



Public Private Education Facilities (PPEA)
Request for Proposal

FOR THE
DESIGN and CONSTRUCTION
OF THE

VIRGINIA BEACH
SPORTS CENTER

City of Virginia Beach, Virginia

CIP 9-041
PWCN-18-0079

Date _____

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PART 1

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**PPEA AGREEMENT BETWEEN THE CITY OF
VIRGINIA BEACH AND**

**FOR THE DESIGN AND CONSTRUCTION OF THE
VIRGINIA BEACH SPORTS CENTER**

**THE CITY OF VIRGINIA BEACH DOES NOT DISCRIMINATE AGAINST FAITH-BASED
ORGANIZATIONS**

THIS AGREEMENT (the "Agreement") made this _____ day of ____
2018, by and between THE CITY OF VIRGINIA BEACH, a municipal corporation of the
Commonwealth of Virginia ("Owner") and

_____,
("Contractor") with a principal place of business is located at:

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 – SCOPE OF WORK

Contractor shall complete all Work as specified or indicated in the Contract Documents.

ARTICLE 2 - THE PROJECT

This project includes a new Virginia Beach Sports Center to be located at 19th Street and Jefferson Avenue in the City of Virginia Beach. The project will include: The design and construction of the new facility, associated site work, and parking.

The scope of services will include all planning, permits, fees, inspections, architecture, engineering, and construction services to provide a complete, usable, and fully operational facility.

ARTICLE 3 - CONTRACT TIMES

3.1 Dates for Substantial Completion and Final Acceptance

The Work for the Project will be substantially completed no later than ____ calendar days after the Notice to Proceed date and ready for final acceptance in accordance with paragraph 13.8 of the General Conditions on or before _____ calendar days after the Notice to Proceed date.

3.2 Liquidated Damages

Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in paragraphs 3.1 and 3.2 above, plus any extensions thereof allowed in accordance with paragraph 11.2 of the General Conditions. The parties agree that the Owner will be substantially damaged in amounts that will be difficult or impossible to determine if Substantial Completion or Final Acceptance is not achieved by the Contractor on or before the Contract Substantial Completion Date and/or Contract Final Acceptance Date set forth herein. The parties therefore agree that if Substantial Completion does not occur by the Contract Substantial Completion Date for any reason not the fault of the Owner or otherwise constituting an excusable delay, the Owner shall be entitled to liquidated damages in the amount of \$5,000 per calendar day for each day the Substantial Completion of the project, or any phase thereof, is delayed beyond the Contract Substantial Completion Date in lieu of actual damages for such delays. Contractor hereby waives any defense as to the validity of any such liquidated damages set forth herein on the grounds that such liquidated damages are void as penalties and/or are not reasonably related to the amount of actual damages.

ARTICLE 4 - CONTRACT PRICE

4.1. Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraphs 4.1.A below:

A. Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds as the Contract Price stated in Exhibit B.

B. As shown on the Cost Proposal Form in Exhibit B, the Contractor's total contract amount includes a _____% Owner's contingency. This Owner's Contingency is for the sole use by the Owner, at the Owner's discretion, for any contract modifications approved by the Owner to the scope of the Project.

4.2. The hourly rate for employees performing additional Design Professional Services not included in the Contract Price in accordance with this Agreement shall be as stated in Exhibit C.

ARTICLE 5 - PAYMENT PROCEDURES

5.1. Contractor shall submit and Owner will process Applications for Payment in accordance with Article 13 of the General Conditions.

A. Progress Payments; Retainage. Owner shall retain 5% of all progress payments until Final Acceptance. Owner shall reduce or adjust progress payments to keep the total amount commensurate with the actual percentage of work satisfactorily completed. No payment will be made for non-conforming Work.

B. Final Payment. Upon final acceptance of the Work in accordance with paragraph 13.8 of the General Conditions, Owner shall pay the remainder of the Contract Price.

ARTICLE 6 - INTEREST

6.1. All moneys not paid when due as provided in Article 13 of the General Conditions shall bear interest at the rate of five (5%) percent per annum.

ARTICLE 7 - CONTRACTOR'S REPRESENTATIONS

7.1. To induce Owner to enter into this Agreement, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents (including the Exhibits) listed in Article 8 and the other related data identified in the Request for Proposals.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Offeror has carefully studied all reports of explorations and tests of subsurface conditions (if any) at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site which have been identified or made available by the Owner.

E. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

F. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

G. Contractor has given Owner written notice of all conflicts, errors, ambiguities or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by Owner is acceptable to Contractor.

H. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 - CONTRACT DOCUMENTS

8.1 The Contract Documents consist of the following:

A. This Agreement (pages 1 to 14, inclusive):

Standard General Conditions of the Agreement between Owner and Contractor
Cost Proposal Form
Professional Fees Form
Small Business Enhancement Program (SBEP) Instruction and SBEP Forms
Project Team: Primary Members Form Contract
Performance Bond
Contract Payment Bond
Contractor's Certificate of Insurance (or approved alternate certificate form)
Contractor Performance Evaluation Form

B. The following documents are hereby incorporated by reference to this Agreement and are not attached herein. In the event that a conflict exists between this Agreement and any of the documents referenced herein, the Agreement shall control.

1. Addenda
2. The Contractor's Proposal
3. (Others as required)

C. The following, which may be delivered, prepared, or issued after the Effective Date of this Agreement and are not attached hereto but upon acceptance are incorporated herein:

1. Notice to Proceed;
2. All Change Orders
3. Approved Construction Schedule.

8.2. There are no Contract Documents other than those listed above in this Article 8.

8.3. The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.4 of the General Conditions.

ARTICLE 9 - MISCELLANEOUS

9.1. The Standard General Conditions of the Agreement between Owner and Contractor are referred to herein as the General Conditions.

9.2. Terms used in this Agreement will have the meanings indicated in the General Conditions.

9.3. The Contractor shall not assign its rights and duties under the contract documents without the prior written consent of the Owner. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.4. Owner and Contractor each binds itself, its successors, assigns, officials and representatives to the other party hereto, its successors, assigns, officials and representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

9.5. Any provision or part of the Contract Documents held to be void or unenforceable under the laws of the Commonwealth of Virginia shall be deemed stricken and all remaining provisions shall continue to be valid and binding upon Owner and Contractor.

9.6. Contractor warrants that it did not either directly or indirectly enter into any combination or arrangement with any person, firm, or corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive bidding in violation of the Sherman Act (15 U.S.C. § 1) or Sections 59.1-9.1 through 59.1-9.17 or Sections 59.1-68.6 through 59.1-68.8 of the Code of Virginia (1950), as amended.

Contractor hereby certifies that this Agreement or any claims resulting therefrom is not the result of or affected by any act of collusion with or any act of another person or persons, firm or corporation engaged in the same line of business or commerce.

Contractor hereby further certifies that it has not knowingly falsified, concealed, misled, or covered up by any trick, scheme, or device a material fact in connection with the Project.

Contractor further agrees that neither it nor any partnership, association or corporation in which its officers, directors or shareholders shall have a pecuniary interest will sell or furnish any building materials, supplies or equipment for any building or structure designed and constructed pursuant to this Agreement.

Contractor further agrees to require all subcontractors, consultants, sub-consultants, or any other persons, corporations, or legal entities providing or furnishing labor, material, equipment, or professional services related to this Agreement valued in excess of \$10,000 to execute an anti-

collusion statement as a condition of contract.

9.7. Neither Contractor, nor any subcontractor shall demand or receive from any of its suppliers or its subcontractors, consultants or sub-consultants, as an inducement for the award of a subcontract or order, any payment, loan, subscription, advance deposit of money, services or anything, present or promised, unless consideration of substantially equal or greater value is exchanged. No subcontractor or supplier shall make, or offer to make, kickbacks as described in this paragraph. No person shall demand or receive any payment, loan, subscription, and advance deposit of money, services or anything of value in return for an agreement not to complete a contract. If a subcontractor or supplier makes a kickback or other prohibited payment as described in this paragraph 9. 7, the amount thereof shall be conclusively presumed to have been included in the price of the subcontract or order and ultimately borne by Owner and will be recoverable from both the maker and recipient. Recovery from one offending party shall not preclude recovery from other offending parties.

9.8. Neither Contractor nor any subcontractor shall confer upon Owner's employee having official responsibility for this Agreement any payment, loan, subscription, advance deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal value is exchanged.

9.9. During the performance of this Agreement, Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification/consideration reasonably necessary to the normal operation of Contractor.

Contractor agrees to post in conspicuous places, available to employees and applicant for employment, notices setting forth the provisions of this nondiscrimination clause.

Contractor, in all solicitations or advertisements for employees placed by or on behalf of Contractor, will state that Contractor is an equal opportunity employer.

Notices and advertisements placed in accordance with federal law, rules or regulations shall be deemed sufficient for purposes of meeting the requirements of this paragraph.

Contractor will include the provisions of this paragraph 9.9 in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

9.10. During the performance of this Agreement, Contractor agrees as follows:

Contractor will provide a drug-free workplace for Contractor's Employees. Contractor will post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.

Contractor will state in all solicitations or advertisements for employees placed by or on behalf of Contractor that Contractor maintains a drug-free workplace.

Contractor will include the provisions of this paragraph 9.10 in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

9.11. As required under Chapter 11, Title 54.1 of the Code of Virginia (1950), as amended, Contractor shall provide Owner evidence of certification or licensing by the Virginia State Board of Contractors before Contractor can perform any Work under this Agreement. The license shall indicate that Contractor is licensed with the Virginia State Board of Contractors to perform the Work under this Agreement. Chapter 5, Title 59.1 of the Code of Virginia (1950), as amended, requires anyone transacting business in the Commonwealth of Virginia under an assumed or fictitious name to file a Certificate of Ownership with the Clerk's Office of the Virginia Beach Circuit Court. Limited partnerships, limited liability companies or corporations transacting business in the Commonwealth of Virginia under an assumed or fictitious name are required to also file a Certificate of Ownership with the Clerk of the State Corporation Commission. Contractor shall not disclose or permit the disclosure of any confidential information as identified by Owner except to its agents, employees and other consultants or subcontractors who need such information in order to properly perform their duties relative to this Agreement.

All notices required by this Agreement or the Contract Documents or other communication to either party by the other shall be made and in writing in accordance with paragraph 15. 1 of the General Conditions and shall be addressed as follows:

To Owner:

City Of Virginia Beach

To Contractor:

Contractor

9.13. This Agreement shall be deemed to be a Virginia contract and shall be governed as to all matters whether of validity, interpretations, obligations, performance or otherwise exclusively by the laws of the Commonwealth of Virginia, and all questions arising with respect thereto shall be determined in accordance with such laws. Regardless of where actually delivered and accepted, this Agreement shall be deemed to have been delivered and accepted by the parties in the Commonwealth of Virginia.

9.14. Any and all suits for any claims or for any and every breach or dispute arising out of this Agreement shall be maintained in the appropriate court of competent jurisdiction in the City of Virginia Beach.

9.15. This Agreement together with the Contract Documents, represent the entire and integrated agreement between Owner and Contractor and supersedes all prior negotiations, representations, or

agreements either written or oral. This Agreement may be amended only by written instrument signed by both Owner and Contractor. Nothing contained in this Agreement is intended to benefit any third party. No provision of this Agreement or the Contract Documents shall constitute or be deemed to be a waiver of the sovereign immunity of Owner.

9.16. SUBMISSION AND DISPOSITION OF CLAIMS

Prompt knowledge by the Owner of an existing or impending claim for damages or other relief may alter the plans, scheduling, or other action of the Owner and/or result in mitigation or elimination of the effects of the claim. Therefore, a written statement providing the Owner with notice of the Contractor's intention to file a claim which (i) describes the act or omission by the Owner or its agents that the Contractor contends caused it damages or entitles it to other relief; and (ii) provides a description of the nature and amount of the claim. Such written statement shall be submitted to the Owner within 10 calendar days of the time of the occurrence or event giving rise to the Claim or beginning of the work upon which the Claim is based; provided, however, if such damage is deemed certain in the opinion of the Contractor to result from its acting on an order from the Owner, it shall immediately take written exception to the order. For purposes of this provision, "Claim" shall include, without limitation, any request for an increase in the contract price or time and any request for equitable adjustment. Submission of a notice of claim as specified shall be mandatory, and failure to submit such notice shall be a conclusive waiver to such claim for damages or other relief by the Contractor. Neither an oral notice or statement, nor an untimely notice or statement will be sufficient to satisfy the requirements herein. The Contractor shall submit substantiating documentation within 30 calendar days after delivery of written notice of intent to file a Claim. The Owner will review the claim and render a final decision in writing within 30 days of receipt of Contractor's delivery of the substantiating documentation or of a written request for a final decision, whichever is later. Such decision shall be final and binding to the fullest extent allowed by law.

9.17. LAWS TO BE OBSERVED

The Contractor shall keep fully informed of federal, state, and local laws, bylaws, ordinances, orders, decrees, and regulations of governing bodies, courts, and agencies having any jurisdiction or authority that affects those engaged or employed on the work, the conduct of the work, or the execution of any documents in connection with the work. The Contractor shall observe and comply with such laws, ordinances, regulations, orders, or decrees and shall indemnify and hold harmless the Owner and its agents, officers, or employees against any claim for liability arising from or based on their violation, whether by himself, his agents, his employees, or sub-consultants, sub-Contractors, and other suppliers and vendors. If the Contractor observes that the contract documents are at variance therewith, he shall promptly notify the Owner in writing. The Contractor shall execute and file the documents, statements, and affidavits required under any applicable federal or state law or regulation affecting his bid or Contract or prosecution of the work thereunder. The Contractor shall permit examination of any records made subject to such examination by any federal or state law or by regulations promulgated thereunder by any state or federal agency charged with enforcement of such law.

Contractor does not currently, and shall not during the performance of this contract; knowingly

employ an unauthorized alien, as defined in the federal Immigration Reform and Control Act of 1986. See Section 2.2-4311.1 of Code of Virginia.

In accordance with Title 2.2, Subtitle II, Part B, Chapter 43, Article 4, of the Code of Virginia (Virginia Public Procurement Act), the Contractor shall make payment to all sub-consultants, sub-Contractors, and other suppliers and vendors, as defined in the Code, within 7 days after receipt of payment from the Owner; or, shall notify the Owner and sub-consultants, sub-Contractors, and other suppliers and vendors in writing of the intention to withhold all or part of the amount due along with the reason for nonpayment. In the event payment is not made as noted, the Contractor shall pay interest at the rate of 1 percent per month, unless otherwise provided in the contract, to the sub-consultants, sub-Contractors, and other suppliers and vendors on all amounts that remain unpaid after 7 days except for the amount withheld as provided herein.

The same requirements shall be included in each subcontract and shall be applicable to each lower-tier sub-consultants, sub-Contractors, and other suppliers and vendors. The Contractor shall provide Owner with its social security number or federal taxpayer identification number prior to any payments under this Contract.

The Contractor's obligation to pay an interest charge to a sub-consultants, sub-Contractors, and other suppliers and vendors pursuant to the payment clause in this section may not be construed to be an obligation of the Owner. A contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

The Contractor is authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 or as otherwise required by law. Additionally, the Contractor shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or canceled at any time during the term of the contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed, initialed or identified by Owner and Contractor.

(If Contractor is an individual)

Witness the following signature and seal:

_____ (SEAL)

_____ NAME

BY: _____
PRESIDENT

Virginia Code 47.1-14

He/She/They is/are personally known to me or has/ have produced _____ as
identification.

STATE OF _____

CITY/COUNTY OF _____, to-wit:

The foregoing Contract was acknowledged before me this _____ day of _____,
20____, by _____.

[AFFIX NOTARY SEAL] _____
NOTARY PUBLIC

Notary Registration Number: _____

My Commission Expires: _____

(If Contractor is a corporation)

In witness whereof, the Contractor has caused this Contract to be executed in its corporate name and on its behalf by its President and its Seal hereunto affixed and with due authority by its Board of Directors.

--- fill in CORPORATE NAME here ---

BY: _____
PRESIDENT

Virginia Code 47.1-14
He/She/They is/are personally known to me or has/ have produced _____ as
identification.

STATE OF _____

CITY/COUNTY OF _____, to-wit:

The foregoing Contract was acknowledged before me this ___ day of _____,
20___, by _____ (Name), President, respectively of _____
_____(Name), a _____
corporation, on behalf of the corporation.

[AFFIX NOTARY SEAL] _____
NOTARY PUBLIC

Notary Registration Number: _____

My Commission Expires: _____

(If Contractor is a partnership, joint venture, limited liability company or other legal entity)

In witness whereof, the Contractor has caused this Contract to be executed in its name and on its behalf by _____, its _____ (Title), and _____, its _____ (Title), thereunto duly authorized.

ENTITY NAME

By _____ TITLE: _____

By _____ TITLE: _____

Virginia Code 47.1-14

He/She/They is/are personally known to me or has/ have produced _____ as identification.
STATE OF _____

CITY/COUNTY OF _____, to-wit: The foregoing Contract was acknowledged before me this day of _____, 20____, by _____ (Name), _____ (title) and _____ (Name), _____ (title), respectively of _____ (Contractor's Name), a _____ (type of entity) on its behalf.

[AFFIX NOTARY SEAL] _____

NOTARY PUBLIC

Notary Registration Number: _____ My Commission Expires: _____

Virginia Code 47.1-14

He/She/They is/are personally known to me or has/ have produced _____ as identification.
STATE OF _____

CITY/COUNTY OF _____, to-wit: The foregoing Contract was acknowledged before me this day of _____, 20____, by _____ (Name), _____ (title) and _____ (Name), _____ (title), respectively of _____ (Contractor's Name), a _____ (type of entity) on its behalf.

[AFFIX NOTARY SEAL] _____

NOTARY PUBLIC

Notary Registration Number: _____ My Commission Expires: _____

CITY OF VIRGINIA BEACH

BY: _____
Taylor Adams, CPPO
Purchasing Agent

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STANDARD GENERAL CONDITIONS
OF THE AGREEMENT BETWEEN
OWNER AND CONTRACTOR

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.1 Defined Terms

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

1. *Acceptance* - The formal written acceptance of the Work by Owner.
2. *Addenda* - Written or graphic instruments issued prior to the opening of Proposals that clarify, correct or change the Request for Proposals or the Contract Documents.
3. *Agreement* – The Comprehensive Agreement between Owner and Contractor covering the Work and all Contract Documents.
4. *Allowance* - An amount established in the Contract Documents for inclusion in the Contract Price to cover the cost of prescribed items not specified in detail.
5. *Application for Payment* – The form which is to be used by Contractor in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
6. *Architect of Record* – Professional legally responsible for the professional care of all design documents and Drawings.
7. *Bonds* – Performance and payment bonds and other instruments of security.
8. *Change Notice* – A notice issued to the Contractor specifying a proposed change to the Contract Documents.
9. *Change Order* – A written order, which is signed by Contractor and Owner, which authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
10. *Claim* – A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a claim.
11. *Conceptual Documents* - The drawings and specifications and/or other graphic or written materials, criteria and information concerning Owner's requirements for the Project, such as design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, including those items enumerated in the Request for Proposals which show or describe the character and scope of, or relate to, the Work to be performed or furnished and which have been prepared by or for Owner.
12. *Construction* – The result of performing or furnishing of labor, the furnishing and incorporating of materials and equipment into the Work and the furnishing of services (other

than Design Professional Services) and documents, all as required by the Contract Documents.

13. *Construction Sub-agreement* – A written agreement between Contractor and a construction Subcontractor for provision of Construction.

14. *Contract Documents* – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents.

15. *Contract Price* – The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents.

16. *Contract Times* – The numbers of days or the dates stated in the Agreement to (i) achieve Substantial Completion, and (ii) complete the Work so that it is ready for final payment in accordance with paragraph 13.8.

17. *Design Professional Services* – Services related to the preparation of Drawings, Specifications, and other design submittals specified by the Contract Documents and required to be performed by licensed design professionals, as well as other services provided by or for licensed design professionals during Bidding/Negotiating, Construction, or Operational phases.

18. *Drawings* – Those portions of the Contract Documents prepared by or for Contractor and approved by Owner consisting of drawings, diagrams, illustrations, schedules and other data that show the scope, extent, and character of the Work.

19. *Effective Date of the Agreement* – The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

20. *Extra Work* – Work determined by Owner as not being covered by the Contract Documents.

21. *Field Order* – A written order issued by Owner which orders minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *Final Acceptance* – “Final Acceptance” of the Work occurs when the Project is fully completed in full, absolute, and strict compliance with the Contracts Documents including completion of all punch list items, and Owner gives Contractor written acceptance thereof.

23. *Hazardous Environmental Condition* – The presence at the Site of Asbestos, Hazardous Waste, PCB's, Petroleum Products or Radioactive Materials in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto on connection with the Work.

24. *Hazardous Waste* – The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws or Regulations* – Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.
26. *Liens* – Charges, security interests or encumbrances upon real property or personal property.
27. *Milestone* – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
28. *Notice of Award* – The written notice by Owner to the successful proposer stating that upon compliance by the successful proposer with the conditions precedent included therein, within the time specified, Owner will sign and deliver the Agreement.
29. *Notice to Proceed* – A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Contractor* - The individual or entity with whom Owner has entered into the Agreement as defined in Va. Code § 56-575.1 and shall include design construction, improving, equipping and installation.
31. *Owner* – The “Owner” is the City of Virginia Beach, the entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed, and is referred to throughout the Contract Documents as if singular in number and neuter in gender. The term “Owner” also means the authorized representative of Owner.
32. *Partial Utilization* – Use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.
33. *PCBs* – Polychlorinated biphenyls.
34. *Petroleum* – Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.
35. *Project* – The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.
36. *Proposal* – The documents submitted by Contractor in response to the Request for Proposals setting forth the design concepts, proposed prices, and other conditions for the Work to be performed.
37. *Radioactive Material* – Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
38. *Request for Proposals* – The document prepared by or for Owner specifying and

describing Owner's objectives and the procedure to be followed in preparing and submitting a Proposal and awarding a contract.

39. *Resident Project Representative* – The authorized representative of Owner who may be assigned to the Site or any part thereof.

40. *Schedule of Values* – A schedule prepared by Contractor and acceptable to Owner indicating that portion of the Contract Price to be paid for each major component of the Work, aggregating the total original Contract Price.

41. *Site* – Lands or other areas designated in the Contract Documents as being furnished by Owner upon which Construction is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner that are designated for use of Contractor.

42. *Specifications* – The part of the Contract Documents prepared by or for Contractor and approved by Owner consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

43. *Subcontractor* – An individual or entity other than a Supplier having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

44. *Sub-agreement* – A written agreement between Contractor and a design professional for provision of Design Professional Services.

45. *Submittal* – A written or graphic document prepared by or for Contractor which is required by the Contract Documents to be submitted to Owner by Contractor. Submittals may include Drawings, Specifications, progress schedules, shop drawings, samples, cash flow projections, Schedules of Values, manufacturer's literature, catalog cuts, etc. Submittals other than Drawings and Specifications are not Contract Documents.

46. *Substantial Completion* – The time at which the Work (or a specified part) has progressed to the point where it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part) can be fully utilized for the purposes for which it is intended as determined by Owner in its sole and unfettered discretion. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

47. *Supplementary Conditions* – The part of the Contract Documents that amends or supplements these General Conditions.

48. *Supplier* – A manufacturer, fabricator, supplier, distributor, material man or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Unit Price Work* – Work to be paid for on the basis of unit prices.

50. *Work* – The entire construction or the various separately identifiable parts thereof required to be performed or furnished under the Contract Documents. Work includes and is the result of performing or furnishing Design Professional Services and Construction required by the Contract Documents.

1.2 Terminology

A. Intent of Certain Terms or Adjectives:

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.
2. (a) The word "defective," when modifying the word "Construction" refers to Construction that is unsatisfactory, faulty, or deficient in that it does not fully, completely and strictly conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to Owner's final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion) provided that the defect was not caused by Owner, or failure to complete any portion of the Work in a good and workmanlike fashion or such that it is not fit for its intended purpose.

(b) The word "defective" when modifying the word "Design Professional Services" refers to any departure from the standard of care as defined in paragraph 6.1A.
3. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
4. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials or equipment or equipment complete and ready for intended use.
5. The words "perform" or "provide" when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
6. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.
7. Unless stated otherwise in the Contract Documents, words or phrases, which have a well-known technical or construction industry or trade meaning, are used in the Contract Documents in accordance with that meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.1 Delivery of Bonds

When Contractor delivers the executed Agreements to Owner, Contractor shall also deliver to Owner such Bonds as Contractor may be required to furnish in accordance with paragraph 5.1.A.

2.2 Commencement of Contract Time; Notice to Proceed

The Contract Time will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time after the Effective Date of the Agreement.

2.3 Starting the Work

Contractor shall start to perform the Work on the date when the Contract Time commences to run. No Work shall be done at the Site prior to the date on which the Contract Time commences to run.

2.4 Before Starting the Work

A. *Preliminary Schedules:* Within 25 days after commencement of the Contract Times (unless otherwise specified in the Contract Documents), Contractor shall submit the following to Owner for its timely review:

1. A preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
2. A preliminary schedule of Submittals that will list each required Submittal and the times for submitting, reviewing and processing each Submittal;
3. A preliminary Schedule of Values for all of the Work which will include quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work; and
4. A preliminary cash flow projection estimating that portion of the Contract Price to be due during each month of performance.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor shall each deliver to Owner, certificates of insurance as required by paragraph 5.3 which Contractor is required to purchase and maintain in accordance with Article 5.

