500 mm) o.c. with welded or bolted steel brackets.
10. Galvanize exterior ladders, including brackets.

C. Aluminum Ladders:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Fixfast USA.
 - b. Halliday Products.
 - c. O'Keeffe's Inc.
 - d. Precision Ladders, LLC.
 - e. Royalite Manufacturing, Inc.
 - f. Thompson Fabricating, LLC.
 - g. UPNOVR, Inc.
 - h. Approved Equivalent.
2. Source Limitations: Obtain aluminum ladders from single source from single manufacturer.
3. Space siderails 18 inches (457 mm) apart unless otherwise indicated.
4. Siderails: Continuous extruded-aluminum channels or tubes, not less than 2-1/2 inches (64 mm) deep, 3/4 inch (19 mm) wide, and 1/8 inch (3.2 mm) thick.
5. Rungs: Extruded-aluminum tubes, not less than 3/4 inch (19 mm) deep and not less than 1/8 inch (3.2 mm) thick, with ribbed tread surfaces.
6. Fit rungs in centerline of siderails; fasten by welding or with stainless steel fasteners or brackets and aluminum rivets.
7. Provide platforms as indicated fabricated from pressure-locked aluminum bar grating or extruded-aluminum plank grating, supported by extruded-aluminum framing. Limit openings in gratings to no more than 3/4 inch (19 mm) in least dimension.
8. Support each ladder at top and bottom and not more than 60 inches (1500 mm) o.c.]with welded or bolted aluminum brackets.
9. Provide minimum 72-inch- (1830-mm-) high, hinged security door with padlock hasp at foot of ladder to prevent unauthorized ladder use.

2.10 METAL SHIPS' LADDERS AND PIPE CROSSOVERS

- A. Provide metal ships' ladders and pipe crossovers where indicated. Fabricate of open-type construction with channel or plate stringers and pipe and tube railings unless otherwise indicated. Provide brackets and fittings for installation.
 1. Treads are not to be less than 5 inches (127 mm) exclusive of nosing or less than 8-1/2 inches (216 mm) including the nosing, and riser height is not to be more than 9-1/2 inches (241 mm).

2. Fabricate ships' ladders and pipe crossovers, including railings from steel, stainless steel or aluminum, as indicated on the Contract Drawings.
 3. Fabricate treads and platforms from welded or pressure-locked steel bar, pressure-locked stainless steel bar, pressure-locked aluminum bar or extruded-aluminum plank grating, as indicated on the Contract Drawings. Limit openings in gratings to no more than 3/4 inch (19 mm) in least dimension.
 4. Fabricate treads and platforms from rolled-steel floor, rolled-stainless steel floor, rolled-aluminum-alloy tread or abrasive-surface floor plate, as indicated on the Contract Drawings.
- B. Galvanize exterior steel ships' ladders and pipe crossovers, including treads, railings, brackets, and fasteners.

2.11 METAL FLOOR PLATE

- A. Fabricate from rolled-steel floor, rolled-stainless steel floor, rolled-aluminum-alloy tread or abrasive-surface floor plate of thickness indicated below:
1. Thickness: As indicated.
- B. Provide grating sections where indicated, fabricated from welded or pressure-locked steel bar, pressure-locked stainless steel bar, pressure-locked aluminum bar or extruded-aluminum plank grating. Limit openings in gratings to no more than 3/4 inch (19 mm) in least dimension.
- C. Provide steel, stainless steel or aluminum angle supports as indicated.
- D. Include steel, stainless steel or aluminum angle stiffeners, and fixed and removable sections as indicated.
- E. Provide flush steel, stainless steel or aluminum bar drop handles for lifting removable sections, one at each end of each section.

2.12 ELEVATOR PIT SUMP COVERS

- A. Fabricate from 3/16-inch (4.8-mm) rolled-steel floor plate with four 1-inch- (25-mm-) diameter holes for water drainage and for lifting.
- B. Provide steel angle supports unless otherwise indicated.

2.13 STRUCTURAL-STEEL DOOR FRAMES

- A. Fabricate structural-steel door frames from steel shapes, plates, and bars of size and to dimensions indicated, fully welded together, with 5/8-by-1-1/2-inch (16-by-38-mm) steel channel stops, unless otherwise indicated. Plug-weld built-up members and continuously weld exposed joints. Secure removable stops to frame with countersunk machine screws, uniformly spaced at not more than 10 inches (250 mm) o.c. Reinforce frames and drill and tap as necessary to accept finish hardware.

1. Provide with integrally welded steel strap anchors for securing door frames into adjoining concrete or masonry.
- B. Extend bottom of frames to floor elevation indicated with steel angle clips welded to frames for anchoring frame to floor with expansion shields and bolts.
- C. Galvanize exterior steel frames.

2.14 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize exterior miscellaneous steel trim.

2.15 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 80 steel pipe or steel shapes, as indicated.
 1. Cap bollards with 1/4-inch-(6.4-mm-) thick, steel plate with flat top.
 2. Where bollards are indicated to receive controls for door operators, provide cutouts for controls and holes for wire.
 3. Where bollards are indicated to receive light fixtures, provide cutouts for fixtures and holes for wire.
- B. Fabricate bollards with 3/8-inch-(9.5-mm-) thick, steel baseplates for bolting to concrete slab. Drill baseplates at all four corners for 3/4-inch (19-mm) anchor bolts.
 1. Where bollards are to be anchored to sloping concrete slabs, angle baseplates for plumb alignment of bollards.
- C. Fabricate sleeves for bollard anchorage from steel or stainless steel pipe or tubing with 1/4-inch-(6.4-mm-) thick, steel or stainless steel plate welded to bottom of sleeve. Make sleeves not less than 8 inches (200 mm) deep and 3/4 inch (19 mm) larger than OD of bollard.
- D. Fabricate internal sleeves for removable bollards from Schedule 80 **steel** pipe or 1/4-inch (6.4-mm) wall-thickness steel tubing with an OD approximately 1/16 inch (1.5 mm) less than ID of bollards. Match drill sleeve and bollard for 3/4-inch (19-mm) steel] machine bolt.
- E. Prime steel bollards with zinc-rich primer.

2.16 PIPE AND DOWNSPOUT GUARDS

- A. Fabricate pipe and downspout guards from 3/8-inch- (9.5-mm-) thick by 12-inch- (300-mm-) wide, steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2-inch (50-mm) clearance between pipe and pipe guard. Drill each end for two 3/4-inch (19-mm) anchor bolts.
- B. Galvanize steel pipe and downspout guards.

2.17 ABRASIVE METAL NOSINGS, TREADS, AND THRESHOLDS

- A. Cast-Metal Units: Cast iron or aluminum, with an integral-abrasive, as-cast finish consisting of aluminum oxide, silicon carbide, or a combination of both. Fabricate units in lengths necessary to accurately fit openings or conditions.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Safety Tread Co., Inc.
 - b. Balco; a CSW Industrials Company.
 - c. Barry Pattern & Foundry Co., Inc.
 - d. Safe-T-Metal Company, Inc.
 - e. Wooster Products Inc.
 - f. Approved Equivalent.
 - 2. Source Limitations: Obtain units from single source from single manufacturer.
 - 3. Cross-hatched nosings, 4 inches (100 mm) wide, with 1/4-inch- (6-mm-) thick 1-inch (25-mm) lip, for casting into concrete.
 - 4. Cross-hatched nosings, 1-1/2 inches (38-mm) wide, 3/8-inch- (9.5-mm-) thick 1-1/2 inch (38-mm) lip, for casting into concrete.
 - 5. Cross-hatched Treads: Full depth of tread with 3/4-by-3/4-inch (19-by-19-mm) nosing, for application over bent plate treads or existing stairs.
 - 6. Fluted-Saddle-Type Thresholds: 5 inches (125 mm) wide by 1/2 inch (12 mm) high, with tapered edges.
 - 7. Fluted-Interlocking or -Hook-Strip Thresholds: 5 inches (125 mm) wide by 5/8 inch (16 mm) high, with tapered edge.
 - 8. Thresholds: Plain-stepped- (stop-) type units, 5 inches (125 mm) wide by 1/2 inch (12 mm) high, with 1/2-inch (12-mm) step.
- B. Extruded Units: Aluminum, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Safety Tread Co., Inc.
 - b. Amstep Products.
 - c. Armstrong Products, Inc.
 - d. Balco; a CSW Industrials Company.