2.5 Initial Conference

Within five days after the Contract Time starts to run, Contractor will arrange a conference attended by Owner and Contractor and others as appropriate to establish a working understanding among the parties as to the Work and to discuss the design concepts, schedules referred to in paragraph 2.4.A, procedures for handling Submittals, processing Applications for Payment, maintaining required records and other matters.

2.6 Initial Acceptance of Schedules

At least ten days before submission of the first Application for Payment (unless otherwise provided in the Contract Documents), Contractor will arrange a conference attended by Contractor, Owner and others as appropriate to review for acceptability the schedules submitted in accordance with paragraph 2.4. Contractor shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to the Contractor until the acceptable schedules are submitted to Owner.

1. The progress schedule will be acceptable to Owner if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on Owner responsibility for the progress schedule, for sequencing, scheduling or progress of the Work nor interfere with nor relieve Contractor from Contractor's full responsibility therefor.
2. Contractor's schedule of Submittals will be acceptable to Owner if it provides a workable arrangement for reviewing and processing the required Submittals.
3. Contractor's Schedule of Values will be acceptable to Owner as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 Intent

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be designed and constructed full, absolute, complete and strict compliance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for at no

additional cost to Owner.

3.2 Reference Standards

A. Standards, Specifications, Codes, Laws or Regulations.

1. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect on the last day for receipt of Proposals except as may be otherwise specifically stated in the Contract Documents.
2. No provision of any such standard, specification, manual, code, or instruction of a Supplier shall be effective to change the duties and responsibilities of Owner, Contractor, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Owner any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.3 Resolving Discrepancies

A. In the event of a discrepancy between the Conceptual Documents on the one hand and the Proposal or Drawings or Specifications on the other hand, the Proposal or Drawings or Specifications will control except when Owner has approved a Submittal pursuant to paragraph 6.17.B.

B. Except as otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

1. The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
2. The provisions of any such Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.4 Amending and Supplementing Contract Documents

The Contract Documents may be amended only in writing, signed by all parties, to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

1. Owner's approval of required Submittals (pursuant to paragraph 6.17.B);
2. A Change Order;
3. A Field Order.
4. A Work Directive

3.5 Ownership and Use of Documents

Upon payment in-full to Contractor for all design professional services under 6.1 of the General Conditions, all documents including Drawings and Specifications prepared or furnished by Contractor pursuant to this Agreement shall become and remain the property of Owner whether the Project is constructed or not. If Owner uses the said documents (or any part thereof) in connection with any other project without written verification, adaptation, and consent of Contractor, such use shall be at Owner's sole risk and Contractor shall have no liability therefor.

3.6 Electronic Data

A. Copies of data furnished by Owner to Contractor or Contractor to Owner that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. The transferring party will correct any errors detected within the 60-day acceptance period.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; DIFFERING SITE CONDITIONS; REFERENCE POINTS; HAZARDOUS ENVIRONMENTAL CONDITIONS

4.1 Availability of Lands

- A. Owner shall furnish the Site.

B. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Differing Site Conditions

A. Contractor shall promptly give a written notice to Owner of (i) subsurface or latent physical conditions at the Site which differ materially from those indicated in the Contract Documents, or (ii) unknown physical conditions at the Site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character called for by the Contract Documents.

B. Owner will investigate the Site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the Work, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the Contract Price or Times modified in writing by Change Order in accordance with Article 9.

C. No request by Contractor for an equitable adjustment under paragraph 4.2 shall be allowed unless Contractor has given the written notice required; provided that Owner may extend the time prescribed in 9.3.A for giving written notice.

D. The provisions of this paragraph 4.2 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

4.3 Reference Points

A. Contractor shall be responsible for laying out the Work and shall protect and preserve the reference points and property monuments if established by the Owner and shall make no changes of relocations without prior written approval of the Owner. Contractor shall report to Owner whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grade or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.4 Hazardous Environmental Condition at Site

A. Contractor shall be responsible for any Hazardous Environmental Condition created by any materials brought to the Site by Contractor, Subcontractors, Suppliers or anyone else for whom Contractor is responsible. Any cost or expense associated with environmentally related violations of the law, the creation or maintenance of a nuisance, or releases of hazardous substances by Contractor or those for whom Contractor is responsible, including, but not limited to, the cost of any clean-up

activities, removals, remediation, responses, damages, fines, administrative or civil penalties or charges imposed on Owner, whether because of actions or suits by any governmental or regulatory agency or by any private party, as a result of the release of any hazardous substances, or any noncompliance with or failure to meet any federal, State, or local standards, requirements, laws, statutes, regulations or the law of nuisance by Contractor (or its Subcontractors, Suppliers, agents, officers, employees, or any other persons, corporations, or legal entities employed, utilized or retained by Contractor) in the performance of the Agreement or related activities, shall be the sole responsibility of and shall be paid by Contractor. To the fullest extent permitted by Laws or Regulations, Contractor shall indemnify and hold harmless Owner, its agents, volunteers, servants, employees, and officials from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all other litigation costs) arising out of or resulting from such Hazardous Environmental Condition created by Contractor or anyone for whom Contractor is responsible. Nothing in this paragraph 4.4.A shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

B. If Contractor encounters a pre-existing Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Construction in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify Owner (and thereafter confirm such notice in writing). Owner shall promptly determine the necessity of retaining a qualified expert to evaluate such condition or take corrective action, if any.

C. Contractor shall not be required to resume Construction in connection with such Hazardous Environmental Condition or in any such affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Construction, or (ii) specifying any special conditions under which such Construction may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of such Construction stoppage or such special conditions under which Construction is agreed to be resumed by Contractor, either party may make a Claim therefore as provided in Article 9.

D. If after receipt of such special written notice Contractor does not agree to resume Construction based on a reasonable belief it is unsafe, or does not agree to resume such Construction under such special conditions, then Owner may order such portion of the Work that is related to such Hazardous Environmental Condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefore as provided in Article 9. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

ARTICLE 5 – BONDS AND INSURANCE

5.1 Performance, Payment and Other Bonds

A. Together with the executed Agreement, Contractor shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all Contractor's obligations to furnish, provide and pay for Work and related materials under the Contract Documents. These Bonds shall remain in effect as long as necessary to guarantee Contractor's obligations arising from the Agreement, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by one or more surety companies selected by Contractor which are licensed and legally authorized to conduct the business of insurance including surety, within the Commonwealth of Virginia. All Bonds signed by an agent must be accompanied by a certified copy of the power of attorney for the surety's attorney-in-fact.

C. If the surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the Commonwealth of Virginia or it ceases to meet the requirements of this Article, the Contractor shall within twenty days thereafter substitute another Bond and surety, both of which shall comply with the requirements of this Article.

5.2 Certificates of Insurance

Prior to commencing any Work, Contractor shall deliver to Owner, certificates of insurance (and other evidence of insurance requested by Owner) which Contractor is required to purchase and maintain. Evidence of replacement coverage shall be provided to the Owner 20 days prior to expiration of any such policies, so that there shall be no interruption in Work due to lack of proof of insurance coverage required by the Contract Documents. Owner shall not be liable for any delays (or costs or damages resulting there from) resulting from Contractor's failure to obtain the insurance required of Contractor under paragraph 5.3. Vendors, suppliers, material dealers and others who merely transport, pick up, deliver or carry materials, parts, or equipment or any other items or persons to or from the Project Site and those who furnish material worked to a special design but perform no operations at the Project Site shall not be required to furnish a certificate(s) or other evidence of insurance to Owner.

5.3 Contractor's Liability Insurance

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and with such as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work (including, but not limited to Design Professional Services) and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. Claims under workers' compensation, disability benefits and other similar employee benefit acts;
2. Claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - (i) Claims for damages insured by reasonably available personal injury liability coverage that are sustained (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (ii) by any other person for any other reason;
4. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting there from; and
5. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The insurance required by this Article shall be written for not less than any limits of liability in the Contract Documents, or required any Laws or Regulations, whichever is greater. Contractor shall furnish insurance with the following minimum limits:

1. Worker's Compensation:
 - a. Coverage
 1. Employer's Liability: \$1,000,000 Each Occurrence
 2. Disease Policy Limit: \$1,000,000
 3. Disease –Each Employee: \$1,000,000
 - b. Requirements
 1. Voluntary Compensation Endorsement
 2. Waiver of Subrogation in favor of Owner and General Contractor

3. United States Long Shore & Harbor Worker's Endorsement
4. Jones Act Endorsement
2. Commercial General Liability
 - a. Coverage
 1. \$1,000,000 Each Occurrence
 2. \$2,000,000 General Aggregate
 3. \$2,000,000 Completed Operations/Products Aggregate
 4. \$1,000,000 Personal Injury
 5. \$5,000 Medical Payments
 - b. Requirements
 1. Contractual Liability
 2. X, C, and U Perils Coverage
 3. Completed Operations Extended to the 10 years or the Statute of Repose, whichever is less
 4. Broad Form Property Damage
 5. Fellow Employee Coverage
 6. No Residential Exclusions shall apply
 7. Additional Insured – Owner and Contractor to be included as Additional Insureds per form CG 20 10 11 85 or equivalent, and this coverage shall include: Premises/Operations coverage, Products/Completed Operations coverage, and apply on a Primary and Non- contributory basis.
 8. No restrictions with regards to the scope of work being performed on the jobsite.
3. Errors and Omissions
 - a. Coverage: \$1,000,000 each occurrence, \$2,000,000 Aggregate
 - b. Requirement: Design Professional Liability
4. Comprehensive Automobile Liability:
 - a. Coverage
 1. Bodily Injury: \$1,000,000 Each Person, \$1,000,000 Each Accident;
 2. Property Damage: \$1,000,000 Each Occurrence
 - b. Requirements
 1. Covers owned, non-owned, or hired vehicles
 2. Additional Insured – Owner and contractor to be included as Additional Insureds
5. Excess Liability:
 - a. Coverage
 1. Contractor - \$5,000,000 per occurrence, \$5,000,000 aggregate
 2. Sub-Contractor - \$1,000,000 per occurrence, \$1,000,000 aggregate

b. Requirements - Additional Insured – Owner and Contractor to be included as Additional Insured utilizing form CG 20 10 11 85 or equivalent, and this coverage shall apply excess of all underlying coverage.

6. Builder Risk: Contractor shall provide builder's risk coverage on the full insurable value of the Work.

C. The policies of insurance required by paragraph 5.3 shall:

1. Include as additional insureds the Owner, and its agents, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. Contain a provision or endorsement that the coverage afforded will not be canceled, reduced, or renewal refused until at least thirty days' prior written notice has been given to the Owner, and provide for at least ten days' prior written notice will be afforded prior to cancellations for failure of the Design-Builder to pay premiums.

3. Remain in effect at least until Final Acceptance of the entire Project and at all times thereafter when Contractor may be correcting, removing or replacing defective Construction in accordance with paragraphs 12.6 and 12.7; and

4. With respect to completed operations insurance, and any other insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and Contractor shall furnish Owner evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.4 Waiver of Subrogation

The insurance policies obtained by Contractor and Subcontractors pursuant to paragraph 5.3 shall be endorsed to include a waiver of subrogation in favor of indemnified parties or entities; provided, however, that all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

5.5 Acceptance of Bonds and Insurance; Option to Replace

If Owner has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by Contractor in accordance with

Article 5 on the basis of their not complying with the Contract Documents, Owner shall so notify Contractor in writing after receipt of the certificates (or other evidence requested) required by paragraph 2.4.B. Contractor shall provide to Owner such additional information in respect of insurance provided as Owner may reasonably request. If Contractor does not purchase or maintain all of the Bonds and insurance required by the Contract Documents, Contractor shall notify Owner in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, Owner may elect to obtain equivalent Bonds or insurance to protect Contractor's interests at Contractor's sole cost and expense, and a Change Order shall be issued to adjust the Contract Price accordingly.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.1 Design Professional Services

A. *Standard of Care.* The standard of care for Design Professional Services performed or furnished under this Agreement will be the reasonable care, compliance and skill ordinarily used by members of the engineering or the particular design profession practicing under similar conditions at the same time and locality, including without limitation, in preparing plans and specifications and in making certain that the Construction is properly completed pursuant to the Drawings, Plans and Specifications.

B. *Preliminary Design Phase.* After the Contract Times commence to run, Contractor shall:

1. Consult with Owner to understand Owner's requirements for the Project and review available data;
2. Advise Owner as to the necessity of Owner's providing or obtaining from others additional reports, data, or services and assist Owner in obtaining such reports, data, or services;
3. Identify and analyze requirements of governmental authorities having jurisdiction to approve the portions of the Project designed or specified by Contractor with whom consultation is to be undertaken in connection with the Project;
4. Obtain such additional related information that it deems necessary for performance of the Work;
5. On the basis of the Conceptual Documents and Contractor's Proposal, prepare preliminary design documents consisting of final design criteria, preliminary drawings, outline specifications, and written descriptions of the Project;

6. Identify any variations in the preliminary design documents from the Contract Documents in accordance with 6.17.B.

C. *Final Design Phase.* After written acceptance by Owner of the preliminary design phase documents Contractor shall:

1. On the basis of the accepted Preliminary Design Phase documents, prepare final Drawings showing the scope, extent, and character of the Construction to be performed and furnished by Contractor and Specifications (which will be prepared, where appropriate, in general conformance with the division format of the Construction Specifications Institute);

2. Provide technical criteria, written descriptions and design data required for obtaining approvals of such governmental authorities as have jurisdiction to review or approve the final design of the Project, and assist Owner in consultations with appropriate authorities;

3. Furnish the above documents, Drawings, and Specifications to and review them with Owner within the times indicated in the schedules described in paragraphs 2.6.A.1 and 2.6.A.2; and

4. Identify any deviations from other Contract Documents in accordance with paragraph 6.17.B.

6.2 Supervision and Superintendence of Construction

A. Contractor shall supervise, inspect and direct the Construction competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to provide the Construction in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of Construction. Contractor shall be responsible to see that the completed Construction complies accurately with the Contract Documents and shall keep Owner as to the quality and progress of the Construction.

B. At all times during the progress of Construction, the Contractor shall assign a competent resident superintendent thereto, who shall not be replaced without written notice to Owner except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.3 Labor, Working Hours

Contractor shall provide competent, suitably qualified personnel to perform the Work as required by the Contract Documents. Contractor shall at all times maintain good

discipline and order at the Site.

6.4 Services, Materials, and Equipment

A. Unless otherwise specified in the Contract Documents, Contractor shall furnish or cause to be furnished and assume full responsibility for materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the Work.

B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Contract Documents shall expressly run to the benefit of Owner. If reasonably required by Owner, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

6.5 Not Used

6.6 Concerning Subcontractors, Suppliers, and Others

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, Suppliers and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner and any such Subcontractor, Supplier, or other individual or entity, nor shall it create any obligation on the part of Owner to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws or Regulations.

C. Contractor shall be solely responsible for scheduling and coordinating Subcontractors, Suppliers and other individuals and entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

D. Contractor shall require all Subcontractors, Suppliers and such other individuals and entities performing or furnishing any of the Work to communicate with

the Owner through Contractor.

E. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate Design Sub-agreement or Construction Sub-agreement between Contractor and the Subcontractor or Supplier that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.5, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Owner's Consultant, and all other additional insureds (and their officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.7 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Conceptual Documents for use in the performance of the Construction and if to the actual knowledge of Owner its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Conceptual Documents.

B. Contractor shall indemnify and hold harmless Owner, its agents, servants, employees, and officials from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all litigation costs) arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not identified in the Conceptual Documents.

6.8 Permits

Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all necessary permits, licenses, and approvals of governmental authorities having jurisdiction over the Work. Contractor shall pay all governmental charges and inspection fees necessary for the performance of the Work, which are applicable on the last day for receipt of Proposals. Contractor shall pay all charges of utility owners for connections to the Work.

6.9 Laws or Regulations

A. Contractor shall give all notices required by and comply with all Laws or Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, Owner shall not be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all costs arising therefrom.

C. Changes in Laws or Regulations not known on the date of receipt of Proposals having an effect on the cost or time of performance may be the subject of a change in Contract Price or Contract Times.

6.10 Taxes

Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws or Regulations of the place of the Project that are applicable during the performance of the Work.

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas.

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of construction workers to the Site, and shall not unreasonably encumber the Site with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim at law.

3. To the fullest extent permitted by Laws or Regulations, Contractor shall indemnify and hold harmless Owner, its agents, servants, employees, and officials from and against all claims, costs, losses and damages (including, but not limited to, fees of engineers, architects, attorneys and other professionals and litigation costs) arising out of or resulting from any claim brought by any such owner or occupant against Owner, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Construction.

B. *Removal of Debris.* During the performance of the Construction, Contractor

shall keep the premises free from accumulations of waste materials, rubbish, and other debris resulting from the Construction. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws or Regulations.

C. *Cleaning.* Prior to Substantial Completion, Contractor shall clean the Site and make it ready for utilization by Owner. At completion of Construction, Contractor shall remove all tools, appliances, construction equipment, temporary construction and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures.* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Construction or adjacent property to stresses or pressures that will endanger it.

6.12 Record Documents

Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Shop Drawings, Specifications, Addenda, Change Orders, and Field Orders in good order and annotated to show all changes made during performance of the Work. These record documents together with all approved Submittals will be available to Owner for reference. Upon completion of the Work, these record documents and Submittals, including a reproducible set of record drawings, a hard copy set of the record drawings, and drawings in an electronic format (.dwg) will be delivered to Owner.

6.13 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. All persons on the Site or who may be affected by the Work;
2. All Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. Other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with applicable Laws or Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of

underground facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor.

D. Contractor's duties and responsibilities for safety and for protection of the construction shall continue until such time as all the Work is completed and Owner has issued a notice to Contractor in accordance with paragraph 13.8.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 Safety Representative

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. The safety representative shall be on Site at all times while Work is in progress. The safety representative will be the on-site superintendent in conjunction with the safety consultant.

6.15 Hazard Communication Programs

Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 Emergencies

In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Owner prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 Submittals

A. Contractor will provide a copy of all approved Submittals to Owner.

B. Owner's review of Submittals shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in a separate written communication at the time of submission called Owner's attention to each such variation and Owner has given written approval.

6.18 Continuing the Work

Contractor shall diligently commence, prosecute and complete and shall continue the Work and adhere to the master schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as Contractor and Owner may otherwise agree in writing.

6.19 Post-Construction Phase

Contractor shall:

1. Provide start-up, testing, refining and adjusting of any equipment or system.
2. Provide training of Owner's staff to operate and maintain the Work.
3. Assist Owner in developing systems and procedures for control of the operation and maintenance of and record keeping for the Work.

6.20 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Design Professional Services and Construction will be in full, absolute, complete and strict compliance with the Contract Documents, will not be defective, and will meet or exceed the applicable standard of care. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. Abuse, modification or improper maintenance or operation by persons other than Contractor, subcontractors, sub-consultant, or suppliers or any other individual or entity for whom Contractor is responsible; or
2. Normal wear and tear under normal usage.

B. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract

Documents:

1. Observations by Owner;
2. The making of any progress or final payment;
3. The issuance of a certificate of Substantial Completion;
4. Use or occupancy of the Work or any part thereof by Owner;
5. Any acceptance by Owner or any failure to do so;
6. Any review and approval of a Submittal;
7. Any inspection, test or approval by others; or
8. Any correction of defective Professional Design Services and/or Construction by Owner.

6.21 Indemnification

A. It is understood and agreed that Contractor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Contractor, its subcontractors, sub-consultants, agents or employees under or in connection with this Agreement or the performance or failure to perform the Work required by this Agreement, including, without limitation, all Design Professional Services and Construction. To the fullest extent permitted by Laws or Regulations, Contractor shall indemnify and hold harmless Owner, its agents, volunteers servants employees and officials from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all litigation costs) suffered by any indemnified party or entity arising out of or resulting from (a) Design Professional Services and/or the performance of Construction by Contractor or those for whom Contractor is legally liable, including its subcontractors, sub-consultants, any supplier or any individual or entity directly or indirectly employed by any of them to perform or furnish any of the Work.; and (b) the violation of any Laws or Regulations applicable to this Agreement. Upon written demand by Owner, Contractor shall assume and defend through attorneys selected by the Contractor at Contractor's sole expense any and all such suits or defense of claims made against Owner, its agents, volunteers, servants employees or officials.

B. In any and all claims against Owner, its agents, volunteers, servants, employees and officials by any employee (or the survivor or personal representative of such employee) of Contractor, any subcontractor, sub-consultant, any supplier, any individual or entity directly or indirectly employed by any of them to perform any of

the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph

6.21.A shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any such subcontractor, sub-consultant, supplier, or other individual or entity under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 7 – OTHER CONSTRUCTION

7.1 Related Work at Site

A. Owner may perform other Work related to the Project at the Site by Owner's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. Written notice thereof will be given to Contractor prior to starting any such other work; and
2. Contractor may make a Claim therefor as provided in Article 9 if Contractor believes that such performance will involve additional expense to Contractor or requires additional time and the parties are unable to agree as to the amount or extent thereof.

B. Contractor shall afford each other contractor who is a party to such a direct contract and each utility owner (and Owner, if Owner is performing the additional work with Owner's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, Contractor shall do all cutting, fitting, and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Owner and the others whose work will be affected. The duties and responsibilities of Contractor under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed or services provided by others under this Article 7, Contractor shall inspect such other work and appropriate instruments of service and promptly report to Owner in writing any delays, defects or deficiencies in such other work or services that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure so to report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for

latent or non-apparent defects and deficiencies in such other work.

7.2 Coordination

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. The individual or entity who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;
2. The specific matters to be covered by such authority and responsibility will be itemized; and
3. The extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility in respect of such coordination.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.1 General

The responsibilities of Owner include the following:

1. Owner shall designate in writing a person to act as Owner's Representative with respect to the services to be rendered under this Agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define Owner's policies, make decisions with respect to performance of the Work, and shall provide such other services as may be agreed upon. Owner may assign various inspectors to inspect the progress and quality of the Work;
2. Owner shall make payments to Contractor promptly when they are due as provided in paragraph 13.3 and 13.8;
3. Furnish the Site as set forth in paragraph 4.1.A;
4. Furnish to Contractor, as required for performance of Contractor's Services, if available and in the possession of Owner, the following, all of which Contractor may use and rely upon in performing services under this Agreement:
 - a. Environmental assessment and impact statements;
 - b. Property, boundary, easement, right-of-way, topographic, and utility surveys;

- c. Property descriptions;
 - d. Zoning, deed, and other land use restrictions;
 - e. Permits, licenses, and approvals of government authorities that the Owner is specifically required to obtain by the Contract Documents; and
 - f. All subsurface data at or contiguous to the Site which Owner may have obtained.
5. Provide information known to or in the possession of Owner relating to the presence of materials and substances at the Site that could create a Hazardous Environmental Condition.
6. Process submittals, drawings, and time sensitive questions in a timely fashion so as not to delay the Work.

8.2 Limitations on Owner's Responsibilities

The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of design and/or construction or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws or Regulations applicable to the furnishing or performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.3 Undisclosed Hazardous Environmental Condition

Owner's responsibility in respect of undisclosed Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Materials uncovered or revealed at the Site is set forth in paragraph 4.4.

8.4 Resident Project Representation

Owner shall designate a Resident Project Representative. The Resident Project Representative has the authority to approve changes in the scope of the project and shall be available during working hours and as often as may be required to render decisions and furnish information in a timely manner. Owner may at any time in its discretion change the Resident Project Representative with prior written notice to Contractor. Contractor shall be entitled to reply on all changes approved by Owner's Resident Project Representative.

ARTICLE 9 – CHANGES IN THE WORK; CLAIMS

9.1 Authorized Changes in the Work

Without invalidating the Agreement and without notice to any surety, Owner may, at any time or from time to time, in writing, order additions, deletions, or revisions in the Work within the general scope of the Contract by a Change Order. Upon receipt of any such documents, Contractor shall promptly proceed with the Work involved that will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

9.2 Unauthorized Changes in the Work

Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraph 3.4, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Construction as provided in paragraph 12.4.

9.3 Claims

A. *Notice.* If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or an adjustment of the Contract Times that should be allowed as a result of any order of Owner pursuant to paragraph 9.1.A or other occurrence for which the Contract Documents provide that such adjustment(s) may be made, a Claim may be made therefore. Written notice of intent to make such a Claim shall be submitted to the other party promptly and in no event more than 15 days after the start of the occurrence or event giving rise to the Claim.

B. *Documentation.* The claiming party shall submit substantiating documentation within 30 days after delivery of the notice required by paragraph 9.3.A.

C. *Decision.* The other party shall render a decision on the Claim no more than 30 days after the receipt of the substantiating documentation required by paragraph 9.3.B. This decision will be final and binding unless the claiming party gives notice of intention to exercise its rights under Article 15 within 30 days of receipt of the decision and exercises such rights within 30 days of giving the notice of intent.

D. *Time Limit Extension.* The time limits of paragraphs 9.3.B and 9.3.C may be extended by mutual written agreement.

9.4 Execution of Change Orders

Owner and Contractor shall execute appropriate Change Orders covering:

Changes in the Work which are (i) ordered by Owner pursuant to paragraph 9.1, (ii) required because of acceptance of defective Construction under paragraph 12.8 or Owner's correction of defective Work under paragraph 12.9 or (iii) agreed to by the parties.