- e. Nystrom, Inc.
 - f. Wooster Products Inc.
 - g. Approved Equivalent.
2. Source Limitations: Obtain units from single source from single manufacturer.
 3. Provide ribbed units, with abrasive filler strips projecting 1/16 inch (1.5 mm) above aluminum extrusion.
 4. Nosings:
 - a. Square-back units, 1-7/8 inches (48 mm) or 3 inches (75 mm) wide, for casting into concrete steps.
 - b. Beveled-back units, 3 inches (75 mm) wide with 1-3/8-inch (35-mm) lip, for surface mounting on existing stairs.
 - c. Two-piece units, 3 inches (75 mm) wide, with subchannel for casting into concrete steps.
 5. Treads: Beveled-back units, full depth of tread with 1-3/8-inch (35-mm) lip, for application over existing stairs.
- C. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.
- D. Apply bituminous paint to concealed surfaces of cast-metal units.
- E. Apply clear lacquer to concealed surfaces of extruded units.

2.18 CAST-IRON WHEEL GUARDS

- A. Provide wheel guards made from cast-iron, 3/4-inch- (19-mm-) thick, hollow-core construction, of size and shape indicated. Provide holes for countersunk anchor bolts and grouting.

2.19 METAL DOWNSPOUT BOOTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. J.R. Hoe & Sons Inc.
 2. Neenah Foundry Company.
 3. Approved Equivalent.
- B. Source Limitations: Obtain downspout boots from single source from single manufacturer.
- C. Provide downspout boots made from cast aluminum in heights indicated with inlets of size and shape to suit downspouts. Provide units with flanges and holes for countersunk anchor bolts.
1. Outlet: Vertical, to discharge into pipe or at 35 degrees from horizontal, to discharge onto splash block or pavement.

2.20 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize bearing and leveling plates.

2.21 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 8 inches (200 mm) unless otherwise indicated.
- C. Galvanize loose steel lintels located in exterior walls.

2.22 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

2.23 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.24 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:

1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 4. Other Steel Items: SSPC-SP 3, "Power Tool Cleaning."
 5. Galvanized-Steel Items: SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.25 ALUMINUM FINISHES

- A. As-Fabricated Finish: AA-M12.
- B. Clear Anodic Finish: AAMA 611, Class I, AA-M12C22A41.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for ceiling-hung toilet partitions, operable partitions and overhead doors securely to, and rigidly brace from, building structure.
- C. Anchor shelf angles securely to existing construction with expansion anchors or anchor bolts through bolts.
- D. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
 - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.
- E. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installation of Bearing and Leveling Plates" Article.
 - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.3 INSTALLATION OF PREFABRICATED BUILDING COLUMNS

- A. Install prefabricated building columns to comply with ANSI/AISC 360, "Specifications for Structural Steel Buildings," and with requirements applicable to listing and labeling for fire-resistance rating indicated.

3.4 INSTALLATION OF SHELF ANGLES

- A. Install shelf angles as required to keep masonry level, at correct elevation, and flush with vertical plane.

3.5 INSTALLATION OF METAL LADDERS

- A. Secure ladders to adjacent construction with the clip angles attached to the stringer.

- B. Install brackets as required for securing of ladders welded or bolted to structural steel or built into masonry or concrete.

3.6 INSTALLATION OF ALTERNATING TREAD DEVICES

- A. Secure top and bottom of alternating tread devices to construction to comply with manufacturer's written instructions.

3.7 INSTALLATION OF METAL SHIPS' LADDERS AND PIPE CROSSOVERS

- A. Secure top and bottom of ships' ladders to construction to comply with manufacturer's written instructions.
- B. Secure pipe crossovers to construction to comply with manufacturer's written instructions.

3.8 INSTALLATION OF METAL FLOOR PLATE

- A. Install metal floor plates flush with finished surface. Adjust as required to avoid lippage that could present a tripping hazard.