9.5 Notice to Sureties

If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

ARTICLE 10 – COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

10.1 Cost of the Work

A. *Costs Included.* The term Cost of the Work means the sum of all costs necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change of the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 10.1.B:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor.

a. Such employees shall include without limitation superintendents, foremen, and other personnel employed full-time at the Site along with the project manager, project manager assistants, and support staff located at the Contractors home office while specifically working on this project. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays shall be included in the above to the extent

authorized by Owner.

b. Such employees shall also include engineers, engineering technicians, architects, and others providing Design Professional Services. For purposes of this paragraph 10.1.A.1, Contractor shall be entitled to payment for such employees an amount equal to salary costs times a factor, both as designated in the Agreement, for all services performed or furnished by such employees engaged on the Project.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors (excluding payments for Design Professional Services pursuant to paragraph 10.1.A.4) for Work performed or furnished by Subcontractors. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee.

4. Payments made by Contractor for Design Professional Services provided or furnished under a Design Sub-agreement.

5. Costs of special consultants (including but not limited to testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

6. Supplemental costs including the following items:

a. The proportion of necessary transportation, travel and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the Site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction or engineering equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner, and the costs of transportation, loading,

unloading, installation, dismantling and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws or Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses, damages, and related expenses caused by damage to the Work not compensated by insurance or otherwise, sustained by Contractor in connection with the furnishing and performance of the Work provided they have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. Cost of premiums for all Bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded.* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 10.1.A.

C. *Contractor's Fee.* When the value of the Work covered by a Change Order is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in paragraph 11.1.C.

D. *Documentation.* Whenever the cost of any Work is to be determined pursuant to paragraph 10.1.A and 10.1.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Owner an itemized cost breakdown together with supporting data.

10.2 Cash Allowances

A. The Contract Price includes all allowances so named in the Contract Documents. Contractor shall cause the Work so covered to be performed for such sums as may be acceptable to Owner. Contractor agrees that:

1. The allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
2. Except as set forth in the Contract Documents, Contractor's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

10.3 Unit Prices

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all of Unit Price Work an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each

item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Owner and testing company if applicable.

B. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

ARTICLE 11 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIME

11.1 Change of Contract Price

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the Claim to the other party promptly in accordance with paragraph 9.3.A.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 10.3); or
2. Where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum
3. Where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 11.1.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 10.1) plus an Contractor's Fee for overhead and profit (determined as provided in paragraph 11.1.C).

C. Contractor's Fee: The Contractor's fee for overhead and profit on Change Orders shall be determined as follows:

1. A fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under paragraphs 10.1.A.1.a and 10.1.A.2, the Contractor's fee shall be 15 percent;

b. For costs incurred under paragraph 10.1.A.3 10.1.A.4, 10.1.A.5 and 10.1.A.6, the Contractor's fee shall be five percent;

c. Where one or more tiers of subcontracts are included in the basis of Cost of the Work plus a fee, paragraphs 11.1.C.1.a. and 11.1.C.1.b. set forth that the Subcontractor who actually performs or furnishes Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 10.1.A.1 and 10.1.A.2 and that any higher tier Subcontractor will be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

e. When both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change.

11.2 Change of Contract Times

A. The Contract Times (or Milestones) may only be changed by a Change Order. Any Claim for an adjustment of the Contract Times (or Milestones) shall be based on written notice pursuant to paragraph 9.3.A.

B. *Delays Beyond Contractor's Control.* Where Contractor is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of Contractor, the Contractor shall be entitled to a non-compensatory time extension in an amount equal to the time lost due to such delay if a Claim is made therefore as provided in paragraph 11.2.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by governmental agencies, fires, floods, terrorist attacks, epidemics, unusually severe weather conditions, or acts of God. Weather shall be considered "unusually severe" only if a weather condition, or any combination of weather conditions, causes Contractor to lose a number of Work days during a calendar month where the total number of lost days for that calendar month exceeds the number of budgeted lost work days listed below for that calendar month. Weather-related delay claims shall be subject to the notice requirements of paragraph 9.3.A. Upon timely written notice and documentation of such delay, Contractor shall be entitled to a compensatory time extension only in accordance with paragraph C following, and the time for performance as herein specified shall be adjusted by adding the number of excess work days lost because of the weather condition(s) to the duration of the activities actually affected by the weather condition(s). At its sole and unfettered discretion, Owner may elect to require Contractor to recover the time lost as a result of such

delay, under which circumstances; Owner shall pay Contractor the reasonable, actual additional cost of recovering lost time, but no additional fee. The remedy set forth in this sub-section shall be Contractor's sole and exclusive remedy for an excusable delay as defined in this sub-section. A work day is defined as Monday through Friday, unless prior written notice is provided by Contractor to Owner that it intends to perform Work on any given Saturday and/ or Sunday. Contractor shall not be entitled to weather- related time extensions or, if applicable, costs for recovering lost time, for any Saturday or Sunday for which prior written notice was not provided. As stated herein, Contractor shall anticipate the potential loss of the number of work days listed below for each calendar month due to weather, and shall schedule the Work accordingly:

January =8; February=8; March=8; April=6; May=4; June=4; July=4; August=3; September=3; October=3; November=4; December=6

C. If Owner or other contractor or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

D. Owner shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all litigation costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor. All delays within the control of Contractor shall be subject to the Liquidated Damages provision contained in Paragraph 3.3 of the PPEA Agreement.

ARTICLE 12 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE DESIGN PROFESSIONAL SERVICES AND/OR CONSTRUCTION

12.1 Notice of Defects

Owner shall give Contractor prompt written notice of all defective Design Professional Services and/or Construction of which Owner has actual knowledge. All defective Design Professional Services and/or Construction may be rejected, corrected or accepted as provided in this Article 12.

12.2 Access to Construction

Owner, Owner's inspectors, other representatives, consultants and personnel of Owner, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Site and the Construction at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

12.3 Tests and Inspections

A. If the Contract Documents or Laws or Regulations of any public body having jurisdiction require any part of the Construction specifically to be inspected, tested or approved, Contractor shall assume full responsibility for arranging and obtaining such Special Inspections, Building Code inspections, tests or approvals, pay all costs in connection therewith, and furnish Owner the required certificates of inspection or approval. Contractor shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's acceptance of materials or equipment to be incorporated in the Work or of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

B. Contractor shall give Owner reasonable notice of the planned schedule for all required inspections, tests, or approvals.

C. If any Construction (or the construction work of others) that is required to be inspected, tested, or approved is covered by Contractor without written concurrence of Owner, it must, if requested by Owner, be uncovered for observation at Contractor's expense unless Design/ Builder has given Owner timely notice of Contractor's intention to cover the same and Owner has not acted with reasonable promptness in response to such notice.

12.4 Uncovering Construction

A. If any Construction is covered contrary to the written request of Owner, it must, if requested by Owner, be uncovered for Owner's observation and recovered at Contractor's expense.

B. If Owner considers it necessary or advisable that covered Construction be observed by Owner or inspected or tested by others, Contractor, at Owner's request, shall uncover, expose or otherwise make available for observation, inspection or testing as Owner may require, that portion of the Construction in question, furnishing all necessary labor, material and equipment. If it is found that such Construction is defective, Contractor shall pay all costs and damages caused by or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory

replacement or reconstruction, (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals, all litigation costs, and all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Article 9. If, however, such Construction is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Article 9.

12.5 Owner May Stop Construction

If the Design Professional Services and/or Construction are defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform Construction in such a way that the completed Construction will conform to the Contract Documents, Owner may order Contractor to stop Construction or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop Construction will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor or any other party, nor shall the exercise of such right entitle the Contractor to any change in the Contract Price or Contract Times.

12.6 Correction or Removal of Defective Design Professional Services and or Construction

Owner will have authority to disapprove or reject defective Design Professional Services and/or Construction and will have authority to require special inspection or testing of the Construction whether or not the Construction is fabricated, installed or completed. If required by Owner, Contractor shall promptly, as directed, either correct all defective Design Professional Services and/or Construction, whether or not fabricated, installed or completed, or, if the Construction has been rejected by Owner, remove it from the Site and replace it with non-defective Construction. Contractor shall bear all direct, indirect, and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and all litigation costs) arising out of or relating to such correction or removal.

12.7 Correction Period

A. If within one year after the date of Substantial Completion of the entire Work or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Design Professional Services

and/or Construction is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, (i) correct such defective Design Professional Services and/or Construction, or, if it has been rejected by Owner, remove the Construction from the Site and replace it with Construction that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other Construction or the work of others resulting therefrom. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Design Professional Services and/or Construction corrected or the rejected Construction removed and replaced, and all costs, losses, and damages caused by or resulting from such removal and replacement (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals, all litigation costs, and all costs of repair or replacement of work of others) will be paid by Contractor. Nothing herein shall be construed to change, limit or waive any rights or remedies to which Owner may be entitled, including, without limitation, recovery for breach of contract, professional malpractice, or otherwise, within the applicable Statute of Limitations.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Conceptual Documents.

C. Where defective Design Professional Services and/or Construction (and damage to other Construction resulting therefrom) have been corrected, removed or replaced under this paragraph 12.7, the correction period hereunder with respect to such Construction will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

12.8 Acceptance of Defective Design Professional Services and/or Construction

If, instead of requiring correction or removal and replacement of defective Design Professional Services and/or Construction, Owner prefers to accept it, Owner may do so. Contractor shall pay all costs, losses, and damages (including but not limited to all reasonable fees and charges of engineers, architects, attorneys and other professionals and all litigation costs) attributable to Owner's evaluation of and determination to accept such defective Design Professional Services and/or Construction. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents, and Owner shall be entitled to an appropriate decrease in the Contract Price reflecting the diminished value of the Design Professional Services and/or Construction so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Article 9. If the acceptance occurs after final payment, an appropriate amount will be paid by Contractor to Owner.

12.9 Owner May Correct Defective Design Professional Services and/or Construction

A. If Contractor fails within a reasonable time after written notice from Owner to correct defective Design Professional Services and/or Construction or to remove and replace rejected Construction as required by Owner in accordance with paragraphs 12.6.A or 12.7.A, or if Contractor fails to perform the Construction in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after 14 days written notice to Contractor, correct and remedy any such deficiency.

B. In connection with the corrective and remedial action described herein, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Construction, and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Construction all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's consultants, Owner's representatives, agents, employees, and other contractors access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All costs, losses, and damages (included but not limited to fees and charges of engineers, architects, attorneys and other professionals, all litigation costs and all costs of repair or replacement of work of others) incurred or sustained by Owner in exercising such rights and remedies under this paragraph 12.9 will be charged against Contractor and a Change Order will be issued incorporating the necessary revisions in the Contract Documents, and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Article 9, but shall not be subject to the notice requirement contained in paragraph 9.3.

D. Contractor shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this paragraph 12.9.

ARTICLE 13 – PAYMENTS TO CONTRACTOR AND COMPLETION

13.1 Schedule of Values

The Schedule of Values established as provided in paragraph 2.4.A.3 will serve as the basis for progress payments. Progress payments on account of Unit Price Work will be based on the number of units completed.

13.2 Application for Progress Payment

A. On or about the date established in the Agreement for submission of each

application for progress payment (but not more often than once a month), Contractor shall submit to Owner for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date indicated on the Application and accompanied by supporting documentation as required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect Owner's interest therein, with "Owner as Beneficiary as Interest May Appear" stated on the insurance certificate, all of which will be satisfactory to Owner.

B. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

C. The amount of retainage with respect to progress payments will be set at 5%.

13.3 Progress Payments

A. *Procedure.* Progress payments shall be made by the Owner to the Contractor according to the following procedure:

1. Owner will, within five days of receipt of each Application for Payment, either indicate in writing its acceptance of the Application and state that the Application is being processed for payment, or return the Application to Contractor indicating in writing its reasons for refusing to accept the Application. Not more than thirty days after receipt such Application the amount will become due and when due will be paid by Owner to Contractor.
2. If Owner should fail to pay Contractor at the time the payment of any amount becomes due, then Contractor may, at any time thereafter, upon serving written notice that it will stop the Work within seven days after receipt of the notice by Owner, and after such seven day period, stop the Work until payment of the amount owing has been received. Written notice shall be deemed to have been duly served if sent by certified mail to the last known business address of Owner except as set forth in paragraphs B and C following, Contractor shall be entitled to an extension of the Contract time on account of work stoppage resulting from nonpayment by Owner.
3. Payments due but unpaid shall bear interest at the rate specified in the Agreement.

4. No Progress Payment nor any partial or entire use or occupancy of the Project by Owner shall constitute an acceptance of any Work not in accordance with the Contract Documents.

B. *Reduction in or Refusal to Make Payment.* Owner may refuse to make the whole or any part of any such payment, or because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any previous payment, to the extent that is reasonably necessary to protect Owner from loss because:

1. the Construction is defective, or completed Construction has been damaged by Contractor or its subcontractors requiring correction or replacement; or
2. the Contract Price has been reduced by Change Order; or
3. Owner has been required to correct defective Construction or complete Work in accordance with paragraph 12.9.A; or
4. Owner has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.2.A.; or
5. Claims have been made against Owner on account of Contractor's performance or furnishing of the Work; or
6. Liens have been filed in connection with the Work, except where Contractor has delivered a specific Bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
7. Pursuant to the terms of the Contract Documents, there are other items entitling Owner to a set off against the amount for which application is made.

C. If Owner refuses to make payment of the full amount requested by Contractor, Owner must give Contractor immediate written notice stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount withheld. Owner shall promptly pay Contractor the amount withheld or any adjustment thereto agreed to when Contractor corrects to Owner's satisfaction the reason for such action.

13.4 Contractor's Warranty of Title

Contractor warrants and guarantees that title to all Construction, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

13.5 Substantial Completion

A. When Contractor considers the Work ready for its intended use Contractor shall notify Owner in writing that the Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Owner issue a certificate of Substantial Completion. Promptly thereafter, Owner and Contractor shall make an inspection of the Work to determine the status of completion. If Owner does not consider the Work substantially complete, Owner will notify Contractor in writing giving the reasons therefor. If Owner considers the Work substantially complete, Owner will prepare and deliver to Contractor a certificate of Substantial Completion that shall fix the date of Substantial Completion. There shall be attached to the certificate a list of items to be completed or corrected before final payment. At the time of delivery of the certificate of Substantial Completion Owner will deliver to Contractor a written determination as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, protection of Construction, maintenance, heat, utilities, insurance and warranties and guarantees.

B. Owner will have the right to exclude Contractor from the Site after the date of Substantial Completion, but Owner will allow Contractor reasonable access to complete or correct items on the list of items to be completed.

13.6 Partial Utilization

Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Construction which (i) has specifically been identified in the Contract Documents, or (ii) Owner and Contractor agree constitute a separately functioning and usable part of the Construction that can be used by Owner for its intended purpose without significant interference with Design/ Builder's performance of the remainder of the Construction, subject to the following:

Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Construction which Owner believes to be ready for its intended use and substantially complete. If Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner that such part of the Construction is substantially complete and request Owner to issue a certificate of Substantial Completion for that part of the Construction. Contractor at any time may notify Owner in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Owner to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, Owner and Contractor shall make an inspection of that part of the Work to determine its status of completion. If Owner does not consider that part of the Work to be substantially complete, Owner will notify Contractor in writing giving the reasons therefor. If Owner considers that part of the Work to be substantially complete, the provisions of paragraph 13.5 will apply with respect to certification of Substantial

Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

13.7 Final Inspection

Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Owner will make a final inspection with Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

13.8 Final Payment

A. Application for Payment.

1. After Contractor has completed all such corrections to the satisfaction of Owner and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance, certificates of inspection, record documents (as provided in paragraph 6.12) and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (unless previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Article 5; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to Owner) of all Liens arising out of or filed in connection with the Work.
3. In lieu of such releases or waivers of Liens specified in paragraph 13.8.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and (ii) all payrolls, material and equipment bills and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a Bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Final Payment and Acceptance. If Owner is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Owner will, within thirty (30) days after receipt of the final Application for Payment, give written notice to Contractor that the Work is acceptable. Otherwise, Owner will return the Application to Contractor, indicating in writing the reasons for refusing to process final payment, in which case Contractor shall make the necessary

corrections and resubmit the Application.

C. *Payment Becomes Due.* Thirty days after the presentation to Owner of the acceptable Application and accompanying documentation, in appropriate form and substance and with Owner's notice of acceptability, the amount will become due and will be paid by Owner to Contractor.

13.9 Final Completion Delayed

If, through no fault of Contractor, final completion of the Work is significantly delayed, Owner shall, upon receipt of Contractor's final Application for Payment, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1.A, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Owner with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

ARTICLE 14 – SUSPENSION OF WORK AND TERMINATION

14.1 Owner May Suspend Work

At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 days by notice in writing to Contractor that will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Article 9.

14.2 Owner May Terminate for Cause

A. The occurrence of any one or more of the following events constitutes a default under the Agreement and justifies termination for cause:

1. Contractor's failure to timely commence, prosecute, and/or complete the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the master schedule established under paragraph 2.6.A as adjusted from time to time), and failure to cure same upon notice.
2. Contractor's failure to fully comply with any Laws or Regulations of any public body having jurisdiction, and failure to cure same upon notice.

3. Contractor's violation of any provision of the Contract Documents, and failure to cure same upon notice.

B. If one or more of the events identified in paragraph 14.2.A occur, Owner may, after giving Contractor (and the surety, if any) 14 days written notice, terminate the services of Contractor, take possession of any completed Drawings and Specifications prepared by or for Contractor (subject to the indemnification provisions of paragraph 3.5.A), exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment and machinery at the Site and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all costs, losses and damages sustained by Owner arising out of or resulting from completing the Work (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or other litigation costs) such excess will be paid to Contractor. If such costs, losses and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such costs, losses and damages incurred by Owner will be incorporated in a Change Order. When exercising any rights or remedies under this paragraph Owner shall not be required to obtain the lowest price for the Work performed.

C. Notwithstanding paragraph 14.2.B, Contractor's services will not be terminated if Contractor begins, within 14 days of receipt of notice of intent to terminate, to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice or within a specified time depending upon the failure.

D. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

14.3 Owner May Terminate for Convenience

A. Upon 14 days written notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, elect to terminate the Contract. In such case, Contractor shall withdraw its personnel and equipment, and shall cease performance of any further work under this Agreement, and shall turn over to Owner any Work completed or in process for which payment has been made. In the event Owner terminates for convenience, Contractor shall be paid (without duplication of any items) for:

1. Completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
3. Reasonable expenses directly attributable to termination.

B. Except as provided in this Article, Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination, or for any portion of the Work not performed.

ARTICLE 15 – MISCELLANEOUS

15.1 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by certified mail, postage prepaid, to the last business address known to the giver of the notice. If either party can provide proof of actual notice through other means, such notice shall be deemed acceptable under this Agreement.

15.2 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

15.3 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by:

1. Laws or Regulations; or
2. Any special warranty or guarantee; or
3. Other provisions of the Contract Documents.

15.4 Survival of Obligations

A. All representations, indemnifications, warranties and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Agreement.

End of Standard General Conditions of the Agreement between Owner and Contractor

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PROFESSIONAL FEES

Architectural Consultants

Principal	\$	/hour
Architect	\$	/hour
Project Architect	\$	/hour
CAD Technician	\$	/hour
Clerical	\$	/hour

(Add/delete others as required)

Structural Engineers

Principal	\$	/hour
Structural Engineer	\$	/hour
Project Engineer	\$	/hour
Specifications Writer	\$	/hour
CAD Technician	\$	/hour
Clerical	\$	/hour

(Add/delete others as required)

Mechanical & Electrical Engineers

Principal	\$	/hour
Mechanical Engineer	\$	/hour
Electrical Engineer	\$	/hour
Specifications Writer	\$	/hour
CAD Technician	\$	/hour
Clerical	\$	/hour

(Add/delete others as required)

Civil Engineers

Principal	\$	/hour
Mechanical Engineer	\$	/hour
Electrical Engineer	\$	/hour
Specifications Writer	\$	/hour
CAD Technician	\$	/hour
Clerical	\$	/hour

(Add/delete others as required)

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Small Business Enhancement Program (SBEP) Instructions:

1. It is the policy of the City of Virginia Beach to encourage the participation of SWAM-certified businesses in city procurement activities. In furtherance of this policy the City of Virginia Beach adopted sections 2-224.1 through 2-224.8 of the City Code on February 28, 1995 (commonly referred to as the "Minority Procurement Ordinance"). **City of Virginia Beach Council amended sections 2-224.1 through 2-224.8 of the City Code on April 4, 2006, and sections 2-224.1, 2-224.3, 2-224.4, 2-224.5, 2-224.6, 2-224.7, 2-224.8, and 2-224.11 on June 23, 2009. City Council further amended City Code Sections 2-224.1 to 2-224.8 on September 27, 2011 to enact an Enhancement Program for SWAM-certified Businesses (commonly referred to as the "Small Business Enhancement Program").**
2. For purposes of this section, the following definitions shall apply:
 - a. **SWAM-certified business** means a business that has been certified by the Virginia Department of Minority Business Enterprises or the Metropolitan Washington Airport Authority.
 - b. **Good Faith SWAM-certified business Participation Efforts:** The sum total of efforts by a particular business to provide for the equitable participation of SWAM-certified businesses in the operations and contracts of such business.
 - (1) For past efforts, this sum total shall be comprised of the record of woman- owned, minority-owned, and small business participation over the past two (2) years through employment, retention, and promotion; subcontracting or joint ventures in the private section; or a combination thereof.
 - (2) In connection with the performance of this City of Virginia Beach contract, "good faith efforts" shall mean those measures which are proposed to allow equitable participation of SWAM-certified subcontractors. **Good faith efforts may include, but are not limited to:**

OUTREACH

- Whether the bidder attended any pre-solicitation or pre-bid meeting scheduled by the Purchasing Division or others to inform SWAM-certified firms of contracting and subcontracting opportunities.
- Whether the bidder made use of an outreach list, if applicable.
- Whether the bidder used the services of available minority and women-focused community organizations; minority contractor's groups; local, state and federal

- minority business assistance offices, and other organizations that provide assistance in the recruitment and placement of SWAM-certified businesses.
- Whether the bidder advertised in general circulation, trade association, and minority-focused media, at least ten (10) days before bid opening to request SWAM-certified subcontractor participation on the specified project.
- Whether the bidder contacted SWAM-certified businesses that reasonably could be expected to submit a quote and that are known to the contractor or available on State government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.

DEBUNDLING/RIGHT-SIZING

- Whether the bidder broke down or combined elements for work into economically feasible units to facilitate participation by SWAM-certified businesses.
- Whether the bidder made the construction plans, specifications and requirements available for review by prospective SWAM-certified businesses.

NEGOTIATING

- Whether the bidder negotiated in good faith with interested SWAM-certified businesses and did not reject them as unqualified without sound reasons based on their capabilities.
- Whether the bidder made efforts to assist interested SWAM-certified businesses in obtaining necessary equipment, supplies, materials, or related assistance or services.
- Whether the bidder assisted SWAM-certified businesses in obtaining the same unit pricing with the bidder's suppliers.
- Whether the bidder provided assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
- Whether the bidder pursued negotiating joint venture and partnership arrangements with SWAM-certified businesses in order to increase opportunities for participation by these businesses on public construction or repair projects when possible.

- c. **SWAM-certified business Outreach List:** A list of contractors who are SWAM-certified to complete various areas of work detailed within a given procurement advertised by the City of Virginia Beach. Such list shall be provided, upon request, in its entirety or by relevant category, to any interested party. **The list shall not be deemed to constitute an endorsement by the City of Virginia Beach of the qualifications of any business included on the list.**

- d. **Minority-owned Business:** A business or other entity that is at least fifty-one (51) percent owned and controlled by one or more socially or economically disadvantaged person(s), certified with the Department of Minority Business Enterprise (SWAM). For purposes of this definition, the term "control" shall mean exercising the power to make policy decisions and being actively involved in day-to-day management. Such disadvantage may arise from cultural, racial, chronic economic circumstances or background, or other similar cause. Such persons include, but are not limited to, African American, Hispanic Americans, Asian Americans, Eskimos, and Aleuts.
- e. **Service disabled veteran:** means a veteran who (i) served on active duty in the United States military ground, naval, or air service, (ii) was discharged or release under conditions other than dishonorable, and (iii) has a service-connected disability rating fixed by the United States Department of Veteran Affairs. Such a distinction is not suitable for SWAM-certification alone; however, it may be an enhancement to those SWAM-certified businesses eligible under either the small, woman-owned or minority- owned certification status.
- f. **Service disabled veteran business:** A business concern that is at least 51% owned by one or more service disabled veterans or, in the case of a corporation, partnership, or limited liability company or other entity, at least 51% of the equity ownership interest in the corporation, partnership, or limited liability company or other entity is owned by one or more individuals who are service disabled veterans and both the management and daily business operations are controlled by one or more individuals who are service disabled veterans. Such a distinction is not suitable for SWAM-certification alone; however, it may be an enhancement to those SWAM-certified businesses eligible under either the small, woman-owned or minority-owned certification status.
- g. **SWAM-certified Small business:** means a business, independently owned and controlled by one or more individuals who are U.S. citizens or legal resident aliens, and together with affiliates, has 250 or fewer employees, or annual gross receipts of \$10 million or less averaged over the previous three years. One or more of the individual owners shall control both the management and daily business operations of the small business. Such a business must be certified through SWAM to count their participation on a City of Virginia Beach contract.
- h. **SWAM-certified Woman-owned Business:** A business or other entity that is at least fifty-one (51) percent owned and controlled by a woman

or women. For purposes of this definition, the term "control" shall mean exercising the power to make policy decisions and being actively involved in day-to-day management. Such a business must be certified through SWAM in order for the contractor to count their participation on a City of Virginia Beach contract.

3. **Pursuant to Section 2-224.3, in order for a bid to be given further consideration, the bid must contain a proposed SWAM-certified Subcontracting Participation Plan, CVAB – E2 (“The Plan”) detailing at a minimum:**
 - a. **Whether the contractor intends to utilize any subcontractors;**
 - b. **What, if any, SWAM-certified business subcontractors the contractor intends to utilize;**
 - c. **The work to be performed by each SWAM-certified business;**
 - d. **The estimated dollar amount to be paid to each SWAM-certified business, performing work as a subcontractor;**

4. **The Plan** is a matter of responsiveness:
 - a. If the bidder intends to utilize subcontractors, The Plan required by this section must either: (i) provide for at least 50% of the value of the subcontracted work to be provided by a SWAM-certified business; or (ii) provide detailed documentation showing, with specificity, the efforts undertaken by the prospective contractor to meet the 50% usage requirement. *It is worth noting that such documentation should detail and be representative of the efforts taken to obtain and negotiate agreements for SWAM-certified business participation.*

 - b. **If The Plan does not meet the requirements of subsection 4.a, the entire bid or proposal shall be declared nonresponsive to the solicitation.**

 - b. If, in the statement submitted in response to subsections 4.a., Bidder or Offeror indicates that it has not undertaken any good faith efforts towards SWAM-certified business participation efforts in the past and/or does not intend to undertake any such efforts in connection with the performance of this contract, Bidder or Offeror must also submit a statement setting forth the reasons why it has not undertaken such efforts in the past and/or does not intend to undertake them in connection with the performance of this contract. Such actions do not automatically qualify the Bidder or Offeror for consideration; it merely provides additional information for consideration of Good Faith Efforts strategies utilized to solicit SWAM-

certified firms.

5. Pursuant to 2-224.1, additional information required by City of Virginia Beach Code.

Relevant to active City of Virginia Beach contracts and in addition to The Plan, the contractor is required to have on file with the City Purchasing Division the following information which *should*

be updated annually, via the Prime Contractor Workforce Composition form:

- a. The composition of the contractor's workforce, specifically indicating the percentage of woman, minority, or any other classification employees in their company;
 - b. The percentage of woman, minority, or any other classification employees in management positions, supervisory positions, professional positions, and non- professional positions;
6. The Plan **shall** become a part of the contract with the City of Virginia Beach. The contractor may update The Plan, in the event that unforeseen circumstances arise with relation to any SWAM- certified business identified for participation. Such circumstances include, but are not limited to:
 - Unforeseen closure, or other circumstance which renders the SWAM-certified business inoperable
 - Failure of the SWAM-certified business to perform the contracted scope of work as specified in the executed subcontract agreement
 - Consistent non or poor performance of the specified scope of work as negotiated
 7. The contractor will be required to provide the City of Virginia Beach monthly updates as to payments made to the subcontractors listed on "The Plan", via the **Monthly SWAM-certified Subcontractor Payment Data Sheet (CVAB-E)**. Prior to final payment, each contractor shall submit a report documenting its efforts undertaken in compliance with "The Plan". A contractor may delay monthly payment and will not receive final payment under a contract until he submits documentation of actual SWAM-certified business usage. The report shall include, at a minimum:
 - a. A statement of whether any SWAM-certified business subcontractors were utilized;
 - b. A list of any SWAM-certified business subcontractors utilized;

- c. A brief description of the work performed by each SWAM-certified business subcontractor;
- d. The amount paid to each SWAM-certified business subcontractor; and
- e. Supply monthly updates as to payments made to its SWAM-certified subcontractors via the CVAB-E form (attached for reference); failure to do so could impact your receipt of payment
- f. A contractor may delay monthly payment and will not receive final payment under a contract until he submits the documentation required by this subsection.



**City of Virginia Beach - Purchasing Department
SWAM-certified Subcontracting Participation
Plan**

Form CVAB - E2

Project Name: _____
Bid Number: _____
Prime Contractor: _____
Address: _____
City, State, Zip: _____
Contact Telephone: _____
Contact Email: _____

Total Bid Amount

 Total Subcontracting Amount

 **Total SWAM-certified Subcontracting Amount

**must be equal to or greater than 50% of total subcontracting amount

Intent to utilize subcontractors YES NO (indicate selection by circling correct option)

*******Participation Plan and/or Good Faith Efforts MUST be submitted with the bid*******

SWAM-certified firm	Certification Number	Status (M, S, or W)	Scope of Work to be Performed	Estimated Dollar Amount	DBE certified Y/N	(FOR OFFICE USE ONLY)	Verified

IMPORTANT: THIS PARTICIPATION PLAN MUST BE SUBMITTED WITH YOUR SEALED BID, NO EXCEPTIONS

By signing below, you attest that the above information is true and accurate to the best of your knowledge, in addition you certify your intent to fully engage each SWAM-certified firm listed.

 Authorized Representative (Prime) Print Title Authorized Representative (Prime) Signature Date
 Name

Prime Contractor Workforce Composition Form

Prime Contractor: _____

Submittal Date: _____

	# Employees	% Employees	% Managers	% Supervisors	% Professionals	% Non-Professionals
Woman						
Minority						
Other						
Total						

Descriptions
<p>Manager: Responsible for directing and controlling the work and staff of a business, or of a department within it.</p>
<p>Supervisor: Oversees and guides the work or activities of a group of other employees.</p>
<p>Professional: Requires extensive education in their field (undergraduate degree or higher) or a specialized certification from an accredited agency.</p>
<p>Non-Professional: Not in one of the above categories.</p>



**City of Virginia Beach - Purchasing Department
Monthly SWAM-certified Subcontractor Payment Data Sheet**

Form CVAB - E

Project Name: _____

Bid Number: _____

Prime Contractor: _____

Total Bid Amount

Total Subcontracting Amount

**Total SWAM-certified Subcontracting Amount

**must be equal to or greater than 50% of total subcontracting amount

PAYMENT DATA SHEET - CITY FORM E

SWAM-certified	Certification Number	Status (M, S, or W)	Scope of Work Performed	Contact Information for SWAM-certified Firm (name and telephone number)	Amount Paid this month	Total Amount Paid (YTD)

IMPORTANT: THIS PARTICIPATION PLAN MUST BE SUBMITTED MONTHLY DIRECTLY TO THE MINORITY BUSINESS COORDINATOR

By signing below, you attest that the above information is true and accurate to the best of your knowledge, in addition you certify your intent to fully engage each SWAM-certified firm listed.

Authorized Representative (Prime) Name	Print	Title	Authorized Representative (Prime) Signature	Date
---	-------	-------	--	------

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PROJECT TEAM: PRIMARY TEAM MEMBERS

Contractor _____
Point of Contact _____
Address _____

Phone _____
FAX _____
Email _____

Architectural Firm _____
Point of Contact _____
Address _____

Phone _____
FAX _____
Email _____

Structural Engineer _____
Point of Contact _____
Address _____

Phone _____
FAX _____
Email _____

Electrical Engineer _____
Point of Contact _____
Address _____

Phone _____
FAX _____
Email _____

Mechanical Engineer _____
Point of Contact _____
Address _____

Phone _____
FAX _____
Email _____

Civil Engineer _____
Point of Contact _____
Address _____
Phone _____
FAX _____
Email _____

Facility Operator _____
Point of Contact _____
Address _____
Phone _____
FAX _____
Email _____

(Add/delete others as required)

Surety Company Bond
No. _____

**CITY OF VIRGINIA BEACH
CONTRACT PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, _____

_____ of _____

(hereinafter called the "Principal"), and the _____,

a corporation created and existing under the laws of the State of _____

and having its principal office in the City of _____, and

authorized to transact business in the Commonwealth of Virginia as Surety (hereinafter called the

"Surety") are held and firmly bound unto the CITY OF VIRGINIA BEACH (hereinafter called the

"Owner") in the full and just sum of _____

_____ Dollars (\$ _____), lawful money of the United

States of America, for the payment of which well and truly to be made, the said Principal binds

itself and its successors and assigns, all jointly and severally, firmly by these presents.

WHEREAS, said Principal has entered into a certain written agreement with Owner, designated as

contract number _____ dated as of the _____ day of _____, 201____,

for the purpose of _____

(herein called the "Contract"), for which Contract is by reference made a part hereof.

NOW, THEREFORE, THE CONDITIONS OF THE ABOVE OBLIGATIONS ARE SUCH THAT, if the said Principal and its successors and assigns, or any or either of them shall well and truly and in good sufficient and workmanlike manner perform or cause to be performed said Contract, and any amendment, or extension of or addition thereto and each and every of the covenants, promises, agreements, warranties, and provisions herein stipulated and contained to be performed by said Principal, and complete the same within the period therein mentioned, and in each and every respect, comply with the conditions therein mentioned to be complied with by the said Principal, and fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure so to do and fully reimburse and repay the Owner all expense which it may incur in making good any such default, then these obligations shall be null and void, otherwise they shall remain in full force and effect.

The Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligations of said Surety and of its successors and assigns, and this bond shall in no way be impaired

or affected by any extension of time, modification, omission, addition or change in or to the said contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof; or by any assignment, subletting or other transfer thereof; or of any part thereof, or of any work to be performed or of any moneys due or to become due thereunder; and said Surety, for itself and its successors and assigns, does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors, and other transferees, shall have the same effect as to said Surety and its successors and assigns, as though done or omitted to be done by and in relation to said Principal.

Whenever Principal shall be declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations, there under, the owner shall have the right, at its option, to require the Surety to promptly proceed to remedy the default within 30 days of notice by proceeding or procuring others to proceed with completing the contract with its terms and conditions ; and all reserves, deferred payments, and other funds provided by the Contract to be paid to Principal shall be paid to Surety at the same times and under the same conditions as by the terms of that Contract such funds would have been paid to Principal had the Contract been performed by Principal ; and Surety shall be entitled to such funds in preference to any assignee of Principal of any adverse claimant. Notwithstanding the above, the Owner shall have the right, with the approval of the Surety which shall not be unreasonably withheld, to take over and assume completion of the Contract and be promptly paid in cash by the Surety for the cost of such completion less the balance of the Contract price.

IN WITNESS WHEREOF, the Principal and the Surety have executed this performance bond and have hereunto affixed their seals this ____ day of _____, in the year 201__.

The persons whose signatures appear below hereby represent, warrant, and certify that they are authorized to execute this performance bond on behalf of the Principal and the Surety, respectively.

PRINCIPAL (CORPORATE SEAL)

By _____

SURETY

COUNTERSIGNED: Resident Agent

State of _____

(Mailing Address)

Phone No. _____

By _____

By _____

ATTORNEY-IN-FACT

(CORPORATE SEAL)

(This Bond shall be accompanied with Attorney-in-Fact's authority from Surety)

Surety Bond Company

No. _____

**CITY OF VIRGINIA BEACH
CONTRACT PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, _____
_____ of _____ (hereinafter
called the "Principal"), and the _____, a
corporation created and existing under the laws of the State of _____
and having its principal office in the City of _____, and
authorized to transact business in the Commonwealth of Virginia as Surety (hereinafter
called the "Surety") are held and firmly bound unto the CITY OF VIRGINIA BEACH
(hereinafter called the "Owner") in the full and just sum of _____
_____ Dollars (\$ _____), lawful money
of the United States of America, to be paid to the said Owner, its successors and
assigns, to which payment well and truly to be made we bind ourselves, our heirs,
executors, administrators, successors, and assigns jointly and severally and firmly by
these presents;

WHEREAS, the above-bounden Principal has entered into a certain written
agreement with the Owner, designated as contract number _____
__ and dated the ____ day of _____ 201__, for the
purpose of _____

(herein called the "Contract"), for which Contract is by referenced made
a part hereof;

WHEREAS, it was one of the conditions of the award of the Owner pursuant to
which said Contract was entered into, that these presents shall be executed;
NOW, THEREFORE, the condition of this obligation is such that if the above-
bounden Principal promptly pays all justified claims for labor and material (including
public utility services and reasonable rental of equipment when such equipment is
actually used at the site) performed for or supplied to said Principal or any
subcontractor in the prosecution of the work contracted for then this obligation is to be

void; otherwise, to be and remain in full force and virtue in law.

The "Surety" hereby waives notice of any alteration or extension of time made by the Owner.

IN WITNESS WHEREOF, the Principal and the Surety have executed this payment bond and have hereunto affixed their seals this _____ day of _____, in the year 201__.

The persons whose signatures appear below hereby represent, warrant, and certify that they are authorized to execute this performance bond on behalf of the Principal and the Surety, respectively.

PRINCIPAL (CORPORATE SEAL)

By _____

SURETY

COUNTERSIGNED: Resident Agent

State of _____

(Mailing Address)

Phone No. _____

By _____

By _____

ATTORNEY-IN-FACT

(CORPORATE SEAL)

(This Bond shall be
Accompanied with
Attorney-in-Fact's
authority from Surety)

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City of Virginia Beach
Contractor Performance Evaluation

Section I – General Project Information – Must be completed in its entirety.

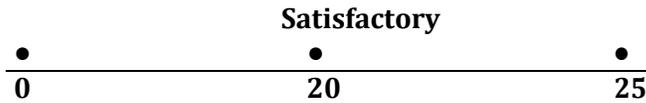
Name of Firm: Name of Prime: Name of Project Manager: Name of Superintendent(s):	Prime Phone: Project Manager Phone: Superintendent(s) Phone:	
Project Manager Department/Title:	Date:	
	Contract Cost Including Change Order: \$	
	Initial Award: Change Order(s) Amt: Final Contract Amt:	
	Project Title & Number:	Contract Start/End Dates:
Description of Project: [Design] [Construction] [Other (specify)]		

Section II – Project Performance

Please rate this contractor’s performance in each of the following areas. If you need additional space, attach additional sheets. If you rate the contractor below “satisfactory” in any area, please provide detailed information to explain the rating assigned. You are not restricted to using the numerical values (points) shown and may scale in between the points shown.

1. Quality of Workmanship/Project Management (0-25 points)

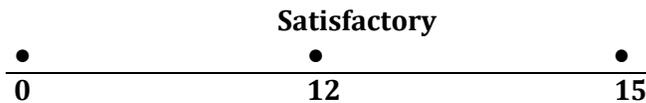
Rate the quality of this contractor’s workmanship. Were there quality-related or workmanship problems? Was the contractor responsive to remedial work required? If so or if not, provide specific examples.



Score: __

2. Scheduling (0-15 points)

Rate this contractor’s performance with regard to adhering to contract schedules. Did this contractor meet the contract schedule or the schedule as revised by approved change orders? If not, was the delay attributable to this contractor? If so, provide specific details/examples.

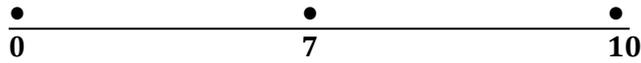


Score: __

9. Working Relationships (0-10 points)

Rate this contractor's working relationships with other parties (i.e., awarding authority, designer, subcontractors, government inspectors, the public, etc.). Did this contractor interact with other parties in a professional manner? If not, give specific examples.

Satisfactory



Score: __

Section III: Legal and Administrative Proceedings

Are you aware of any legal or administrative proceedings, invoked bonds, assessed damages, liquidated damages, demands for direct payment, payment bond claims, contract failures, contract terminations or penalties involving this contractor on this contract? What is the status of any pending litigation? What was the final outcome of any completed litigation? What are the dollar amounts of assessed damages or penalties?

Comments:

Section IV: Evaluation Certification

I certify that the information contained in this evaluation form represents, to the best of my knowledge, a true analysis of this contractor’s performance record on this contract.

I also certify that I have no ties with this contractor either through a business or family relationship.

I have mailed a copy of this completed evaluation form to the contractor on _____.

Enter Date

(Public Awarding Authorities must mail a copy of this completed evaluation form to the contractor.)

Signatures:

_____ Signature	_____ Name and Title of Inspector	_____ Date
_____ Signature	_____ Name of Project Manager	_____ Date
_____ Signature	_____ Division Manager	_____ Date
_____ Signature	_____ Department Director	_____ Date
_____ Signature	_____ Purchasing Agent or Designee	_____ Date

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PART 2

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01 10 00 SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: Virginia Beach Sports Center.
- B. The Project consists of the PPEA of the Virginia Beach Sports Center.
- C. The Work consists of the following: Design and Construction of the New Virginia Beach Sports Center located at the corner of 19th Street and Jefferson Avenue and include all planning, design, permits, fees, inspections, architecture, engineering, and construction services to provide a complete, usable, and fully operational facility.

1.02 PERMITS, FEES AND CHARGES

- A. The Contractor shall pay for all fees and permits related to the construction of the Project including, building, plumbing, mechanical and electrical permits, water and sewer fees, HRSD fees, DFU's, rights-of-way, BP and erosion control (E&S) fees and permits. The Contractor shall be responsible for making application for and obtaining these permits.
 - 1. The Design/Builder will not be required to post a separate bond for Right-of-Way, BMP, or E & S work. The Design Builder shall be responsible for payment of any associated highway inspection fees.

1.03 UTILITY PROVIDER INTERFACE

- A. The Contractor shall coordinate with public utilities including, but not limited to, the following:
 - 1. Dominion Virginia Power
 - 2. Virginia Natural Gas
 - 3. Verizon Telephone
 - 4. Cox Cable/Data
 - 5. City of Virginia Beach Public Utilities

1.04 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: The Owner will award separate contracts for performance of certain construction operations at the site. Those operations will be conducted simultaneously with work under this Contract. These Contracts include will include, but are not limited to, the following:
 - 1. Sanitary Pump Station Relocation
- B. Coordinate and Cooperate fully with separate contractors so that work under those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Work under this Contract requiring installation, hook-up or connection of items furnished by the Owner's separate contractors is indicated in the drawings and specifications.

1.05 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the contractor shall have use of the premises for construction operations within the Limits of Construction designated on the Drawings. The Contractor's use of the premises is limited only by the Owner's right to perform construction operations with its own forces or to employ separate contractors on portions of the project.
- B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to

areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Limits of Construction as designated on the Drawings shall be strictly adhered to. Following notification by the Owner that damage has occurred to property beyond the Limits of Construction, the Contractor shall immediately repair or replace the damaged property at no additional cost to the Owner and at no increase to the Contract Time.

1.06 OCCUPANCY REQUIREMENTS

- A. Partial Owner Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of the new building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.

1.07 CONTRACTOR CONDUCT

- A. The Contractor shall strictly prohibit weapons and drugs on the site at all times.
- B. NO SMOKING shall be allowed within the new buildings at any time.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION - NOT APPLICABLE

END OF SECTION

01 20 00 PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.

1.02 RELATED SECTIONS

1.03 SCHEDULE OF VALUES

- A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic media printout will be considered.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Present required information in typewritten form.
- C. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.
- D. Execute certification by signature of authorized officer.
- E. Submit three copies of each Application for Payment.

END OF SECTION

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01 26 00 MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.

1.03 Related Sections: The following Sections contain requirements that relate to this Section:

- A. Division 1 Section "Allowances" for procedural requirements governing the handling and processing of allowances.
- B. Division 1 Section "Submittals" for requirements for the Contractor's Construction Schedule.
- C. Division 1 Section "Applications for Payment" for administrative procedures governing Applications for Payment.

1.04 MINOR CHANGES IN THE WORK

- A. The Owner will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time.

1.05 CHANGE ORDER PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: The Owner will issue a detailed description of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal requests issued by the Owner are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
 - 2. Within 10 days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Owner for review.
 - a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
 - d. Contractor-Initiated Proposals: When latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Owner.
 - 3. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
 - 4. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - 5. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 6. Comply with requirements in Section "Product Substitutions" if the proposed change requires substitution of one product or system for a product or system specified.
 - 7. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests.

1.06 CHANGE ORDER PROCEDURES

- A. Upon the Owner's approval of a Proposal Request, the Owner will issue a Change Order for signatures of the Owner and the Contractor on the Owner's standard Change Order Form.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01 2600

01 31 13 PROJECT COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
 1. Coordination.
 2. Administrative and supervisory personnel.
 3. General installation provisions.
 4. Cleaning and protection.

1.03 RELATED SECTIONS

- A. Field engineering is included in Section "Field Engineering".
- B. Progress meetings, coordination meetings and pre-installation conferences are included in Section "Project Meetings".
- C. Requirements for the Contractor's Construction Schedule are included in Section "Submittals".

1.04 COORDINATION

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
 1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
- C. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Project Close-out activities.

1.05 SUBMITTALS

- A. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.
1. Post copies of the list in the temporary field office.

PART 2 - PRODUCTS (NOT APPLICABLE).

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.02 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
1. Excessive internal or external pressures.
 2. Excessively high or low temperatures.
 3. Thermal shock.
 4. Excessively high or low humidity.
 5. Air contamination or pollution.
 6. Water or ice.

7. Solvents.
8. Chemicals.
9. Light.
10. Radiation.
11. Puncture.
12. Abrasion.
13. Heavy traffic.
14. Soiling, staining and corrosion.
15. Bacteria.
16. Rodent and insect infestation.
17. Combustion.
18. Electrical current.
19. High speed operation.
20. Improper lubrication.
21. Unusual wear or other misuse.
22. Contact between incompatible materials.
23. Destructive testing.
24. Misalignment.
25. Excessive weathering.
26. Unprotected storage.
27. Improper shipping or handling.
28. Theft.
29. Vandalism.

END OF SECTION 01 3113

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01 31 19 PROJECT MEETINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
 - 1. Pre-Construction Conference.
 - 2. Pre-Installation Conferences.
 - 3. Progress Meetings.
 - 4. Construction schedules are specified in another Division-1 Section.
- B. **PRE-CONSTRUCTION CONFERENCE**
 - 1. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
 - 2. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect progress including such topics as:
 - a. Tentative construction schedule.
 - b. Critical Work sequencing.
 - c. Designation of responsible personnel.
 - d. Procedures for processing field decisions and Change Orders.
 - e. Procedures for processing Applications for Payment.
 - f. Distribution of Contract Documents.
 - g. Submittal of Shop Drawings, Product Data and Samples.
 - h. Preparation of record documents.
 - i. Use of the premises.
 - j. Office, Work and storage areas.
 - k. Equipment deliveries and priorities.
 - l. Safety procedures.
 - m. First aid.
 - n. Security.
 - o. Housekeeping.
 - p. Working hours.
 - 4. Reporting: No later than 7 days after the pre-construction conference date, the Contractor shall distribute copies of minutes of the conference to each party present and to other parties concerned who were not present. Included will be summaries, in narrative form, of all discussions, agreements, decisions and matters concluded.
- C. **PRE-INSTALLATION CONFERENCES**
 - 1. Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Owner of scheduled meeting dates.
 - 2. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
 - a. Contract Documents.
 - b. Options.

- c. Related Change Orders.
 - d. Purchases
 - e. Deliveries.
 - f. Shop Drawings, Product Data and quality control samples.
 - g. Possible conflicts.
 - h. Compatibility problems.
 - i. Time schedules.
 - j. Weather limitations.
 - k. Manufacturer's recommendations.
 - l. Compatibility of materials.
 - m. Acceptability of substrates.
 - n. Temporary facilities.
 - o. Space and access limitations.
 - p. Governing regulations.
 - q. Safety.
 - r. Inspection and testing requirements.
 - s. Required performance results.
 - t. Recording requirements.
 - u. Protection.
3. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.
 4. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

D. PROGRESS MEETINGS

1. Conduct progress meetings at the Project site at regularly scheduled bi-weekly intervals. Coordinate dates of alternate meetings with preparation of the payment request.
2. Attendees: In addition to representatives of Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
3. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project, and topics required by the General Conditions.
4. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
5. Review the present and future needs of each entity present, including such items as:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Deliveries.
 - e. Off-site fabrication problems.
 - f. Access.
 - g. Site utilization.
 - h. Temporary facilities and services.
 - i. Hours of Work.
 - j. Hazards and risks.
 - k. Housekeeping.
 - l. Quality and Work standards.

- m. Change Orders.
 - n. Documentation of information for payment requests.
 - o. Reporting: No later than 3 days after each progress meeting date the Contractor shall distribute copies of minutes of the meeting to each party present and to other parties who should have been present. The Contractor shall also provide a brief summary, in narrative form, of progress since the previous meeting and report, to be attached to the minutes.
6. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

END OF SECTION 01 3119

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01 33 00 SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
 1. Contractor's construction schedule.
 2. Submittal schedule.
 3. Daily construction reports.
 4. Shop Drawings.
 5. Product Data.
 6. Samples.
 7. Quality Assurance Submittals.

1.03 ADMINISTRATIVE SUBMITTALS

- A. A Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
 1. Permits.
 2. Applications for payment.
 3. Performance and payment bonds.
 4. Insurance certificates.
 5. List of Subcontractors.

1.04 RELATED SECTIONS:

- A. Division 1 Section "Applications for Payment" specifies requirements for submittal of the Schedule of Values.
- B. Division 1 Section "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
- C. Division 1 Section "Testing and Inspection Services" specifies requirements for submittal of inspection and test reports.
- D. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

1.05 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- b. All samples, shop drawings, and product data for finish materials requiring color selection or verification by the Owner shall be submitted as follows: All exterior finish materials shall be submitted at one time, and the Owner will take no action on any one submittal until all items have been submitted. All interior finish materials shall also be submitted at one time, and the Owner will take no action on any one submittal until all items have been submitted.
- B. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
 1. Allow 14 days for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Owner will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
 2. If an intermediate submittal is necessary, process the same as the initial submittal.
 3. Allow 14 days for reprocessing each submittal.
 4. No extension of Contract Time will be authorized because of failure to transmit submittals to the Owner sufficiently in advance of the Work to permit processing.
- C. General Contractor's Review: All submittals shall be reviewed and approved by the General Contractor for conformance to the Contract Requirements and coordination with the work of other trades prior to submission to the Owner. All submittals submitted without the General Contractor's stamp of approval will not be considered or reviewed by the Owner and will be returned to the General Contractor.