3.9 INSTALLATION OF ELEVATOR PIT SUMP COVERS

- A. Install tops of elevator sump pit cover plates and frames flush with finished surface. Adjust as required to avoid lippage that could present a tripping hazard.

3.10 INSTALLATION OF STRUCTURAL-STEEL DOOR FRAMES

- A. Fasten structural steel door frames to the floor slab by means of angle clips and expansion bolts. Anchor door jambs to adjacent construction in accordance with shop drawing details.

3.11 INSTALLATION OF MISCELLANEOUS STEEL TRIM

- A. Anchor to concrete construction to comply with manufacturer's written instructions.

3.12 INSTALLATION OF METAL BOLLARDS

- A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.
 - 1. Do not fill removable bollards with concrete.
- B. Anchor bollards to existing construction with expansion anchors or anchor bolts. Provide four 3/4-inch (19-mm) bolts at each bollard unless otherwise indicated.
 - 1. Embed anchor bolts at least 4 inches (100 mm) in concrete.

- C. Anchor bollards in concrete with pipe sleeves preset and anchored into concrete. Fill annular space around bollard solidly with shrinkage-resistant grout; mixed and placed to comply with grout manufacturer's written instructions. Slope grout up approximately 1/8 inch (3 mm) toward bollard.
- D. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches (75 mm) above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
- E. Anchor internal sleeves for removable bollards in concrete by inserting in pipe sleeves preset into concrete. Fill annular space around internal sleeves solidly with shrinkage-resistant grout; mixed and placed to comply with grout manufacturer's written instructions. Slope grout up approximately 1/8 inch (3 mm) toward internal sleeve.
- F. Anchor internal sleeves for removable bollards in place with concrete footings. Center and align sleeves in holes 3 inches (75 mm) above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace sleeves in position until concrete has cured.
- G. Place removable bollards over internal sleeves and secure with 3/4-inch (19-mm) machine bolts and nuts. After tightening nuts, drill holes in bolts for inserting padlocks. Owner furnishes padlocks.
- H. Fill bollards solidly with concrete, mounding top surface to shed water.
 - 1. Do not fill removable bollards with concrete.

3.13 INSTALLATION OF PIPE AND DOWNSPOUT GUARDS

- A. Provide pipe guards at exposed vertical pipes in parking garages where not protected by curbs or other barriers. Install by bolting to wall or column with expansion anchors. Provide four 3/4-inch (19-mm) bolts at each pipe guard. Mount pipe guards with top edge 26 inches (660 mm) above driving surface.

3.14 INSTALLATION OF ABRASIVE METAL NOSINGS, TREADS, AND THRESHOLDS

- A. Center nosings on tread widths unless otherwise indicated.
- B. For nosings embedded in concrete steps or curbs, align nosings flush with riser faces and level with tread surfaces.
- C. Seal thresholds exposed to exterior with elastomeric sealant complying with Section 079200 "Joint Sealants" to provide a watertight installation.

3.15 INSTALLATION OF CAST-IRON WHEEL GUARDS

- A. Anchor wheel guards to concrete or masonry construction to comply with manufacturer's written instructions. Fill cores solidly with concrete.

3.16 INSTALLATION OF METAL DOWNSPOUT BOOTS

- A. Anchor metal downspout boots to concrete or masonry construction to comply with manufacturer's written instructions.
- B. Secure downspouts terminations to downspouts and substrate per manufacturer's instructions.

3.17 INSTALLATION OF LOOSE BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with shrinkage-resistant grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.18 REPAIRS

- A. Touchup Painting:
 - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

PART 4 - MEASUREMENT, QUANTITY & PAYMENT

Cost for work specified in this section shall be paid for under the bid form line items for which they are a part. Costs shall include all furnishment and installation of miscellaneous metal fabrications as required per the contract documents. This includes but is not limited to all metal materials fasteners, miscellaneous framing/supports, prefabricated building columns, shelf angles, metal ladders, metal floor plates, elevator sump pit covers, structural steel door frames, metal trim, metal bollards, pipe/downspout guards, abrasive metal treads, metal downspout boots, loose steel lintels, and all metal finishes.