1.06 SUBMITTAL PREPARATION

- A. Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Transmittal Number.
 - d. Transmittal Item Number.
 - e. Name and address of Architect.
 - f. Name and address of Contractor.
 - g. Name and address of subcontractor.
 - h. Name and address of supplier.
 - i. Name of manufacturer.
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate.

1.07 SUBMITTAL TRANSMITTAL

- A. Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Owner using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
 1. On the transmittal record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
 2. Completion of transmittal form by the Contractor shall be as follows:

- a. Transmittal Number: Number each form consecutively as submitted. Re-submittals shall bear the number of the original submission with a letter suffix (A) added to identify it as the first resubmission. The suffix letters (B), (C), etc. shall be used if additional resubmissions are necessary.
 - b. Date all transmittals.
 - c. Restrict use of each transmittal form to submittals for one section of Specifications per form.
3. Restrict each transmittal form to a submission in only one of the following categories:
 - a. For approval.
 - b. Resubmission for approval.
 - c. Substitution for approval.
 4. Item Number: Number consecutively each item submitted with each transmittal form.
 5. Specification section and/or drawing number which describes or requires the item(s) shall be included for each item submitted.
 6. Subcontractor: Indicate the Subcontractor for items submitted on each transmittal form.
 7. Contractor, or his authorized representative shall sign each transmittal form.
 8. Transmittal Form: Use the sample form at the end of this Section for transmittal of submittals.

1.08 DESIGN/BUILDER'S DESIGN & CONSTRUCTION SCHEDULE

- A. Critical Path Method (CPM) Bar Chart Type Schedule: Prepare a fully developed, critical path method horizontal bar-chart type Design & Construction Schedule. Submit within 15 days of the date established for "Commencement of the Work".
 1. Provide a separate time bar for each significant Design and Construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
 2. Within each time bar indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.
 5. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Owner's procedures necessary for certification of Substantial Completion.
- B. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.
- C. Distribution: Following Owner's response to the initial submittal, print and distribute copies to the Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project temporary field office.
 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
 2. Provide the Owner with a .pdf copy of the initial printed schedule and of the current schedule

after each schedule update as it occurs.

1.09 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.
- B. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.
- C. Prepare the schedule in chronological order; include submittals required during the first 30 days of construction. Provide the following information:
 - 1. Scheduled date for the first submittal.
 - 2. Related Section number.
 - 3. Submittal category.
 - 4. Name of subcontractor.
 - 5. Description of the part of the Work covered.
 - 6. Scheduled date for re-submittal
 - 7. Scheduled date the Owner's final release or approval.
- D. Distribution: Following response to initial submittal, print and distribute copies to the Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project and field office.
 - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- E. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.10 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report, recording the following information concerning events at the site; and submit copies to the and Owner at weekly intervals:
 - 1. List of subcontractors at the site.
 - 2. Approximate count of personnel at the site.
 - 3. High and low temperatures, general weather conditions.
 - 4. Accidents and unusual events.
 - 5. Include measured amount of precipitation at project site, occurring daily during period since previous report.
 - 6. Meetings and significant decisions.
 - 7. Stoppages, delays, shortages, losses.
 - 8. Meter readings and similar recordings.
 - 9. Emergency procedures.
 - 10. Orders and requests of governing authorities.
 - 11. Change Orders received, implemented.
 - 12. Services connected, disconnected.
 - 13. Equipment or system tests and start-ups.
 - 14. Partial Completions, occupancies.
 - 15. Substantial Completions authorized.

1.11 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
 - 1. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - 2. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 30" x 40".
 - 3. Submittals: Submit one correctable translucent reproducible print and two blue- or black-line prints for the Owner's review; the reproducible print will be returned.
- B. Distribution: Furnish copies of final submittal to the installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - 1. Do not proceed with installation until a copy of applicable Shop Drawings is in the installer's possession.
 - 2. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

1.12 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
 - 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 - g. Material Safety Data Sheets (MSDS).
 - 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- B. Submittals: Submit eight copies of each required submittal. The Owner will retain two, and will return the other marked with action taken and corrections or modifications required.
 - 1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - 2. Distribution: Furnish copies of final submittal to the installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.

C. SAMPLES

1. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
 2. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Owner's Sample. Include the following:
 - a. Generic description of the Sample.
 - b. Sample source.
 - c. Product name or name of manufacturer.
 - d. Compliance with recognized standards.
 - e. Availability and delivery time.
 3. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
- D. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
1. Preliminary submittals will be reviewed and returned with the Owner's mark indicating selection and other action.
- E. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit four sets; one will be returned marked with the action taken.
- F. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 2. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- G. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.
 - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.13 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product,

material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.

- C. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- D. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

1.14 OWNER'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Owner will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Owner will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. Final Unrestricted Release: Where submittals are marked "NO EXCEPTION TAKEN," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 - 2. Final-But-Restricted Release: When submittals are marked "MAKE CORRECTIONS NOTED," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 - 3. Final-But-Restricted Release Requiring Resubmission: When submittals are marked "AMEND & RESUBMIT," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance. Revise or prepare new submittal in accordance with the notations; resubmit without delay.
 - 4. Returned for Resubmittal: When submittal is marked "REJECTED," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "REJECTED" to be used at the Project site, or elsewhere where Work is in progress.
 - 5. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "RECEIPT ACKNOWLEDGED".
- C. Unsolicited Submittals: The Owner will return unsolicited submittals to the sender without action.

PART 2 - PRODUCTS (NOT APPLICABLE).

PART 3 - EXECUTION (NOT APPLICABLE).

END OF SECTION 01 3300

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01 42 19 REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DEFINITIONS

- A. General: Basic Contract definitions are included in the General Conditions.
- B. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.
- C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Owner," "requested by the Owner," and similar phrases.
- D. Approve: The term "approved," where used in conjunction with the Owner's action on the Contractor's submittals, applications, and requests, is limited to the Owner's duties and responsibilities as stated in General and Supplementary Conditions.
- E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. Furnish: The term "furnish" means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
- H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
- I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor, for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. The term "experienced" when used with the term "Installer" means having a minimum of 5 previous Projects similar in size and scope to this Project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.
 - 2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.
 - 3. Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
 - a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
 - 4. Project Site is the space available to the Contractor for performance of construction

activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.

5. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.03 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
 1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the full context of the Contract Documents so indicates.
 2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
 - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.
- B. INDUSTRY STANDARDS
 1. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.
 2. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.
 3. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Owner for a decision before proceeding.
 - a. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Owner for a decision before proceeding.
 4. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - a. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
 5. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

1.04 GOVERNING REGULATIONS/AUTHORITIES

- A. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

1.05 SUBMITTALS

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01 4219

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01 45 23 TESTING AND INSPECTION SERVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for Quality Control Services.
- B. Certain structural components of the Project will be subject to the requirements for Special Inspections.
- C. Quality control services not included in this Section are required in the following sections:
Testing Adjusting and Balancing
- D. Quality control services include inspections and tests and related actions including reports, performed by the Special Inspector or independent agencies, governing authorities, and the Contractor.
- E. The Contractor shall procure and bear all costs of the Special Inspector or Special Inspectors, except as otherwise noted. The Special Inspector will be the manager of the special inspection process. He or she checks the certification of all other inspecting agents required by special inspection and coordinates their activities. The Special Inspector carries the exclusive responsibility for assuring that the inspections indicated are performed.
- F. Special Inspector, inspection and testing services are required to verify compliance with requirements specified or indicated. These services in no way relieve the Contractor of responsibility to furnish materials and construction in full compliance with Contract Document requirements.
- G. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
- H. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.

1.03 RESPONSIBILITIES

- A. Contractor's Responsibilities: The Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by the Special Inspector or by an independent agency. Costs for these services shall be included in the Contract Sum.
 - 1. The Contractor shall engage and pay for the services of the Special Inspector or an independent agency, as specified, to perform inspections and tests.
 - 2. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.
 - a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

- b. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to allow for completion of quality tests and for the assignment of personnel. Auxiliary services required include but are not limited to:
 - c. Providing access to the Work and furnishing labor and facilities necessary to facilitate inspections and tests at the Project or other sources of material.
 - d. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 - e. Provide and maintain for the sole use of the Special Inspector or Special Inspectors adequate facilities for safe storage and proper curing of test specimens on the Project site.
 - f. Providing the Special Inspector with a preliminary design mix proposed for use for materials mixes that require control by the Special Inspector.
 - g. Security and protection of samples and test equipment at the Project site.
 - h. The Contractor shall designate a representative (the superintendent or an assistant to the superintendent) who shall be the direct point-of-contact with the Special Inspector during each phase of the work. Discrepancies noted during the progress of the work will be reported to the Contractor's representative for corrective action. Communications given by the Special Inspector to the Contractor's representative shall be as binding as if given to the Contractor.
- C. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
 1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.04 SUBMITTALS

- A. The Special Inspector or the independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Owner, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.
 1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
 2. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretations of test results.
 - j. Ambient conditions at the time of sample-taking and testing.
 - k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on retesting.

1.05 QUALITY ASSURANCE

- A. Qualification for Special Inspector: The Special Inspector shall be a Registered Professional

Engineer, Licensed in the Commonwealth of Virginia, experienced in performing special inspections and shall be approved by the Owner.

- B. Qualification for Testing Agencies: Inspection and testing service agencies, including independent testing laboratories, shall comply with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and shall specialize in the types of inspections and tests to be performed.
 - 1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.
 - 2. Each Independent Inspection and Testing Agency engaged on the Project shall demonstrate that it has the experience and capability to conduct the required field and laboratory testing without delaying the progress of the work.

PART 2 - PRODUCTS (NOT APPLICABLE).

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample-taking and similar services the Contractor shall repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."
- B. The Contractor shall protect construction exposed by or for quality control service activities, and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01 4523

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01 51 00 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Temporary electric power and light.
 - 3. Temporary heat.
 - 4. Telephone service.
- C. Support facilities include, but are not limited to, the following
 - 1. Field offices and storage sheds.
 - 2. Temporary project identification signs and bulletin boards.
 - 3. Waste disposal services.
 - 4. Rodent and pest control.
 - 5. Construction aids and miscellaneous services and facilities.
 - 6. Two temporary portable toilets, one for the contractors and one for sole use of the Owner's personnel
 - 7. Temporary modular office space for Owner's Construction Administrator.
- D. Security and protection facilities include, but are not limited to the following:
 - 1. Barricades, warning signs, and lights.
 - 2. Environmental protection.

1.03 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Within fifteen (15) days of the date established for commencement of the Work, submit a schedule indicating implementation and termination of each temporary utility.

1.04 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 - 1. Building code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, fire department, and rescue squad rules.
 - 5. Environmental protection regulations.
- B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
 - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

1.06 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Specific administrative and procedure minimum actions are specified in this section, as extensions of provisions in General Conditions and other contract documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amount of temporary work required, and no omission from this section will be recognized as an indication by the Architect or Engineer that such temporary activity is not required for successful completion of the work and compliance with requirements of contract documents. Provisions of this section are applicable to, but not limited to utility services, construction facilities, security/protection provisions and support facilities.
- B. It shall be the responsibility of the Contractor to determine the applicable requirements to initiate and maintain all required safety and health programs, and to follow the recommendations of Federal, State and Local officials.

1.07 ELECTRIC POWER

- A. Provide temporary power at the site. Power shall be of ample capacity and proper characteristics to meet all power and lighting requirements during the entire construction period.
- B. Provide all necessary temporary wiring and electrical equipment, including distribution centers for connection of construction type extension cords by the various trades. Provide a minimum of one 220 Volt, 1 phase, 60 Hertz, 200 ampere outlet in each floor area of the building addition. Pay for current used during construction period. Use of power in existing building will not be allowed unless separately metered and billed to General Contractor.

1.08 LIGHTING

- A. Provide all temporary lighting necessary for safe movement of authorized persons through the project, public safety, protection from unauthorized entry, and warnings for hazardous conditions and ample lighting to see work being performed.
- B. Provide temporary lighting as required for proper execution of each phase of the work in each space. Lighting levels shall be adequate and appropriate for installation and inspection of the work being done as determined by the Owner's Representative. If the Owner's Representative judges the lighting inadequate, the work shall be stopped until proper lighting is provided.

1.09 HEAT AND VENTILATION

- A. Provide heat and ventilation as required to facilitate the progress of the work, to protect products from dampness and cold, to prevent condensation on surfaces, to remove excess moisture from the building, and to provide suitable temperature and humidity requirements stated in the technical sections of these specifications.

1.10 TELEPHONE SERVICE

- A. Obtain and pay for one (1) DSL telephone in the Owner's temporary office during the entire construction period, adequate for voice and data transmittal.
- B. Contractor's superintendent shall maintain a mobile telephone 24 hours a day during construction.

1.11 WATER SERVICE

- A. Contractor shall provide means necessary to provide water to site for construction. Include separate water meter, if necessary to have water bill forwarded to Contractor during construction period.
- B. Provide backflow preventors at water taps to prevent contamination of existing service. Provide temporary piping for fittings, including hose bibbs in convenient locations for connection of hoses by the various trades.
- C. The Contractor shall pay for all water used for construction purposes and shall take a meter reading verified by Owner's representative prior to commencement of construction activities.

1.12 SANITARY FACILITIES

- A. Provide and maintain temporary toilets as necessary for use of all construction personnel. Place toilets in convenient locations, and maintain in sanitary condition. Provide portable container or sanitary bubbler drinking fountains. Provide one toilet exclusively for Owner personnel.
- B. Provide adequate washing facilities for all construction personnel. Place in convenient locations.

1.13 PROJECT SIGN

- A. Project Identification and Temporary Signs: Prepare project identification and other signs of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. Do not permit installation of unauthorized signs.
- B. Project Identification Sign: Provide and erect in an approved location and maintain in good condition one, two-faced, wood project sign. The final design shall be approved by the Owner.
- C. Engage an experienced sign painter to apply graphics. Comply with details indicated.

1.14 FIELD OFFICES AND STORAGE SHEDS

- A. Contractor's Temporary Field Offices:
 - 1. Provide and maintain temporary field office trailer at the site, equipped with electric source heat, air conditioning, windows, mini-blinds and screens on all windows, 5' x 5' platform at trailer floor height outside of door with railings, stairs platform with handrails, lighting, telephone for each office with separate lines, plan desks, plan files and writing desks. Trailer shall be in place and usable within 30 days after notice to proceed and shall remain on site for duration of the project, including the punch list period. Comply with directions of city arborist with regard to proximity of trees. The trailer shall be set in a high area with a bituminous or gravel paved parking area and walkway to the trailer. Temporary facilities shall be inspected and approved as required by Virginia Beach City Building Inspector.
 - a. Provide space in the Contractor's field office for project meetings equipped with 2 tables not less than 3 feet x 8 feet and with seating for not less than 14 people.
 - b. The offices shall have a window security screening and doors with dead-bolt locks.
 - c. Temporary Field Offices shall have interior toilet and washing facilities and drinking water.

- A. Owner Representative's Temporary Field Offices:

1. Provide and maintain temporary field office trailer at the site for the Owner's Representatives, equipped with electric source heat, air conditioning, windows, mini-blinds and screens on all windows, 5' x 5' platform at trailer floor height outside of door with railings, stairs platform with handrails, lighting, telephone for each office with separate lines, and one DSL or coaxial line to be shared by both offices. Trailer shall be in place and usable within 30 days after notice to proceed and shall remain on site for duration of the project, including the punch list period. Comply with directions of city arborist with regard to proximity of trees. The trailer shall be set in a high area with a bituminous or gravel paved parking area and walkway to the trailer. Temporary facilities shall be inspected and approved as required by Virginia Beach City Building Inspector.
 - a. Provide two 150 sq. ft. office spaces each equipped with desk, office chair, 5-drawer file cabinet, and plan review table.
 - b. Provide one 250 sq; ft. conference area equipped with 2 tables not less than 3 feet x 8 feet and with seating for not less than 14 people.
 - c. The offices shall have a window security screening and doors with dead-bolt locks.
 - d. Temporary Field Offices shall have interior toilet and washing facilities and drinking water.
 - e. Provide one notebook computer with docking station and accessory 24" flat panel monitor and accessory keyboard and optical mouse.
 - f. Provide one 3-in-1 color printer, copier, scanner machine with eight (8) color and eight (8) B&W ink cartridges.
- B. Provide and maintain weathertight storage sheds as required. Sheds shall be heated and ventilated as required for the types of materials stored therein.
- C. Subcontractors shall provide offices and storage sheds as required. Sheds shall be heated and ventilated as required for the types of materials stored therein.

1.15 PROTECTION OF THE WORK

- A. Use all means necessary to protect the site, the building, and all materials stored or installed at all times, including the employment of a watchman or guard when required. Entire construction site shall be enclosed with a 6-0" high chain link fence. Remove the fence at completion of the work.
- B. Provide weather protection as described in this specification for any penetrations made in the existing building.

1.16 REMOVAL

- A. Unless otherwise directed by Owner, temporary facilities shall remain through duration of project, including punch list period.
- B. Remove all temporary facilities from the site and leave the site and affected off-site areas in a clean and finished condition prior to final acceptance.

1.17 OSHA

- A. Comply with all requirements of the Occupational Safety and Health Act for job safety and health standards.

1.18 CONSTRUCTION AIDS

- A. Provide all temporary facilities necessary for the proper execution of the work. Provide guard rails and warning lights as required for job safety.

1.19 TEMPORARY PORTABLE TOILET

- A. Provide minimum of two (2) temporary portable toilets.

PART 2- PRODUCTS

2.01 MATERIALS

- A. General: Provide new materials. If acceptable to the Owner, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."
- C. For job-built temporary shops and sheds within the construction area, provide UL labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
- D. For signs and directory boards, provide exterior-type, Grade B-B high density concrete form overlay plywood of sizes and thicknesses indicated.
- E. Roofing Materials: Provide UL Class A standard-weight asphalt shingles or UL Class C mineral-surfaced roll roofing on roofs of job-built temporary offices shops, and sheds.
- F. Paint: Comply with requirements of Division 9 Section "Painting."
- G. For job-built temporary offices, shops, sheds, fences, and other exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.
- H. For sign panels and applying graphics, provide exterior-grade alkyd gloss enamel under exterior primer.
- I. Tarpaulins or Vinyl Wall Covering: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- J. Water: Provide potable water approved by local health authorities.

2.02 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Owner, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4-inch heavy-duty, abrasion-resistant flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge. Leaking hoses must be repaired as soon as possible.
- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded, UL labeled extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio. Power cords with broken insulation or ground plug to be removed when discovered as soon as possible.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. Temporary Offices: Provide prefabricated or mobile units with lockable entrances, operable

windows and screens with mini-blinds, and serviceable finishes. Provide security package for window and door protection with security mesh or bars on windows. Provide heated and air-conditioned units on foundations adequate for normal loading.

- H. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- I. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
- J. Comply with NEPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
 - 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
 - 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner. The Owner will not accept cost or use charges as a basis of claims for Change Orders.
- B. Water Service: Install distribution piping of sizes and pressures adequate for construction until permanent water service is in use. Obtain city approval and permits.
 - 1. Sterilization: Sterilize temporary water piping prior to use
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switch gear.
 - 1. Install electric power service underground, except where overhead service must be used.
 - 2. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
- D. Temporary Lighting: When overhead floor or roof deck has been installed, provide temporary lighting with local switching.
 - 1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.

- E. Temporary Heat: Provide temporary heat required by construction activities for curing or drying of completed installations or for protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
 - 1. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP-gas or fuel-oil heaters with individual space thermostatic control.
 - 2. Use of gasoline-burning space heaters, open flame. or salamander heating units is prohibited. Do not use kerosene heat for concrete freeze protection.
- F. Temporary Telephones: Provide temporary telephone service throughout the construction period for all personnel engaged in construction activities. Install telephones and fax machines on a separate line for each temporary office as previously specified.
- G. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
 - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- H. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.03 SUPPORT FACILITIES INSTALLATION

- A. Locate field office, storage sheds, and other temporary construction and support facilities for easy access.
 - 1. Maintain support facilities until directed by Owner to remove.
- B. Field Offices: Provide insulated, weathertight temporary offices.
- C. Storage and Fabrication Sheds: Install storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces.
- D. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 2 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations, and construction free of water.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Temporary, Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
 - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
 - 4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- B. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for

erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.

- C. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- D. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.05 CLEANING UP

- A. No rubbish shall be allowed to accumulate or be allowed to remain on the premises or job site. Particular attention shall be given to this requirement.
- B. Care shall be taken by all workmen not to mark, soil, or otherwise deface any exposed surface or finish material. In the event that any finish becomes defaced in any way by machines or workmen, the Contractor shall be responsible for cleaning and restoring such surfaces to their original condition.
- C. Each subcontractor engaged upon the work shall bear his full responsibility in cleaning up immediately upon completion of his work, and he shall cooperate with the Contractor to that effort. This shall in no way be construed to relieve the Contractor of his responsibility for leaving all work in a clean and proper condition, satisfactory to the Owner.
- D. Before final acceptance of the Work, all ceilings, wall surfaces, floors, windows and door frames, hardware, metal work, glass equipment, etc. shall be thoroughly cleaned. Glass shall be cleaned on both sides. Glass damaged in cleaning shall be replaced by the Contractor at his expense.
- E. Dumpster to be on site within 30 days of Notice to Proceed.

3.06 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a twenty-four (24)-hour basis where required to achieve indicated results and to avoid possibility of damage.
 - 2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Owner requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion of each phase. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.
 - 2. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:

- a. Replace air filters and clean inside of ductwork and housings.
- b. Replace significantly worn parts and parts subject to unusual operating conditions.
- c. Replace lamps burned out or noticeably dimmed by hours of use.
- d. Clean all existing surfaces soiled by Contractor's operations.
- e. Repair all finishes and other items that have been damaged by the Contractor's operations.

END OF SECTION 01 5100

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01 61 00 MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

1.03 RELATED SECTIONS

- A. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."
- B. Standards: Refer to Section "Definitions and Standards" for applicability of industry standards to products specified.
- C. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Product Substitutions."

1.04 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent. Products used for this Project shall be new.
 - a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work. Materials shall be new.
 - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping. Equipment shall be new.

1.05 SUBMITTALS

- A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Owner. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
- B. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.
- C. Form: Prepare the product listing schedule with information on each item tabulated under the following column headings:
 - 1. Related Specification Section number.
 - 2. Generic name used in Contract Documents.
 - 3. Proprietary name, model number and similar designations.
 - 4. Manufacturer's name and address.
 - 5. Supplier's name and address.
 - 6. Installer's name and address.
 - 7. Projected delivery date, or time span of delivery period.

- D. Completed Schedule: Within 30 days after date of commencement of the Work, submit 6 copies of the completed product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
- E. Owner's Action: The Owner will respond in writing to the Contractor within 14 days of receipt of the completed product list schedule. No response within this time period constitutes no objection to listed manufacturers or products, but does not constitute a waiver of the requirement that products comply with Contract Documents. The Owner's response will include the following:
 - 1. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.06 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.
- D. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.
- E. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - 1. Name of product and manufacturer.
 - 2. Model and serial number.
 - 3. Capacity.
 - 4. Speed.
 - 5. Ratings.

1.07 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
 - 1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
 - 3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
 - 4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
 - 5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
 - 6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
 - 7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
 - 1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 - 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
 - 1. Specification Requirements: Where three or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 - a. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 - 2. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 - 3. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
 - 4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
 - a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.
 - 5. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
 - 6. Visual Matching: Where Specifications require matching an established Sample, the Owner's decision will be final on whether a proposed product matches satisfactorily.
 - a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.
 - 7. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS:

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
 - 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01 6100

01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

- A. The City of Virginia Beach requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as required to meet LEED Certification requirements.
- D. LEED BD+C, version 4.
- E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.
- F. Contractor shall develop and implement a Waste management Plan designed to implement these requirements, and as a minimum identifies the materials to be diverted from disposal and whether the material will be stored on-site or co-mingled.
- G. Methods of trash/waste disposal that are not acceptable are:
 - 1. Burning on the project site.
 - 2. Burying on the project site.
 - 3. Dumping or burying on other property, public or private.
 - 4. Other illegal dumping or burying.
- H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, State and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED SECTIONS

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

1.03 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition (C&D) Debris: Includes waste and recyclables generated from construction, renovation and demolition or deconstruction of pre-existing structures. Land clearing debris including soil, vegetation, rocks, etc. are not to be included.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The collection, reprocessing, marketing and use of materials that were diverted or recovered from the solid waste stream.

- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: A strategy to return materials to active use in the same or a related capacity.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.
- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

- A. Once the Owner has determined which of the landfill alternatives addressed in the Proposal above are acceptable, prepare and submit Waste Management Plan; submit within 10 calendar days after notification by the Owner.
- B. Waste Management Plan: Include the following information:
 - 1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
 - 2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
 - 3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
 - 4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
 - 5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
 - 6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.
- C. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
 - 1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
 - 2. Submit Report on a form acceptable to the Owner.
 - 3. Landfill Disposal: Include the following information:
 - a. Identification of material.
 - b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
 - c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
 - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 - 4. Incinerator Disposal: Include the following information:
 - a. Identification of material.
 - b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to

- incinerators.
- c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
- d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
- 5. Recycled and Salvaged Materials: Include the following information for each:
 - a. Identification of material, including those retrieved by installer for use on other projects.
 - b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
 - c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
 - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 - e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
- 6. Material Reused on Project: Include the following information for each:
 - a. Identification of material and how it was used in the project.
 - b. Amount, in tons or cubic yards.
 - c. Include weight tickets as evidence of quantity.
- 7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.
- 8. Maintain the required Data of the LEED BD+C. Version 4. Submit data as required to LEED for review and certification. Resolve any discrepancies or comments resulting from the LEED (USGBC) review.

PART 3 EXECUTION

2.01 WASTE MANAGEMENT PROCEDURES

- A. See Division 1 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
- B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, and the Owner.

- C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.
- D. Meetings: Discuss trash/waste management goals and issues at project meetings.
 - 1. Pre-bid meeting.
 - 2. Pre-construction meeting.
 - 3. Regular job-site meetings.
- E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
 - 1. Provide containers as required.
 - 2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
 - 3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.
- F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.
- G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.
- H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.
- I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.
- J. Documentation: Maintain and submit for US Green Building Council (USGBC) review all documentation required by LEED BD+C version 4.

END OF SECTION

01 77 19 PROJECT CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
 1. Inspection procedures.
 2. Project record document submittal.
 3. Operating and maintenance manual submittal.
 4. Submittal of warranties.
 5. Final cleaning.

1.03 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 2. Advise Owner of any pending insurance change-over requirements.
 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 5. Submit record drawings, copies of operations and maintenance manuals, and similar final record information. Copies of the operations and maintenance manuals shall be furnished to Owner 14 days before date operation and maintenance instructions and demonstrations are to occur.
 6. Deliver tools, spare parts, extra stock, and similar items.
 7. Advise the Owner's personnel of change-over in security provisions.
 8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel.
 9. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 10. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Contractor's Inspection Report: Prepare a complete list of all work remaining to be completed, deficiencies to be corrected, and any other items or requirements not yet fulfilled.

- C. Inspection Procedures: On receipt of a request for inspection and the Contractor's Inspection Report, the Owner will either proceed with inspection or advise the Contractor of unfilled requirements. The Owner will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
1. The Owner will repeat inspection when requested and assured that the Work has been substantially completed.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Owner's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Owner.
 4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
 5. Submit Consent of Surety to Final Payment.
 6. Submit a final liquidated damages settlement statement.
 7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 8. See Project Closeout Checklist at the end of this Section for additional requirements.
- B. Reinspection Procedure: The Owner will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner.
1. Upon completion of reinspection, the Owner will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
 2. Only if absolutely necessary, will the reinspection procedure be repeated. It is the Contractor's responsibility to inspect the Work and have all items completed prior to requesting a reinspection. All Owner cost incurred beyond the initial reinspection shall be borne by the Contractor.

1.05 RECORD DOCUMENT SUBMITTALS

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Owner's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.

2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
 3. Note related Change Order numbers where applicable.
 4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.
1. Upon completion of the Work, submit record Specifications to the Owner for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
1. Upon completion of the Work, submit complete set of record Product Data to the Owner for the Owner's records.
- E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Owner and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.
- F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Owner for the Owner's records.
- G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:
1. Emergency instructions.
 2. Spare parts list.
 3. Copies of warranties.
 4. Wiring diagrams.
 5. Recommended "turn around" cycles.
 6. Inspection procedures.
 7. Shop Drawings and Product Data.
 8. Fixture lamping schedule.
 9. Material Safety Data Sheets (MSDS) for all applicable products incorporated into the construction.
 10. Room by room paint materials schedule.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES

- A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Two weeks prior to all demonstrations, such as the mechanical and electrical controls and equipment, plumbing, PA system, TV system, fire alarm and kitchen equipment, the Owner shall have in his possession all related manuals of operation and maintenance for the system. The Owner shall be notified one week in advance of intended time and date of all above demonstrations. Include a detailed review of the following items:
1. Maintenance manuals.
 2. Record documents.
 3. Spare parts and materials.
 4. Tools.
 5. Lubricants.
 6. Fuels.
 7. Identification systems.
 8. Control sequences.
 9. Hazards.
 10. Cleaning.
 11. Warranties and bonds.
 12. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following procedures:
1. Start-up.
 2. Shutdown.
 3. Emergency operations.
 4. Noise and vibration adjustments.
 5. Safety procedures.
 6. Economy and efficiency adjustments.
 7. Effective energy utilization.
 8. Trouble-shooting procedures and corrections (explain most frequent causes of failure).

END OF SECTION 01 7719

01 78 36 WARRANTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.
 - 1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
 - 2. General closeout requirements are included in Section "Project Closeout."
 - 3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Technical Sections of the Specifications.
 - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.03 DEFINITIONS

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.04 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.05 SUBMITTALS

- A. Submit written warranties directly to the Owner, with copies to the Owner prior to the date of final payment.
 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Owner within fifteen days of completion of that designated portion of the Work.
- B. Form of Submittal: At Final Completion compile three (3) copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- C. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, one for each set, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
 2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS, the Project title or name, and the name of the Contractor.
- D. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (NOT APPLICABLE).

PART 3 - EXECUTION (NOT APPLICABLE).

END OF SECTION 01 7836

PART 3

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PART 3 ATTACHMENTS

- 1 CITY OF VIRGINIA BEACH PUBLIC WORKS FACILITIES DESIGN GUIDELINES
- 2 CITY OF VIRGINIA BEACH PUBLIC WORKS BUILDING MAINTENANCE
CONSTRUCTION STANDARDS
- 3 EXAMPLE INTERIM AGREEMENT

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City of Virginia Beach

Public Works Facilities Design Guidelines for Municipal Projects

General:

1. Designer shall attend a meeting with Public Works Building Maintenance to discuss the building maintenance standards applicable to the project.
2. Designer shall review and discuss project construction scheduling with the City Project Manager.
3. The Red Zone process shall be required on large and complex projects as determined by the FD&C Division.
4. New Facility Construction project shall design to Energy Star Certification.
5. Projects to be registered with the US Green Building Council shall not be design in excess of LEED Silver.
6. Designer shall provide cost estimates early, with each design stage submission, and verify estimate against the project construction budget.
7. Designer shall attend a meeting with the City IT department to address phone and network requirements. Estimates in excess of the project construction budget shall not be acceptable.
8. All design review and submission fees required by the Development Services Center and Building Code Official shall be included in the design scope of services and shall be paid by the designer.
9. Designer shall provide Special Inspections Services Agent 1 and Agent 2 for concrete testing, steel, etc.
10. Designer shall provide a redline set of drawings to the project manager at each design review submittal.
11. Designer shall coordinate all access panels associated with the plumbing, mechanical, and electrical design.
12. Designers shall use the most current design standards established by Planning in effect at the time of the negotiated agreement.

Architectural:

1. A Knox box is required on all City buildings.
2. Minimize all glazing to increase energy conservation.
3. Provide termite treatment on all additions and new facilities.
4. Incorporate the recommendations identified in the geotechnical report for the building and parking lot undercut into the project drawings and details.
5. Coordinate all plumbing, mechanical, electrical, and interior designers FF&E layouts to provide maintenance access in walls and above ceilings.

Civil:

1. Designer shall meet with PW Storm Water Engineering staff and determine the tail water conditions for design.
2. Designer shall meet with DSC, PW Stormwater Operations, and PW Engineering Compliance Office and hold a preliminary engineering review meeting to discuss stormwater quantity and

quality issues as well as preferred Storm Water Management Facilities to be used on the project.

3. Land Disturbing that meet the requirements for obtaining Construction General Permits shall use the Department of Public Works Standard Storm Water Pollution Prevention Plan Template.
4. Projects with Storm Water Management Facilities (SWMF) shall have sealed record drawings for the SWMF and contain the required stormwater facility certification statement.
5. Project land disturbances that require a Storm Water Pollution Prevention Plans (SWPPP) shall use the Department of Public Works Supplemental Specification for Contractor to Obtain Construction General Permit. Located at: <https://www.vbgov.com/government/departments/public-utilities/Engineering-Construction/Standards-Forms/Documents/Supplemental%20Specification%20for%20Contractor's%20Construction%20General%20Permit%20-%20Revised%207-15-2015.pdf>
6. Stormwater post construction sealed record drawings are required for all stormwater piping, structures, and BMP's installed on a project prior to submitting a Notice of Termination for Construction General Permits.
7. Start Dominion Energy Easement Plats early.
8. Incorporate the recommendations identified in the geotechnical report into the design to include building and parking lot undercut.
9. All plumbing piping outside of the property right-of-way must meet the requirements of the Uniform Plumbing Code for its intended use.
10. Drawings must show all private utilities and coordinate with Dominion Energy and Virginia Natural Gas (VNG).

Landscape:

1. Designer shall meet with Parks and Recreation Landscape Operation's Group prior to beginning landscape design.

Structural:

1. Essential facilities (Police and Fire/EMS Stations) shall use International Building Code (IBC) design guidance for fastest mile/hour upper level sustained wind speed [134 mph, 3 second gust] for a category 2 Hurricane.
2. Incorporate the recommendations identified in the geotechnical report into the design to include building and parking lot undercut.

Elevators:

1. Follow City non-proprietary elevator controller specification.

Information Technology:

1. Meet early with IT to determine the size of the data equipment room and electrical requirements.
2. Package Terminal Air Conditioner (PTAC) or Variable Air Volume (VAV) terminal box shall be used in the data equipment room.
3. Assure there is an allowance for the Bi-Directional Amplifier (BDA) antenna system.

Fire Protection:

1. Verify fire dampers are indicated at fire rated walls.
2. Provide sprinkler system in all occupied City buildings.
3. Approved Fire Protection Systems are: Notifier Fire Warden NFW2-100; Gamewell / FCI 7100; or Siemens Cerberus Pro FC 922.

Plumbing:

1. All plumbing piping outside of the property right-of-way must meet the International Plumbing Code.
2. All Plumbing piping within the City Right-of-Way shall comply with Public Utility Standards.

Mechanical:

1. Projects proposing geothermal systems shall require a Life Cycle Costs Analysis to 50 years.
2. The Direct Digital Controls (DDC) systems basis of design and BACNET compatible shall be Siemens Desigo.
3. Assure that all mechanical equipment is accessible for, repair, replacement, filter replacement, and general maintenance.
4. Place overhead HVAC equipment, such as heat pumps, VAV boxes, air handling units, etc., out of occupied spaces. These units should be located in corridors and open spaces where access to the equipment does not inconvenience occupants or make it difficult for the individual servicing the units.
5. Mechanical design shall be in accordance with the International Mechanical Code and Building Maintenance Standards.

Electrical:

1. For access control use the Lenel OnGuard System standards, and hold early discussion with the Facilities Maintenance Office.
2. Lighting shall meet the standards and requirements established by the Illuminating Engineers Society. All interior and exterior lighting shall be LED.

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**CITY OF VIRGINIA BEACH PUBLIC WORKS
BUILDING CONSTRUCTION STANDARDS**

Architectural

1. All new construction and renovations to incorporate all ADA codes and standards.
2. Designs to eliminate, whenever possible, all sky lights, solariums, flat roofs, and internal gutters.
3. Design adequate storage space for occupants, maintenance, and custodial use; space to be separate from mechanical and electrical rooms / telephone room.
4. All flat roof areas to be accessible by roof hatches and fixed ladders.
5. Mechanical rooms to be located at ground level where possible with direct access to large outside doors for movement of large equipment. Mechanical rooms to be master keyed throughout the City.
6. All mechanical, electrical, fire alarm protection equipment to have clear access and walkways to and around equipment for service.
7. Incorporate more "standard stock sizes," interior and exterior items in design of buildings (i.e. finishes, coverings, materials, windows, doors, and moldings). Ceiling tile CertainTeed BET-157 2'x2' or BET 2'x4' (Armstrong/USG equivalent)
8. Use standard fully exposed grid system with flat square edge ceiling panels.
9. All wood windows to have vinyl exterior and paintable interior surface with thermal insulated U.V. reflective glass.
10. All aluminum windows to have thermal break in frames and sash with thermal insulated U.V. reflective glass, meeting all safety codes.
11. Use fiberglass doors for low maintenance whenever possible.
12. Eliminate folding walls when possible. When necessary, use electrically operated walls only.
13. Do not use mortise locks, high security locks, or interchangeable cores; use only commercial heavy-duty cylinder locksets, panic bars, and ball bearing hinges. Use only Schlage, Corbin-Russwin, Yale or Sargent Grade 1 locksets. Closers are to be LCN Grade 1. For renovations/additions specify that all locks and keyways match existing.
14. Fire Station Exterior Doors - Kaba/Simplex L1000 Series Push Button Lever Locks to be used on exterior doors when coded entry is needed.
15. Use only sex bolts in mounting door closers.

*City of Virginia Beach Public Works
Building Construction Standards*

16. Use aluminum or vinyl to cover all exposed wood on exteriors.
17. All restroom stall partitions and doors to be of solid plastic composition or stainless steel, with surface mounted latches, full-length hinges, tamper proof screws, and head rails.
18. All flat roofs to be 4-ply cold process built-up roof. All roof plies to be asphalt coated polyester and fiberglass composit-ply reinforced. Wearing surface to be a fourth granulated cad ply sheet coated with 2 coats of aluminum coating. All inter-ply adhesive and flood coat to be minimum of 40% asphalt. Roof will be covered by 20 year, no dollar limit total system warranty issued from manufacturer.
19. All rooms to have numbers installed on doors or doorjamb for each door as listed on floor plans. All room name plates to be interchangeable standardized in size and design, (interchangeable) 4" high x 8" wide with 1"x8" slot at bottom to remove and change names.
20. All new buildings will have address mounted on sign or building visible from street in size to meet existing codes.
21. The list of maintenance materials to be supplied by the contractor to Building Maintenance is to be included as a requirement in the construction documents. Include list of supplier/vendor where part was purchased.
22. The architect is to insure that the contractor provides sufficient copies of all approved shop drawings and submittals so that Building Maintenance will have their own copy.
23. Closets - A custodial storage area on each floor, large enough to store bulk chemicals, large equipment, including custodial carts, vacuum cleaners, buffers, and wet vacs, and where such duties as dust mop treatment and cleaning of equipment can be performed. A deep sink and floor drain are essential, as well as a resilient floor.
24. No carpeted walls.
25. Carpets (Broadloom and Modular Tile) – All carpets shall be constructed 100% premium brand nylon that will maintain its stain-repelling properties to acid stains. Dye method of the carpet should be yarn or solution dyed. Carpet should be fully adhered, 100% glue coverage. All seams of broadloom carpet to be welded. All carpet installations to include new carpet accessories such as new wall base, transitions strips and reducers. Carpet shall have 15 year warranty for surface wear, static, delaminating, edge ravel, zippering and backing resiliency loss. Modular tile warranty to include against growing, shrinking, delaminating, buckling, and edge fuzzing. The backing of the modular tile to resist moisture transmission and to have antimicrobial properties. City of Virginia Beach approved carpet manufacturers or approved equal: Tandus Flooring, Milliken Contract Carpets. Commercial carpet tile where possible.
26. All ceramic tile floors shall have an application of sealant per manufacturer's recommendation.
27. Lockers need to have peaked tops.

*City of Virginia Beach Public Works
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28. Dark epoxy grout needed in ceramic floor.
29. Restroom Fixtures Provide the following:
Soap Dispenser
Trash Receptacle Only - Provide and design into the floor plan
Electric hand dryers - All electric hand dryers to be surface mounted.
30. Include in design fiberglass flagpoles of appropriate size. Flag poles to have external lock boxes, making it easier to lower/change flags without the need of a tall ladder.
31. The following items to be included as requirement in all bids. Documents are to be received by Building Maintenance Inspection's office at the beginning of the building project:
 - a. Specifications
 - b. 100% working drawings
 - c. Shop Drawings
 - d. Submittals
32. The following items to be included as requirements in bid document to be turned over to Building Maintenance Inspector's office at time of city acceptance of building project:
 - a. Certificate of substantial completion
 - b. Certificate of occupancy
 - c. List of subcontractors with telephone numbers and addresses
 - d. Hard Copy of as-built drawings and specifications - one full set. Plans and specifications digitized in TIF format on CD (2 copies)
 - e. Reproducible drawings
 - f. All warranties:
 1. Labor
 2. Equipment
 3. Appliances
 4. Materials used on job
 5. Roof
33. All new construction and renovations to incorporate new building signs.
34. At the end of the project, the contractor will be required to clean and strip any concrete floor slabs that are to remain exposed and apply an approved sealer to those surfaces.
35. Use synthetic faced wall board products on all walls.
36. Handrails, benches, and concrete edges will include skate blocks or features to deter skateboarding and bike tricks.
37. Standard City Paint Colors are as follows:
 - B.M. (Building Maintenance) Light Blue
 - B.M. Light Grey
 - Pavilion White
 - Basic White

- Shell White
- Courthouse Beige
- A.C. (Accent Color) 59
- B.M. Dark Grey
- Harbor Grey
- A.C. 348
- P.A. (Princess Anne) Blue
- A.C. 375

Mechanical

1. The mechanical equipment should be the most energy efficient possible.
2. The Building Control System shall be the Direct Digital Control (DDC) type complying with ANSI/ASHRAE Standard 135, BACnet – A Data Communication Protocol for Building Automation and Control Networks. The DDC system shall communicate using the BACnet standard. The Control System will have a BACnet interface for connection to hand-held devices, portable computer, and a central workstation computer located remotely in the City’s HVAC shop. The DDC system will include a web based interface, furnish all software licenses and set-up requirements for this mode of operation.

Provide a networked DDC system for stand-alone control in compliance with the latest revision of the ASHRAE 135 BACnet standard. Include all programming, objects, and services required to meet the sequence of control. Wherever possible, furnish HVAC, electrical, and plant equipment with integral or factory provided (“Native”) BACnet controllers. Provide BACnet communications between the DDC system and native BACnet devices furnished with HVAC equipment and plant equipment including boilers, chillers, and variable frequency drives.

The Building Control System shall utilize graphic programming, which presents the controls program as a logic diagram rather than a text-based computer language.

Building Control Systems shall include the following minimum control strategies wherever applicable:

1. Optimum starts
2. Equipment lockout functions
3. Supply air temperature reset
4. Chilled water temperature reset
5. Heating hot water temperature reset
6. Enthalpy control for economizer operation
7. Scheduling at the zone level
8. Use of Occupancy sensors for outside air control and/or temperature setbacks and set-ups.
9. Electrical metering of HVAC equipment with motors over 20 hp or refrigeration systems larger than 10 tons.
10. Connection to the Dominion building electrical power meter
11. Demand limiting functions

12. Communication of approaching peak alarms to both cellular and email addresses

Building Control Systems shall include the capability to trend multiple data points at a maximum of 15 minute intervals for a minimum of 365 days. The system shall also include the capability to generate the following comprehensive reports:

1. Occupied/unoccupied usage
2. Time-of-use (TOU Reports). Real time reports on TOU meters that records usage during specific time blocks each day. When the meter is read, each time block is totaled for the entire billing period.
3. Alarms – Provide easy to set alarm parameters. Automate the integration of energy monitoring and maintenance work orders to reduce equipment downtime.
4. Custom Reporting – Provide the ability for the operator to create reports which collect data from the system and perform mathematical calculations or comparisons. Custom reports are often used for energy conservation and occupant billing purposes. Some vendors may charge extra for this capability. The ability to associate data with production or operation activities.

The software provider shall be held responsible and required to work through the BACnet Connectivity issues with the equipment and hardware providers. Open communications systems shall be thoroughly commissioned, and the performance of all system components shall be compared with the published and submitted manufacturer's performance data. Protocol implementation conformance statements shall be submitted before construction to ensure compatibility at all appropriate levels.

The Building Control system shall be capable of web-based access to the following minimum points for monitoring and effecting changes:

Supply Fan Start/Stop	Relay
Supply Fan Status	Current Switch
Return Fan Start/Stop	Relay
Return Fan Status	Current Switch
Supply Air Temperature	Duct Sensor
Mixed Air Temperature	Duct Sensor
Return Air Humidity	Duct Humidity Sensor
Supply Air Humidity	Duct Humidity Sensor
Humidity Controller	
Cooling Coil	
Heating Coil	
Economizer	
Low Limit Switch	Low Limit Stat

3. Install more access doors to equipment (exhaust fans, supply and return fan vanes, etc.).
4. All roof top units to have condensation lines run to the nearest roof drain or scupper.
5. All mechanical equipment to be labeled and numbered for positive identification as per print.

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Building Construction Standards*

6. All flat roof areas to have 110 power source and frost free hose bib in proximity to HVAC equipment and on all roof areas.
7. Do not install equipment above ceiling when possible. If equipment is installed above ceiling, access door, walkways, service platforms, switch lighting, 110 power source, and fixed ladder will also be installed.
8. All attic spaces to have power vented fan.
9. Bird barriers are to be installed around all rooftop HVAC units to prevent large and small birds from nesting around and under the units.
10. All HVAC refrigeration compressors to have 5 year manufacturer's warranty.
11. Formal/independent commissioning performed on the building HVAC system to insure the system is functioning as designed.
12. Air filtration to be at a minimum 40% pleated filters.
13. Building control system to show duct detector status.
14. Provide U.P.S. backup for DDC system.
15. Building control system to be Siemens, Trane, Automated Logic.
16. All V.F.D.S. shall have bypass capability.
17. All HVAC equipment located in a ceiling shall be able to be accessed using an 8' step ladder.
18. A maintenance storage room shall be located adjacent to mechanical room.
19. HVAC systems shall be designed so that indoor humidity levels do not exceed 50% ($\pm 5\%$) under any operating or load conditions.
20. All equipment located above a suspended ceiling must be clearly labeled at the approximate location on the ceiling.
21. Combustion efficiency test shall be conducted on all gas fired appliances.
22. Provide 2 extra changes for each type filter/each piece of equipment. Install new filters prior to testing and balancing and another new set at substantial completion in addition to the 2 spare sets.
23. Heat trave tape shall be provided for water lines located in unconditioned spaces.
24. All 3 phase HVAC equipment shall be provided with phase loss protection (overload, phase monitor).

25. All interior chilled water lines to be insulated using Rubatex or other approved rubber insulation.

Electrical

1. All accessible areas and areas for mechanical equipment to have switch controlled lights and 110 power source.
2. Lighting systems (see attached specifications)
3. Energy savings/electronic ballast vs. standard ballast, companies such as GE, Sylvania, Phillips, Advance. It is preferred that the fluorescent lamp and ballast manufacturer be the same to provide an extended use warranty.
4. Energy managing by means of photocells, time clocks, motion sensors, etc., for interior and exterior lighting in areas such as storage spaces, custodial closets, etc.
5. 3/4" minimum conduit size (1/2" minimum for flexible conduit), no BX or MC cable.
6. Stainless steel receptacle and switch covers in public areas or high use areas.
7. Phase protection on all 3-phase motors and starters where required.
8. Exit lighting - use L.E.D. type.
9. Three phase services and equipment.
10. Breaker panel and distribution equipment instead of fused panel and distribution equipment (fuses may not be stock) 20% spare breaker spaces in all panels.
11. Adequate outside receptacles not to exceed 100' apart around perimeter of building.
12. The project Architect/Engineer will contact PW/Building Maintenance to obtain the specifications that are to be utilized for any above-ground or underground fuel storage tank needed to support an emergency electrical generator, boiler, or any other device that burns fossil fuel.
13. All alarm and access systems shall meet applicable current codes in all new construction and building renovations, to include, but not limited to, security alarms, card access, fire alarms, fire protection, and closed-circuit television.
14. All new buildings to have the conduit and antenna mounting requirements for an Intrac transmitter in the building plans. This can be obtained from Motorola.
15. The Design Engineer will need to contact the Department of Communications & Information Technology for that department to determine whether Bi-Directional Amplifiers are needed.

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Building Construction Standards*

16. Generators if required (see attached specifications)
17. Dispensing Systems if required (see attached specifications)
18. Underground Storage Tank Systems if required (see attached specifications)
19. Elevators if required (see attached specifications)
20. All lighting fixtures, including lamps and ballasts, shall have a one (1) year warranty for labor and materials.
21. Light Fixture Supports (Drop-in type for acoustical type ceilings): Fixtures shall be supported by independent ceiling support wires or clips provided by the fixture manufacturer (the use of screws through the ceiling grid into the light fixtures shall not be accepted).
22. All wiring in our facilities shall be copper wiring. This does include all feeders, sub-feeders and branch circuits.
23. Electrical and Fire alarm wiring shall be in a conduit system. The fire alarm system conduit and box system shall be factory color coded red. All communication boards and or closets such as telephone, cable TV, CCTV and DATA/computer hubs shall have ground bars installed with ground originating from the main electrical service ground for the building.
24. Main Electrical Services shall have Surge Protection Devices installed on them during new installations or renovation projects. Critical/sensitive electronic loads shall originate from separate dedicated panels with additional SPD's installed for each of these panel boards.
 - o The electrical grounding system shall have cad-welded ground connections, 10 ft. or longer sectional copper clad ground rods, be installed to meet the 25 ohms of resistance maximum of the NEC as well as meet any further manufacturers requirements such as the 5 ohms maximum resistance recommended by most SPD manufacturers.
 - o Circuit specific equipment shall have separate full size neutrals back to panel boards.
25. Load Centers (*plug in breakers*) shall not be used. All electrical panels shall be panel boards (*bolt in breakers*).
26. Electrical system color coding shall be as follows:
 - o 120/240 single phase – Black A phase, Red B phase, white neutral and green ground.
 - o 120/240 three phase (Delta w/ high leg) requires prior owner approval for a specific purpose Black A phase, Orange B phase (*high leg*), Blue C phase, White neutral and green ground.
 - o 120/208 three phase – Black A phase, Red B phase, Blue C phase, white neutral and green ground.