END OF SECTION 055000

SECTION 098800

PROTECTIVE COATINGS

PART 1 - GENERAL

1.01 SUMMARY

- A. This specification describes the coating of substrates with a non-vapor barrier, protective waterproofing, polymer-modified, portland cement slurry.

1.02 QUALITY ASSURANCE

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by manufacturer's representative
- C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.04 JOB CONDITIONS

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.

1.05 SUBMITTALS

- A. Submit six (6) copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).
- B. Submit copy of Certificate of Approved Contractor status by manufacturer.

1.06 WARRANTY

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Sika Corporation, (Basis of Design) 1682 Marion Williamsport Road, Marion, OH 43302
- B. Approved Equal.

2.02 MATERIALS

- A. SikaTop Seal 107 Polymer-modified portland cement coating:
Component "A" shall be a liquid polymer emulsion of an acrylic co-polymer base and additives. Component "B" shall be a blend of selected portland cements, specially graded aggregates, and admixtures to control setting time and workability.

The ratio of Component A: Component B shall be:

Slurry 1:4 by weight
Mortar 1:4.5 by weight

The material shall be non-combustible, either before or after cure.

Application: Two coats at 40 mils per coat.

2.03 PERFORMANCE CRITERIA

- A. Properties of the mixed polymer-modified portland cement coating::
 - 1. Pot Life: Approx. 60 minutes at 68F
Approx. 30 minutes at 86F
 - 2. Color: gray or white
- B. Properties of the cured polymer-modified portland cement coating:
 - 1. Tensile Strength (ASTM C-307) 28 days
 - Type White 870 psi (6.0 Mpa)
 - Type Gray 990 psi (6.8 Mpa)
 - 2. Bond Strength (ACI 503R-30 Modified): Pull-off test
 - 28 days 180 psi (1.25N/mm²)
 - 3. Moisture Vapor permeability (ASTM E96)
 - 28 days 18 perms
 - 4. Compressive Strength (ASTM D-695) at 28 days
 - Type White 3000 psi (20.7 Mpa)
 - Type Gray 3400 psi (23.4 Mpa)
 - 5. Flexibility (ASTM D522 Modified)
 - Approximately 25%

6. Carbon Dioxide Diffusion Coefficient (u_{CO_2}) Approx. 35,000 equivalent to 6 inches of concrete

7. Watertightness under Hydrostatic Pressure (DIN 1048 Mod.)

Water Pressure		Penetrated Water		Water Absorption	
Feet	(bar)	grains	(grams)	<u>grains</u>	<u>(grams)</u>
				Ft. ² * hours	m ² * hours
16	(0.5)	0	(0)	0	(0)
33	(1)	15	(1)	3	(2)
99	(3)	31	(3)	10	(7)

Rendering mortars absorbing less than 91 grains/ft.² * h (64 grams/m² *h) are considered watertight.

8. The material shall not produce a vapor barrier.

9. The material meets the chemical requirements in accordance with ANSI/NSF Standard 61- potable water approval.

10. The material shall be thermally compatible with portland cement mortar and concrete.

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

- A. Substrate must be clean, sound, and free of surface contaminants. Remove dust, laitance, grease, oils, curing compounds, form release agents and all foreign particles by mechanical means. An open-textured, sandpaper-like substrate is ideal. Substrate shall be in accordance with ICRI Guideline No. 03732 for coatings and fall within CSP4. All surfaces must be saturated surface dry (SSD), with no standing water at time of application.

3.02 MIXING AND APPLICATION

- A. **Mixing:** Under normal circumstances, full quantities of both components are mixed together, a slurry consistency will result. For a trowelable consistency use only 90% of component A. Mix in a clean container by slowly adding the powder component to the liquid component and mixing with a slow speed (400-600rpm) drill and mixing paddle.
- B. **Coating Application:** Apply trowel, notched trowel, stiff bristle brush, or spray equipment. Work material into the prepared substrates, filling all pores and voids.
 For brush grade: Apply first coat, with horizontal brush strokes and leave to harden (4 to 8 hours). Apply second coat with vertical brush strokes. Each coat shall be a minimum of 40 mil per coat.