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- 277/480 three phase – Brown A phase, Orange B phase, Yellow C phase, Gray neutral and green ground.
 - Insulated Isolated grounds shall have a green jacket with a continuous yellow stripe originating from the main electrical service ground bar and isolated in panel boards from other standard equipment grounds.
 - Devices shall be commercial specification grade or better.
 - There shall be a maximum of six outlets on a standard office receptacle circuit.
 - Each Ground Fault Circuit Interrupter receptacle and/or breaker shall have a separate neutral. Shared neutrals between multiple GFCI receptacles and circuits shall not be allowed.
27. Latest energy efficient lighting shall be installed.
27. All switch locations shall have insulated ground wires as well as neutrals installed even if neutrals are not required at time of installation. *This is for the purpose of occupancy sensor installations either during original install or future change outs.*
28. Twist lock photo-cell & contactors w/ HOA controls shall be used instead of time clocks.
29. Facility clock systems shall be the Primex manufacturer, GPS synchronized digital signal based clock systems with proper FCC site specific frequency license.
30. A schedule of values shall be developed in accordance with specification divisions and turned over as part of the final project closeout documents to aid in future systems replacement cycle costs.
31. 3/4 inch minimum conduit size for all conduits leaving panel boards. 1/2" conduit may be used for downstream branch circuit wiring as long as it does not exceed 50% conduit fill upon completion.
32. BX or similar cabling shall not be used.
33. MC Cable shall only be used for short fixtures whips or connections and shall not be used for feeder or branch circuit wiring.
34. The contractor shall have their Electrical Engineer for the project perform a coordination study for the complete electrical system and to mark the electrical panels and main service in accordance with NFPA-70(E) concerning ARC flash protection.
35. All electrical panels, devices, junction boxes and associated equipment shall have panel and circuit designation labels. It will be acceptable to label the inside of device cover plates.
36. All new electrical systems shall have selective coordination calculations performed by the electrical engineer and set accordingly prior to final project completion. Electronic and hard copies shall be turned over as part of the project close out documents for future reference and renovations.
37. Alarm Transmission Systems – if to be monitored by the City contact PW/Building Maintenance for information, (757) 385-4561.

Plumbing

1. Upright sewage pumps with alternating mechanical switches.
2. Delete all backflow preventer valves not required by city code.
3. Use only quality flush valves (Zurn EZ Flush, Sloan), or self-flushing fixtures. Due to the diagram design of Delaney, it has a higher maintenance frequency and is not desired on our building projects.
4. Do not use wax bowl ring with Honn's on felt or rubber for setting wall-hung toilets. Wax only.
5. Do not install sanitary cross tee for drain line except for toilets.
6. Label all plumbing access doors and cut off valves.
7. Standardize all plumbing fixtures using quality fixtures such as Kohler, American Standard, or Eljer.
8. All plumbing PVC pipe installed underground that is used for water supply service should be schedule 80 installed with a tracer wire for locating and bedded in sand. Same for any PVC piping underground shall have tracer.
9. Plumbing to be under a building slab Schedule 80 for water and Schedule 40 for drain and sewer lines.
10. Vanity counters and sinks to be molded as one unit (i.e. corian), no porcelain coated cast iron.
11. Install floor drains in all restrooms and mechanical rooms.
12. Install ball valves in place of gate valves.
13. All roof drains and down spouts will have adequate clean-outs before being piped underground to storm sewer.
14. Install shut off valves to isolate all rest rooms individually.
15. Use same brand of fixtures throughout.
16. Use ball valves full port highest grade brass.
17. A key shall be provided with location map.

Structural

1. Metal wall studs, minimum 22 gauge.

ATTACHMENT A
4-PLY COLD PROCESS BUILT UP ROOF

PART I - 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 the following:
 - 1. Cold Process Built-up Roofing System.
 - 2. Roof insulation.
 - 3. Sheet Metal Flashing and Trim.
 - 4. Painting of Roof Top equipment.

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a roofing system and that are listed in Manufacturer's for Class 1 or noncombustible construction, as applicable. Identify materials with FMG markings.
 - 1. Fire Classification: UL Class A
 - 2. Windstorm classification: Roof system submitted shall be approved by Factory Mutual for a 1-90A rating.
 - 3. Hail Resistance: MH

1.5 SUBMITTALS

- A. Product Data: Sheets: For each type of product indicated.
- B. Material Safety Data: Sheets: For each type of product indicated.
- C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
 - 1. Base flashings, cants, and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Crickets, saddles, and tapered edge strips, including slopes.
 - 4. Insulation fastening patterns.
- D. Samples for Verification: For the following products:
 - 1. 12-by-12 inch (300-by-300-mm) square of ply sheet and flashing sheet.
 - 2. 12-by-12 inch (300-by-300-mm) square of roof insulation.
 - 3. 3 lb. (1.5 kg) of aggregate surfacing material.
 - 4. 12-by-12 inch (300-by-300-mm) square of walkway pad or cap sheet walkway.
 - 5. Six insulation fasteners of each type, length, and finish.
- E. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
- F. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements as specified.
 - 1. Contractor shall submit a "Roofing System Contractor Package" by FM which includes, among other items, the roof system assembly numbers to verify compliance with 1-90A approval.
 - 2. Contractor shall alternatively submit testing by a recognized testing organization such as Dade County Florida, Factory Mutual, or Underwriters Laboratories, that the roof system has been successfully tested to withstand the ASCE 7-05 calculated design pressures with a factor of safety of two (2). Example: pressure calculated utilizing ASCE 7-05= 45 psf., then system shall be tested to a pressure of $45 \times 2 = 90$ psf.
- G. Research/Evaluation Reports: For components of roofing system.
- H. Maintenance Data: For roofing system to include in maintenance manuals.
- I. Warranties: Special warranties specified in this Section.
- J. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.6 QUALITY ASSURANCE

- A. **Installer Qualifications:** A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. **Manufacturer Qualifications:** A qualified manufacturer that has FMG approval for roofing system identical to that used for this Project.
 - 1. Employ full-time Field Technical Services Representative available for final roof inspection.
 - 2. Provide local Field Representative to make periodic site visits, report work quality and job progress. Inspections shall be conducted by representative 3 times per week minimum, and shall be required during any crucial phases of the project. Inspections shall be conducted during various phases of the installation. (i.e. roof removal, installation of roof insulation, installation of the roof membrane and flashings, installation of all metal components.) Reports to the City shall be provided after each inspection.
- C. **Source Limitations:** Obtain components for the roofing system, approved by roofing system manufacturer and included as part of the Total Roof System.
- D. **Fire-Test-Response Characteristics:** Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
 - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
- E. **Pre-construction Conference:** The Owner shall schedule the conference within fifteen (15) days after notice of award. The conference shall be conducted at the project site. Review administrative issues and methods and procedures related to the roofing system including, but not limited to, the following:
 - 1. **Required Attendance:** Owner's representative(s), Contractor personnel - project manager, superintendent and project foreman and roof system manufacturer's representative.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review structural loading limitations of roof deck during and after roofing.
 - 5. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

6. Review temporary protection requirements for roofing system during and after installation.
 7. Review roof observation, warranty and repair procedures after roofing installation.
- F. Progress Meetings: Scheduled to be established by the Owner's representative as required. Required attendance: Owner's representative, project superintendent and foreman. Minimum agenda as follows:
1. Review status of work in progress.
 2. Make field observations of completed work in place.
 3. Identify and discuss problems and/or concerns.
 4. Identify any problems, which impede planned progress.
 5. Review status of project schedule.
 6. Review and discuss corrective measures to regain projected schedules as required.
 7. Review proposed activities planned for succeeding work period.
 8. Review quality of workmanship and work standards.
 9. Review housekeeping and site conditions.
 10. Review and discuss other installation and/or administrative issues relating to work.
 11. Review any safety concerns.
- G. Final Inspection: Shall be scheduled by roofing material manufacturer upon job completion. The Contractor shall be responsible for notifying the Owner's representative of specific dates and times of inspection.
1. Required Attendance: Owner's representative, Roofing material manufacturer and Contractor personnel.
 2. Minimum agenda: Walkover inspection, identification of problems related to quality of workmanship and identification of problems, which may impede issuance of warranty.
 3. As a basis for final acceptance of the roof project, the Owner will require a roof infrared survey. The survey report must indicate the presence of no detrimental amount of moisture. If the survey report indicates deficiencies in the roof system, the contractor will rectify those deficiencies at his expense. The cost of the survey is the responsibility of the contractor.
 4. The contractor shall have fourteen (14) days from the date of the inspection to correct any discrepancies that were discovered during the final inspection.
- H. Random sampling:
1. Roofing material:
 - a. During course of work the Owner's representative may secure samples according to ASTM D140-70 (1981) of materials being used from containers at job site and submit them to an independent laboratory for comparison to specified material.

- b. Should test results prove that a material is not functionally equal to specified material:
 - 1) Contractor shall pay for all testing.
 - 2) Roofing installed and found not to comply with the specifications shall be removed and replaced at no change in the contract price.
- I. Daily Communications: Due to the sensitive nature of the city buildings, daily communications between contractor, owner and roof system manufacturers representative shall be a requirement of this contract. The contractor shall initiate this communication.
- J. Moisture control: Contractor is responsible for moisture control in areas or sections of roof where activity has begun.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturers written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.
- E. Coordinate all deliveries with the Owner's representative.

1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Environmental Requirements: Coordinate with and advise Owner's representative when volatile materials are to be used near air ventilation intakes. Allow sufficient time before application to allow preventative measures to be put into place.

C. Existing Building Conditions:

1. Building space directly under roof area covered by this specification will be utilized by on-going operations. Do not interrupt Owner's operations unless prior written approval is received from City.
2. Access to roof shall be from exterior only. No employees of the roofing company with, the exception of the superintendent will be allowed within the building.
3. Air-conditioning units and other equipment shall be moved as required to install roofing materials complete and in accordance with plans and specifications. Carefully disconnected and remove existing equipment as indicated. Store existing equipment as not to damage any part or component thereof. Reconnect existing equipment and return to operating condition. If during the course of construction, it should become necessary to disconnect existing HVAC equipment, there shall be no more than 24 hours down time. Should the required work exceed this period the contractor shall provide at no additional cost to the owner, alternate methods of heating or cooling the affected areas.
4. All disconnection and re-connection work shall be performed by a mechanical and/or electrical sub-contractor licensed to perform such work. The Roofing Contractor is responsible for coordination and completion of all work.
5. Appropriate measures shall be taken to prevent dust, vapors, gases or odors from entering the building during roof removal, replacement or repair.
6. Roofing contractor shall be responsible for any damage to job site during roofing project, including interior and exterior of the building until punch list is complete.

D. Safety Requirements:

1. All application, material handling, and associated equipment shall conform to and operated in conformance with OSHA safety requirements.
2. Comply with federal, state, and local fire and safety requirements.
3. Advise Owner whenever work is expected to be hazardous to Owner's employees and/or operators.
4. Maintain a crewman as a floor area guard whenever roof decking is being repaired or replaced.
5. Maintain fire extinguisher within easy access on roof whenever power tools are being used.
6. No kettle, open flame torch or any other open flame tool is to be used on site.
7. No smoking on job site.

1.9 WARRANTY

A. Guarantee:

1. Upon project completion and city acceptance, and before final payment, contractor shall issue the city a guarantee against defective workmanship and materials for a period of two (2) years.

B. Warranty:

1. Upon project completion, and before final payment, contractor shall deliver to the city at twenty (20) year "total roofing system non-prorated" manufacturer's warranty. The warranty shall contain a "no dollar limit" provision in its coverage. The warranty shall include labor and material coverage against leakage on all components, including those manufactured by others. Components to be covered by the warranty shall include but not limited to the following:
 - a. Vapor retarder materials and adhesives.
 - b. Insulation materials and adhesives
 - c. All roof membrane components and adhesives.
 - d. All wood blocking and fastening components.
 - e. All metal edge components including cleat strips.
 - f. All tapered edge and cant strips.
 - g. All existing or new metal counter flashing.
 - h. All surface mastic, coatings, stripping plies, etc.
 - i. All drain assemblies, scuppers and other components.
 - j. All metal curb or curb cover components including skylights
 - k. All roof leaks or other problems caused by substrate movement shall not be excluded from the written warranty.
 - l. The complete metal wall panel system including panels and all associated trim parts.

PART 2 - PRODUCTS

2.1 STEEL ROOF DECK (for repairs)

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Steel Deck:
 - a. BHP Steel Building Products USA Inc.
 - b. Consolidated Systems, Inc.
 - c. Nucor Corp.; Vulcraft Div.
 - d. Roof Deck, Inc.
 - e. United Steel Deck, Inc.
 - f. Verco Manufacturing Co.
 - g. Wheeling Corrugating Co.; Div. of Wheeling-Pittsburgh Steel Corp.
- B. Steel Roof Deck: Provide and install steel decking with gauge, rib depth and rib configuration to match existing decking. Install decking at repair area to span a minimum of three (3) structural supports. Provide lapped and stitched joints. Comply with the following:

*City of Virginia Beach Public Works
Building Construction Standards*

1. Galvanized Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33, zinc coating.
2. Span Condition: Triple span or more.
3. Side Laps: Overlapped.
4. Metal roof deck fasteners: TEKS by Buildex Div. of ITW, Itasca, IL.
5. Deck side lap stitching 10-16 x 3/4 inches, Hex Washer Head, EKS/I with pilot point.
6. Deck to bar joist: 12-24x 3/4 inch, Hex Washer Head TEK S/4.
7. Deck to structural steel: 12-24 x 1-1/4 inch Hex Washer Head, TEK S/5.
8. Rust inhibitive paint B Chromate red oxide primer.

2.2 WOOD DECKING (for repairs)

- A. Plywood roof sheathing: APA, C-D rated sheathing.
- B. Match existing deck thickness.

2.3 MISCELLANEOUS CARPENTRY

- A. General: Provide lumber for support or attachment of other construction, including the following:
 1. Rooftop equipment bases and support curbs, blocking, cants, nailers, furring, grounds, etc.
 2. For items of dimension lumber size, provide No. 2 grade lumber with 19 percent maximum moisture content and of the following species:
 - a. Mixed southern pine; SPIB.
- B. Preservative Treatment by Pressure Process: lumber and plywood.
 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and the following:
 - a. Alkaline Copper Quat (ACQ)

2.4 ROOF SYSTEM MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cold Process Built-up Roofing:
 - a. Garland Company, Inc.
 - b. Tremco, Inc.

2.5 ROOFING MEMBRANE PLIES

- A. ROOFING MEMBRANE SHEET: Asphalt coated roofing ply sheet with the following characteristics:

SBS Modified Asphalt Coating.

Reinforced with BOTH polyester and fiberglass.

Labeled by both UL & FM.

Minimum Tensile Strength when tested in accordance with ASTM D 5147 of 137 lb./in.

Minimum Tear Strength when tested in accordance with ASTM D 5147 of 212 lbf.

A minimum of three (3) base plies are required. If the "Physical Damage Resistant Characteristics" listed in Section 1.4C cannot be obtained with three (3) base plies then additional base plies shall be installed.

- B. CAP SHEET: White factory applied ceramic granule surfaced modified bitumen cap sheet with the following performance characteristic:

1. SBS Modified Asphalt Coating.

2. Reinforced with fiberglass

3. Fire rated sheet.

4. Tensile Strength (XMD) of 140 lb/in when tested in accordance with ASTM D 5174.

5. Tear Strength (XMD) of 210 lbf when tested in accordance with ASTM D 5174.

2.6 FLASHING MATERIALS

- A. Backer Sheet: Same as Roofing Membrane Sheet. (2.5A)

- B. Glass-Fiber Mesh Fabric: Woven glass cloth, treated with asphalt, complying with ASTM D 1668, Type I.

- C. Flashing Sheet: ASTM D 5019, polyester reinforced CSPE elastomeric sheeting, 45 mils thick.

1. Exposed Color: White.

- D. Flashing Sheet to be stripped in at all joints and at toe area with urethane liquid coating and 4 inch wide woven polyester mesh.

2.7 ASPHALT MATERIALS

- A. Asphalt Primer: ASTM D 41.

- B. Cold-applied Adhesive: roofing system manufacturer's standard asphalt-based, one part, asbestos free, cold-applied adhesive specifically formulated for comparability and use with built-up roofing membranes and flashings.

- 1. Asphalt content: minimum 40%.

- C. Flashings and tie-in adhesives: Cold-applied adhesive as referenced above and as recommended by roof system manufacturer for specific application.

2.8 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with built-up roofing.

- B. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM 4470; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.

- 1. All other fasteners including wire nails are to be hot dipped galvanized with G-185 Coating.

- D. Elastomeric top ply flashing adhesive to be compatible with CSPE. Top ply flashing as recommended by manufacturer.

- E. Penetration Pockets: To be filled with two (2) part pourable polyurethane sealer.

- 1. Product: Firestone Pourable S-10 part A & B. or equal.

- F. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.9 THERMAL BARRIER / SUBSTRATE BOARDS (As required for fire rated ceiling/roof assemblies)

- A. Thermal Barrier / Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, ½ "inch thick.

- 1. Product: Subject to compliance with requirements, provide "Dens-Deck" by Georgia-Pacific Corporation or City approved equal.

- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening substrate panel to roof deck.

2.10 ROOF INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thickness indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.
 - 1. Manufacturers:
 - a. Apache Products Company.
 - b. Atlas Roofing Corporation.
 - c. Hunter Panels, LLC.
 - d. Other manufacturers as approved by roof system manufacturer.
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/8" per foot, unless otherwise indicated.
- D. Base Insulation Layers: Provide high density, 2lbs/ft, flat boards to form base insulation layer. Maximum board size shall be 4' x 4'. Install two (2) each 2" thick layers, minimum R-value of 13.5" per insulation layer for a total base layer of 4" thick with a minimum R-value of 27.
- E. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- F. Provide additional insulation shapes where needed to provide 48hr dry roof.

2.11 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Cold Fluid-Applied Adhesive: Manufacturer's standard cold fluid-applied adhesive formulated to adhere roof insulation to the substrate. The manufacturer shall test materials for the specified uplift resistance and be acceptable to the roof system manufacturer as part of the total roof system.
- D. Insulation Cant Strips: ASTM C 208, wood fiber insulation board.
- E. Tapered Edge Strips: ASTM C 208, wood fiber insulation board.
- F. Cover Board: ASTM C 208, Type II, Grade 1, high density, asphalt coated all sides cellulosic-fiber insulation board, 1/2" thick.

G. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, ½ “ (13mm) thick.

1. Product: Subject to compliance with requirements, provided “Dens-Deck” by Georgia-Pacific Corporation or City approved equal.

2.12 COATING MATERIALS

A. CSPE Roof Base Flashing and Cap Sheet Coating: Aluminum coating to be applied in two (2) coats of approximately 150 sqft. per gal. to entire surface of cap sheet and base flashings with the following performance characteristics:

1. Compatible for use with Cap Sheet and CSPE Flashing.
2. UL Fire Rated.
3. “Energy Star Certified” Product.

2.13 WALKWAYS: Utilize High Performance Cap Sheet that meets the following performance criteria:

- A. White Granule factory surfacing.
- B. Fire rated Sheet.
- C. Reinforced with BOTH polyester and fiberglass.
- D. Asphalt coating modified with SBS/SEBS Polymers.
- E. Meets the following physical criteria when tested in accordance with ASTM D 5174:
 1. Thickness 155mils.
 2. Tensile Strength: 750lb/in.
 3. Tear Strength: 1,400 lbf.

2.14 SHEET METAL FLASHING AND TRIM

- A. Copper Sheet: ASTM B 370, Temper H00 or H01, cold-rolled copper sheet.
- B. Lead Sheet: ASTM B 749, Type L51121, copper-bearing lead sheet, four (4) lb. lead sheet.
- C. Steel Sheet: 24-gauge galvanized with Kynar finish, Color ____TBD____
- D. Aluminum Sheet: ASTM B 209/B 209M 0.040 thickness
 1. Mill finish
 2. Kynar finish, Color ____TBD____

2.15 MISCELLANEOUS SHEET METAL MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets

and bolts, and other suitable fasteners designed to withstand design loads.

1. All fasteners associated with roof system and components shall be concealed.
2. All fasteners shall be hot dipped galvanized unless otherwise noted.
3. Nails for Copper Sheet: Copper or hardware bronze, 0.109 inch (2.8mm) minimum and not less than 7/8 inch (22mm) long, barbed with large head.
4. Fasteners for Flashing and Trim: Blind fasteners.
5. Fasteners for Fan Hoods, Curb Covers, etc.: Stainless steel self-drilling screws, gaskets, with hex washer head.

C. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.

D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

2.16 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide, primers, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
- C. Colors: Provide reflective aluminum and/or other color as approved by Owner's representative.

PART 3 - EXECUTION

3.1 SELECTIVE DEMOLITION

- A. General: Construction and demolition operations shall not disrupt City operations in occupied building. Demolish and remove existing roofing and related construction only to the extent required by new roofing and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Asbestos and Lead Containing Materials: Review the asbestos and lead survey reports as provided by the Owner for the possible presence of asbestos and lead containing materials. All materials identified shall be handled in accordance with all Federal, State and Local requirements.

2. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 3. Use cutting methods least likely to damage construction to remain or adjoining construction. Use applicable hand tools or power tools designed specifically for roof removal procedures. Limit hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 4. Remove deteriorated structural decking and framing members, as required and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 5. Remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of demolished items and materials promptly.
 7. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Roofing: Remove no more existing roofing than can be completely replaced in one day by new complete 3 ply roofing system.
- C. Existing Facilities: Comply with building manager's requirements for using and protecting stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.

3.2 EXAMINATION

- A. Examine substrates, areas, and conditions, for compliance with the following requirements and other conditions affecting performance of roofing system:
1. Verify that roof openings and penetrations are in place, set, and braced and that roof drains are securely clamped in place.
 2. Verify that blocking, curbs and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thickness of the new insulation system.
 3. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units more than 1/16 inch (1.6mm) out of plane relative to adjoining deck.
 4. It is the Contractor's responsibility during the course of the work, to bring to the attention of the City representative any defective membrane, insulation or deck discovered where not previously identified.
 5. During construction, if the contractor or the Owner feels that a conflict exists between these specifications and the actual field conditions found at this facility, the contractor shall submit a written request for change order. The change order shall describe

specifically the nature of the change, the reason for the request, the effect to the overall project and the cost associated with the requested change. The Owner and the contractor prior to implementation shall sign this request for change order.

6. Verify all curbs are min. of 8" above finish roof and will fit existing equipment.
7. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Make necessary deck repairs as required and/or repair openings for roof top equipment and penetrations.
- D. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- E. For concrete deck areas prime surface of concrete deck with asphalt primer at a rate of $\frac{3}{4}$ gal. /100 sq. ft. (0.3 L/sq.m) or as otherwise specified by the roof system manufacturer and allow primer to dry.

3.4 MISCELLANEOUS CARPENTRY INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set carpentry to require levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking and similar supports to comply with requirements for attaching or reattaching other construction.
- C. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- D. Countersink fastener heads on carpentry work.
- E. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.5 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install new treated wood blocking where required for attaching new roof system. Coordinate and install perimeter nailers with heights to match new insulation system as indicated. Coordinate curb locations and install blocking as required for roof system flashing heights and with other work involved.

- B. Install new curbs or extend old curbs with treated wood blocking to meet 8" min height and fit existing equipment flanges.
- C. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.6 THERMAL BARRIER / SUBSTRATE BOARD INSTALLATION (As required for fire rate ceiling/roof assemblies).

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
 - 1. Fasten substrate board to top flanges of steel deck according to recommendations in Manufacturer's specification for specified Windstorm Resistance Classification.

3.7 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- C. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of built-up roofing membrane system with vertical surfaces or angle changes greater than 45 degrees.
- D. Install tapered insulation under area of roofing to conform to slopes indicated.
- E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding ¼ inch (6mm) with insulation.
 - 1. Cut and fit insulation within ¼ inch (6mm) of nailers, projections, and penetrations.
- F. Install two or more layers of insulation under area of roofing to achieve required thickness. For base insulation layer install two layers of 2" thick insulation board with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction. Total four-inch thick base layer.
- G. For the tapered insulation system install factory cut tapered board layers of various thickness as required with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

- H. Trim surface of insulation where necessary and provide tapered units to form four foot (4'-0") sumps at roof drains. Completed insulation substrate shall be flush and not restrict flow of water.
- I. Install tapered edge strips as required to make smooth transitions between wood blocking and tapered insulation system at perimeter edges, curbs, expansion joints, area dividers and at other transition points.
- J. Metal and Wood Decks – Loose lay the first layer of insulation over the deck. Mechanically attach second layer of insulation, through the first layer, to deck. Insulation shall be secured to meet FM I-90 requirements. Check inside of roof deck to make sure all piping and conduit is clear of any fasteners.
- K. Concrete Decks - Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
 - 1. Set each layer of insulation in a cold fluid-applied adhesive.
- L. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together and fasten to roof deck with cold fluid-applied adhesive.
 - 1. Fasten according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification.