For trowel consistency: Apply the first coat with a notched trowel and leave to harden (4 to 8 hours). Apply the second coat with a flat trowel.

For spray application: Use a hopper gun spray equipment, textured sprayer (e.g. Texspray E110c by Graco), or a rotor/stator pump equipment. Allow the first coat to harden (4 to 8 hours) prior to the application of the second coat. As soon as the mortar layer starts to set, a uniform surface with a fine sponge or a plastic trowel.

- C. When applying the coating, never stop the application until the entire surface has been coated. Always stop application at an edge, corner, or joint. Never let a previously coated

film dry; always coat into a wet film. Always apply the coating at a 45° angle to an edge, corner, or joint.

- D. Adhere to all limitations and cautions for the polymer-modified cement coating in the manufacturer's printed literature.

3.03 CLEANING

- A. The uncured polymer-modified portland cement coating can be cleaned from tools with water. The cured polymer-modified portland cement coating can only be removed mechanically.
- B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION 098800

SECTION 099113
EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Primers.
 - 2. Finish coatings.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include preparation requirements and application instructions.
 - 2. Indicate VOC content.
- B. Samples: For each type of coating product.
- C. Samples: Color sample from manufactures standard color chart. Owner to select color.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint Products: 1 gallon of each material and color applied.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Engineer will select one surface to represent surfaces and conditions for application of each paint system.

2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Owner at no added cost to Owner.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each paint product from single source from single manufacturer.

2.2 PAINT PRODUCTS, GENERAL

- A. Material Compatibility:
 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.
- B. Colors: As selected by the Owner.

2.3 PRIMERS

- A. Water-Based, Rust-Inhibitive Primer: Corrosion-resistant, water-based-emulsion primer formulated for resistance to flash rusting when applied to cleaned, exterior ferrous metals subject to mildly corrosive environments.

- B. Surface-Tolerant Metal Primer: Corrosion-resistant, solvent-based metal primer formulated for use on structural steel and metal fabrications that have been minimally prepared.
- C. Quick-Drying, Alkyd Metal Primer: Corrosion-resistant, solvent-based, modified-alkyd primer; lead and chromate free; formulated for quick-drying capabilities and for use on cleaned, exterior steel surfaces.
- D. Alkyd Metal Primer: Corrosion-resistant, solvent-based, alkyd primer formulated for use on prepared ferrous metals subject to industrial and light marine environments.

2.4 FINISH COATINGS

- A. Exterior Alkyd Enamel, Semigloss: Solvent-based, pigmented, alkyd enamel formulated for mold, microbial, and water resistance and for use on exterior, primed, wood and metal surfaces.
- B. Exterior, Water-Based, Light Industrial Coating, Semigloss: Corrosion-resistant, water-based, pigmented, emulsion coating formulated for resistance to blocking (sticking of two painted surfaces), water, alkalis, moderate abrasion, and mild chemical exposure and for use on exterior, primed, wood and metal surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended by paint manufacturer which may include the following.
1. SSPC-SP 2.
 2. SSPC-SP 3.
 3. SSPC-SP 7/NACE No. 4.
 4. SSPC-SP 11.

3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
1. Use applicators and techniques suited for paint and substrate indicated.
 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 3. Primers specified in the Exterior Painting Schedule may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.
- B. Tint undercoats same color as topcoat; but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering the waterways, sanitary and storm drain systems, and ground.
 2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
 3. Allow empty paint cans to dry before disposal.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Steel and Iron Substrates:

1. Structural Steel and miscellaneous steel/metal:
 - a. Prime Coat: One (1) coat Sherwin Williams Pro Industrial Pro-Cryl Primer, or Equal. Primer 2.0-4.0 DFT/coat.
 - b. Intermediate Coat: One (1) coat Sherwin Williams Pro-Industrial B66 Series DTM Acrylic, or Equal. Intermediate 2.5-4.0 DFT/coat.
 - c. Finish Topcoat: One (1) coat Sherwin Williams Pro-Industrial B66 Series DTM Acrylic, or Equal. Finish Topcoat 2.5-4.0 DFT/coat.

END OF SECTION 099113









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Final Audit Report

2024-03-29

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