3.8 ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install built-up roofing membrane system according to roofing system manufacturer's written instructions.
- B. Start installation of built-up roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Cooperate with testing and inspecting agencies engaged or required to perform services for installing built-up roofing system.
- D. Coordinate installing roofing system components so insulation and roofing membrane sheets are not exposed to precipitation or left exposed at the end of the workday or when rain is forecast.
 - 1. Provide "manufacturer approved water-stop tie in" at end of each days work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement with joints and edges sealed. (See Detail Drawing)
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.

4. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.9 ROOFING MEMBRANE INSTALLATION

- A. Ply sheets may be applied directly to non-nail able deck, base sheet, or fiberboard. Install three-ply sheets starting at low point of roofing system. Align ply sheets without stretching. Shingle side laps of ply sheets uniformly to achieve required number of plies throughout thickness of roofing membrane. Shingle in direction to shed water. Extend ply sheets over and terminate beyond cants.
 1. Embed each ply sheet in a solid application of cold process, roofing asphalt adhesive applied at rate required by roofing system manufacturer, to form a uniform membrane without ply sheets touching.

3.10 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
 1. Prime substrates with asphalt primer if required by roofing system manufacturer.
 2. Backer Sheet Application: Mechanically fasten backer sheet to walls, curbs or parapets. Adhere backer sheet to walls, curbs and over roofing membrane at cants in asphalt roofing cement.
 3. Flashing Sheet Application: Adhere flashing sheet to substrate in CSPE compatible adhesive applied at rate required by roofing system manufacturer.
- B. Extend base flashing up walls or parapets a minimum of 8 inches (200 mm) above roofing membrane and 6 inches (150 mm) onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
- D. Install stripping, according to roofing system manufacturer's written instructions, where metal flanges and edgings are set on built-up roofing.
- E. Roof Drains: Set 36-by-36 inch, 4 lb lead flashing in bed of asphalt roofing cement on completed roofing membrane. Cover metal flashing with stripping and extend a minimum of 4 inches (100 mm) and 6 inches (100 mm) beyond edge of metal flashing onto field of roofing membrane. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring.
 1. Install flashing-sheet stripping by same method as installing base flashing.

2. Install stripping of not less than two roofing membrane ply sheets, each set in a continuous coating of cold process, asphalt roofing adhesive.
3. All roof drain components; bowls, drain rings and drain baskets to be of cast iron construction. Replace any existing damaged or missing drain components with new cast iron components. All drain ring bolts will be replaced with non-corrosive stainless steel.

F. Masonry Wall Reglet

1. Machine cut up to ½" wide to 1" deep cut to receive metal counter flashing.

3.11 COATING INSTALLATION

- A. Apply coatings to base flashings according to manufacturer's written instructions, by spray, roller, or other suitable application method.

3.12 WALKWAY INSTALLATION

- A. If only one width of cap sheet is to be installed then remove selvedge.
- B. Fully adhere to the complete membrane in adhesive recommended by manufacturer.
- C. If gravel surfacing is utilized install walkways prior to installation of flood coat and gravel surfacing. Gravel up to edge of walkway.
- D. If adhering to a granule surfaced cap sheet then sweep area with stiff broom to remove any loose granules prior to installing walkway.

3.13 CONDENSATE DRAINS:

- A. Contractor shall install rigid PVC piping from all HVAC condensate drain lines to the nearest roof drain or roof gutter. Piping shall be large enough to allow water to flow freely.

3.14 SHEET METAL FLASHING AND TRIM, INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing, trim, and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.
- C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

- D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and elastomeric sealant.
- E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.

3.15 PAINTING, APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Paint all roof top mounted equipment, HVAC units, support frames, ductwork, fan hoods, etc. Coordinate with Owner's representative before application. Apply paint color and type as specified.
 - 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 3. Provide finish coats that are compatible with primers used.

3.16 FIELD QUALITY CONTROL

- A. Testing Agency: At the Owner's direction a qualified independent testing and inspecting agency will be engaged to perform roof tests and inspections and to prepare test reports. Should this testing and inspections be required, the Contractor shall be responsible for all associated costs.
- B. Test Cuts: Before flood coating and surfacing built-up roofing membrane, test specimens may be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:
 - 1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
 - 2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 of ARMA/NRCA's "Quality Control Guidelines for the Application of Built-up Roofing."
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

1. Notify Architect or Owner 48 hours in advance of date and time of inspection.
 2. Coordinate final inspection procedures with requirements of Quality Assurance section of this specification.
- D. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements within 14 days on final inspection.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.17 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

Clean over spray and spillage from adjacent construction. Use cleaning agents and procedures recommended by manufacturer of affected construction.

The City of Virginia Beach has specific requirements for their elevator rooms. The architect shall coordinate and confirm satisfaction of the following:

1. Provide a portable two-level, wire computer stand to support the City supplied CPU, monitor, and keyboard.
2. Provide an RJ-45 data outlet cabled with CAT 6 cable to the nearest Building data rack.
3. Provide a 120-volt duplex outlet adjacent to the data outlet.
4. Require the use of Elevator Control Switch (Section 16445 provided as Attachment A) as elevator electrical disconnect.
5. Provide a ductless-split heat pump system to condition the elevator equipment room.

SECTION 14000 - HOLE HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies hydraulic elevators. Provide a pre-engineered elevator system, by manufacturer regularly engaged in the manufacture of elevator systems, that complies with ASME A17.1 in its entirety, and additional requirements specified herein.
- B. Work Required:
1. The work required under this section consists of all labor, materials and services required for the complete installation (including operational verification) of all the equipment required for the elevator(s) as herein specified.
 2. All work shall be performed in a first class, safe and workmanlike manner.
 3. In all cases where a device or part of the equipment is herein referred to in the singular, it is intended that such reference shall apply to as many of such devices or parts as are required to make complete installation.
- C. Related Sections: The following sections contain requirements that relate to this section and are performed by other trades.
1. **[Section 01500 - Construction Facilities and Temporary Controls: protection of floor openings and personnel barriers; temporary power and lighting.]**
 2. **[Section 02200 - Earthwork: excavation for cylinder well casing.]**
 3. **[Section 03300 - Cast-In-Place Concrete: elevator pit, elevator motor and pump foundation, and grouting thresholds.]**
 4. **[Section 04200 - Unit Masonry: masonry hoistway enclosure, building-in and grouting hoistway door frames, grouting thresholds.]**
 5. **[Section 05500 - Metal Fabrications: pit ladder, divider beams, support for entrances and rails, hoisting beam at top of hoistway.]**
 6. **[Section 07145 - Cementitious Waterproofing: waterproofing of elevator pit.]**
 7. **[Section 15500 - Heating, Ventilating, and Air Conditioning: ventilation and**

- temperature control of elevator equipment room.]**
- 8. **[Section 16100 - Electrical: electrical service to main disconnect in elevator machine room; electrical power for elevator installation and testing; electrical-disconnecting device to elevator equipment prior to activation of sprinkler system; electrical service for machine room; machine room and pit receptacles with ground-fault current protection; lighting in machine room and pit; wiring for telephone service to machine room.]**
- 9. **[Section 16445 – Elevator Control Switch: electrical disconnecting means for elevator equipment and FA interface]**
- 10. **[Section 16610 - Standby Power Supply Systems: emergency generator for elevator operation.]**
- 11. **[Section 16720 - Fire Alarm Systems: fire and smoke detectors and interconnecting devices; fire alarm signal lines to contacts in the machine room.]**
- 12. **[Section 16740 - Telephone Systems: ADAAG-required emergency communications equipment.]**

D. Hydraulic Elevator Type

- 1. Provide a direct plunger type hydraulic elevator. Do not utilize telescopic or inverted cylinder-plunger units. Telescopic and inverted jacks are not acceptable. Do not utilize roped-hydraulic elevator design. Machine roomless (MRL) elevators are not acceptable.

1.2 REFERENCES

- A. Comply with current applicable building codes and elevator codes at the project site, including but not limited to the following:
 - 1. Virginia USBC
 - 2. ANSI A117.1, Buildings and Facilities, Providing Accessibility and Usability for Physically Handicapped People
 - 3. ADAAG, Americans with Disabilities Act Accessibility Guidelines
 - 4. ANSI/NFPA 70, National Electrical Code
 - 5. ANSI/NFPA 80, Fire Doors and Windows
 - 6. ASME/ANSI A17.1, Safety Code for Elevators and Escalators
 - 7. ANSI/UL 10B, Fire Tests of Door Assemblies
 - 8. Model Building Codes
 - 9. All other local applicable codes

1.3 SYSTEM DESCRIPTION

A. PERFORMANCE REQUIREMENTS AND GENERAL CHARACTERISTICS:

[Insert requirements for each elevator to be installed. Coordinate with info at end of section]

City of Virginia Beach Public Works
Building Construction Standards

1. Rated Load: lbs.
2. Rated Speed: fpm.
3. Rise: ft.
4. Number of Stops:
5. Number of Hoist Way Openings: Front; Rear
6. Car Inside Dimensions: ft.-in.wide, ft.-in. deep and ft.- in. high.
7. Entrance Width and Car Door Types: ft-in wide and [Single-speed side slide] [Single-speed center opening] [Two-speed side slide] [Two-speed center opening] Horizontal sliding.
8. Hoist way Dimensions
9. Stopping Accuracy
10. Elevator Main Power Supply Voltage
11. Lighting Power Supply

[All rises based upon load on platen: Arrgt. options below]

[Enter rise up to 20'0"]

[Enter rise up to 60'0" for Arrgt. #2]

[Enter rise up to 60'0" for Arrgt. #3]

[Enter rise up to 34'4" with 4'0" Pit for Arrgt. #4(2000lb- 2500lb)]

[Enter rise up to 37'2" with 5'0" Pit for Arrgt. #4(2000lb- 2500lb)]

[Enter rise up to 35'1" with 4'0" Pit for Arrgt. #4(3000lb- 3500lb)]

[Enter rise up to 38'1" with 5'0" Pit for Arrgt. #4(3000lb- 3500lb)]

[Enter rise up to 41'1" with 6'0" Pit for Arrgt. #4 (2000lb- 3500lb)]

[Enter rise up to 44'1" with 7'0" Pit for Arrgt. #4 (2000lb- 3500lb)]

[Enter rise up to 29'9" with 7'6" Pit for Arrgt. #4 (2000lb- 3500lb)]

[Note: Maximum Rise will depend upon the load on platen. Load on platen is determined by the duty, speed, rise, weight of the cab enclosure, elevator car frame and platform. The architectural inside an elevator cab will affect the weight of the cab enclosure.]

12. Rated Capacity/Speed: **[Select one of the following capacity/speed combinations]**

[Arrgt. #1]

2000 pounds, 100/125 fpm

2100 pounds, 100/125 fpm

2500 pounds, 100/125 fpm

3000 pounds, 100/125 fpm

3500 pounds, 100/125 fpm

4500 pounds, 100/125 fpm

5000 pounds, 100/125 fpm

[Arrgt. #2]

2000 pounds, 100/125/150 fpm

2100 pounds, 100/125/150 fpm

2500 pounds, 100/125/150 fpm

3000 pounds, 100/125/150 fpm

3500 pounds, 100/125/150 fpm

4500 pounds, 100/125/150 fpm

*City of Virginia Beach Public Works
Building Construction Standards*

5000 pounds, 100/125/150 fpm

[Arrgt. #3]

2000 pounds, 100/125/150 fpm

2100 pounds, 100/125/150 fpm

3000 pounds, 100/125/150 fpm

3500 pounds, 100/125/150 fpm

[Arrgt. #4]

2000 pounds, 100/125 fpm

2100 pounds, 100/125 fpm

2500 pounds, 100/125 fpm

3000 pounds, 100/125 fpm

3500 pounds, 100/125 fpm

13. Minimum Car Inside: **[Match to appropriate capacity selected above]**

Front Opening & Glassback:

[2000#] 5' 8" wide x 4' 3" deep

[2100#] 5' 8" wide x 4' 3" deep

[2500#] 6' 8" wide x 4' 3" deep

[3000#] 6' 8" wide x 4' 9" deep

[3500#] 6' 8" wide x 5' 5" deep

[4500#] 5' 8" wide x 7' 11" deep

[5000#] 5' 11" wide x 8' 6" deep

Front & Rear Opening:

[2000#] 5' 8" wide x 4' 3-3/4" deep

[2100#] 5' 8" wide x 4' 3-3/4" deep

[2500#] 6' 8" wide x 4' 3-3/4" deep

[3000#] 6' 8" wide x 4' 9-3/4" deep

[3500#] 6' 8" wide x 5' 5-3/4" deep

[4500#] 5' 8" wide x 7' 11-3/4" deep

[5000#] 5' 11" wide x 8' 6-3/4" deep

14. Inside Cab Height: **[Select Appropriate]** 8'0" **[OR]** 9'7"

Height Under Ceiling: **[Select Appropriate]** 7' 4 1/2" **[OR]** 8'-11 1/2"

15. Entrance Width & Type: **[Match to capacity selected above]**

[2000#] Single-Slide Door 3' 0" x 7' 0" or 8' 0"

[2100#] Single-Slide Door 3' 0" x 7' 0" or 8' 0"

[2500#] Single-Slide Door 3' 6" x 7' 0" or 8' 0"

[3000#] Single-Slide Door 3' 6" x 7' 0" or 8' 0"

[3500#] Single-Slide Door 3' 6" x 7' 0" or 8' 0"

[2500#] Center-Open. Doors 3' 6" x 7' 0" or 8' 0"

[3000#] Center-Open. Doors 3' 6" x 7' 0" or 8' 0"

[3500#] Center-Open. Doors 3' 6" x 7' 0" or 8' 0"

[4500#] Two-Speed Doors 4' 0" x 7' 0" or 8' 0"

[5000#] Two-Speed Doors 4' 6" x 7' 0" or 8' 0"

16. Main Power Supply: **[Select one: 208, 240, 480]** Volts + or - 5% of normal, 3 Phase, with a separate equipment grounding conductor.
17. Lighting Power Supply: 120 Volts, 1 Phase, 20 Amp, 60 Hz.
18. Stopping Accuracy: $\pm 1/4$ " under any loading condition or direction of travel.
19. Door Opening Time for 7ft. painted hoistway and car doors:
 - [2000#]** 3.5 seconds – Single Slide 36" door.
 - [2100#]** 3.5 seconds – Single Slide 36" door.
 - [2500#]** 4.0 seconds – Single Slide 42" door.
 - [3000#]** 4.0 seconds – Single Slide 42" door.
 - [3500#]** 3.5 seconds – Single Slide 42" door.
 - [2500#]** 2.5 seconds – Center Opening 42" door.
 - [3000#]** 2.5 seconds – Center Opening 42" door.
 - [3500#]** 2.5 seconds – Center Opening 42" door.
 - [4500#]** 4.5 seconds – Two Speed 48" door.
 - [5000#]** 5.0 seconds – Two Speed 54" door.

[Select Simplex, Duplex or Multi-Car operation as required]

- B. Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.

[OR]

- B. Duplex Collective Operation: Using a microprocessor-based controller, the operation shall be automatic by means of the car and hall buttons. In the absence of system activity, one car can be made to park at the pre-selected main landing. The other (free) car shall remain at the last landing served. Only one car shall respond to a hall call. If either car is removed from service, the other car shall immediately answer all hall calls, as well as its own car calls.

[OR]

- B. Multi-Car (3 or 4) Operation: Using a microprocessor-based controller, the operation shall be automatic by means of the car and hall buttons. In the absence of system activity, one car can be made to park at the pre-selected main landing. The other (free) cars shall park in multiple zones, changing their location with traffic demands.
- C. Provide microprocessor-based control system **by approved, herein referenced, list of manufacturers** that utilizes on-board diagnostics for servicing, trouble-shooting, and adjusting without requiring the use of an outside service tool. If an on-board diagnostic system is not provided, a handheld service tool (or laptop), owner's license, operation manual, complete and total access to all levels of programming and diagnostics, and tools and instructions must be provided in addition to the control system.

D. Car Operating Features

1. Full Collective Operation.
2. Single Speed Fan.
3. On/Off Light Switch.
4. Solid State Starting
5. Firefighters' Service Phase I and Phase II
6. Top of Car Inspection.

[Include the following options as required. Renumber accordingly.]

7. Intercom provisions (Intercom Equipment Provided and Installed by Others).
8. Car Secure Access. (Available on front opening cars only.)
9. Provision for Card Reader in Car (Card Reader Provided and Installed by Others).
10. Express Priority Service with keyswitch(es) at **[enter landing designation(s)]**
11. Second Riser of Hall Buttons. [Not available if any car in the group has a rear entrance]
12. Provisions for Elevator Management System (2 or more cars).
13. Automatic Standby Power Operation with Manual Override. This operation shall return each car automatically to a designated landing when the system is initially switched to standby power. One or more cars are returned at a time. Preference is given to loaded cars over empty cars in order to reduce passenger waiting times. A car must respond by beginning to move toward the designated landing within a pre-determined time. If a car does not respond, it is automatically placed in a "Not Available" mode while other cars are moved. If a car was not returned to the designated landing on the first try, a second attempt is made. If the second attempt is not successful, the car will remain in a "Not Available" mode and can only be moved by manual means. Once each car has returned to the designated landing, the doors will remain open for a predetermined amount of time.

E. Door Control Features:

Door operation must meet the requirements of ASME A17.1. Provide high-speed electric operator, safety interlocks for car and hoistway doors, and electric safety contact to prevent car operation unless doors are closed.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product data for each system proposed for use. Include the following:

1. Signal and operating fixtures, operating panels and indicators
2. Cab design, dimensions and layout
3. Hoistway-door, frame, and operating equipment details
4. Electrical characteristics and connection requirements
5. Expected heat dissipation of elevator equipment in machine room (BTU)
6. Pumping unit
7. Jack
8. Elevator controller
9. Selector

10. Limit switches
- B. Shop Drawings: Submit approval layout drawings. Include the following:
1. Car, guide rails, buffers and other components in hoistway
 2. Maximum rail bracket spacing
 3. Maximum loads imposed on guide rails requiring load transfer to building structure
 4. Loads on hoisting beams
 5. Clearances and travel of car
 6. Clear inside hoistway and pit dimensions
 7. Location and sizes of access doors, hoistway entrances and frames
 8. Machine room layout
 9. Color selection:
 - a. Submit color charts of exposed finishes and materials for color selection. When requested, submit samples of exposed finishes and materials selected for the elevator system materials and components.
- C. Operations and Maintenance Manuals: Provide manufacturer's standard operations and maintenance manual but shall include at a minimum
1. Two sets of operation, maintenance instructions and wiring diagrams. One set shall be laminated and placed on Job Site. The second set shall be delivered to the Engineer.
 2. Two sets of parts list, with recommended parts inventory. One set shall be laminated and placed on Job Site. The second set shall be delivered to the Engineer.
- D. Operation and Maintenance Training
1. Submit a proposed on-site training schedule detailing schedule and proposed material to be covered by factory trained representative at least twenty-eight days prior to proposed date.

1.5 QUALITY ASSURANCE

- A. Manufacturer: Provide elevators manufactured by a firm with a minimum of 10 years experience in fabrication of elevators equivalent to those specified.
- B. Installer: Perform work specified in this section under the direct guidance of the Elevator Installer who is regularly engaged in the installation and maintenance of the type and complexity of elevator system specified in the contract documents, and who served in a similar capacity for at least three systems that have performed in the manner intended for a period of not less than 24 months. Provide endorsement letter from the elevator manufacturer certifying that the Elevator Installer is acceptable to manufacturer. The Elevator Installer oversees the acceptance inspections and tests, signs and certifies the successful results.

- C. Regulatory Requirements: Elevator system design and installation shall comply with the latest versions of ASME A17.1 and applicable local codes.
 - 1. Elevator shall be designed in response to Americans with Disabilities Act Accessibility Guidelines (ADAAG).
 - 2. ASME A17.1 Safety Code for Elevators and Escalators, latest edition or as required by the local building code.
 - 3. International Building Code.
 - 4. NFPA 70 National Electrical Code.
 - 5. NFPA 80 Fire Doors and Windows.

- D. Permits and Inspections:
 - 1. Elevator Installer shall obtain from The Authority Having Jurisdiction (AHJ) and pay for all required inspections, tests, permits and fees for elevator installation.
 - 2. Arrange for inspections and make required tests.
 - 3. Deliver to the Building Owner upon completion and acceptance of elevator work.

- E. Fire-rated entrance assemblies:
 - 1. Opening protective assemblies including frames, hardware, and operation shall comply with ASTM E2074, UL10(b), and NFPA Standard 80.
 - 2. Provide entrance assembly units bearing Class B or 1 1/2 hour label by a Nationally Recognized Testing Laboratory.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver elevator materials, components and equipment in manufacturer's protective packaging.
- B. Store materials in a dry protected area.
- C. Protect and handle materials in accordance with manufacturer's recommendations to prevent damage, soiling, or deterioration.

1.7 WARRANTY

- A. Provide routine warranty service in accord with manufacturer's warranty requirements for a period of 12 months after the date of acceptance by the owner. Maintain a maintenance log of all service orders performed during the warranty period and submit it to the Owner 15 days prior to the end of the warranty period.

1.8 MAINTENANCE SERVICE

- A. Furnish emergency maintenance (including 24/7/365 monitoring of emergency phone) and

call back service as well as routine/periodic maintenance for the elevator for a period of 12 months from date of acceptance. Emergency call back shall include all service issues that may arise, including power outages, operator error, etc.

- B. Service shall consist of monthly examination of the equipment, adjustment, lubrication, cleaning, supplies and parts to keep the elevators in proper operation.
- C. Maintenance work shall be performed by trained employees of the elevator contractor during regular working hours, and shall, additionally, include 24-hour emergency call-back service.
- D. Submit parts catalog and show evidence of local parts inventory with complete list of recommended spare parts.
- E. Parts shall be produced by manufacturer of original equipment.
- F. CONTRACTOR SHALL PROVIDE AND LEAVE BEHIND ALL NECESSARY DOCUMENTATION, SOFTWARE, ETC. FOR THE OWNER TO SECURE INDEPENDENT MAINTENANCE CONTRACTS AND REQUIRED LOCAL INSPECTIONS. Provide one of each tool per group of elevators. Include solid state or microprocessor based diagnostic tools and software whether available or unavailable on the open market. Provide a minimum of six keys per unique cylinder used on all key switches for single elevator.
- G. Manufacturer shall have a service office and full time service personnel within a 50 mile radius of the project site.

PART 2 - PRODUCTS

2.1 EQUIPMENT: MACHINERY COMPONENTS

- A. The hydraulic system shall be of compact design suitable for operation under the required pressure. Provide self-contained pump unit, including oil-hydraulic elevator pump, electric motor, suction-line oil strainer, oil-tight drip pan, and structural steel outer base with tank supports and isolation pads. Provide intermittent-duty pump motor rated at 120 starts/hour. Provide motor that is sized so that the motor amperage does not exceed the motor data tag amperage in any operating condition, exclusive of acceleration and deceleration.. Provide motor and pump nameplate and data tags permanently mounted on the outside of the pump unit frame, with all data viewable without the use of mirrors or other tools. Provide control valve, overspeed (rupture) valve, blowout-proof muffler, low-pressure switch, shut-off valve, and hydraulic pump discharge strainer in the hydraulic oil supply line.
 - 1. Hydraulic Control Valve
Provide constant-velocity, down-speed regulated, control valve. Down-speed regulated control valve allows the car to travel at the same speed in the down direction, regardless of the load on the elevator. In addition, the hydraulic control

- valve shall have built-in adjustment capability to operate the elevator at 140 percent of rated speed in the down direction to facilitate periodic testing of the overspeed safety valve. All functions shall be fully adjustable for maximum smoothness and to meet contract conditions.
2. Hydraulic Overspeed Safety Valve
Provide overspeed safety valve in hydraulic oil supply line, directly adjacent to the hydraulic cylinder. Provide valve equipped with manufacturer's manual shutoff feature. Provide adjustable valve with means to seal adjustment after inspection and testing by certified elevator inspector.
 3. Hydraulic Piping and Accessories
Provide ASTM A53/A53M or ASTM A106/A106M, Schedule 80, black steel piping with ASME B16.9 or ASME B16.11 fittings for supply piping. Extend schedule 80 piping from the pump control valve body, inside the pump unit, to the hydraulic cylinder in the hoistway. Provide welded or threaded forged pipe fittings for all fittings and components of the hydraulic oil supply line. For direct plunger cylinders, provide dielectric union or isolation couplings at each end of the hydraulic oil supply line. Provide hangers or supports for all piping and components.
- B. A microprocessor-based controller. Provide microprocessor controller for each individual elevator and group controller. Store all programming in non-volatile memory. Provide a microprocessor control system that includes all hardware and software required to service and maintain the elevator and a technical support service that is routinely provided to any elevator service provider. The microprocessor shall be capable of being linked together for purposes of communication by serial communications link. Communication between the elevator controller(s) and the City's Vertical Transportation Management System (VTMS) equipment shall occur via serial data communication. This serial data connection shall consist of some suitable physical media (Ethernet, RS485 Twisted Pair, etc.), communicating Status, Fault, and other data tables. In addition, the controllers shall be capable but not limited to various control features such as car and hall call activation and lockouts, Lobby Recall, Independent Service Activation and VIP Service through the VTMS equipment. The elevator contractor shall also be responsible for procuring, installing, testing and commissioning such VTMS equipment as is required to add the elevator(s) to the owner's VTMS.
- C. Provide, for each individual elevator microprocessor controller unrestricted access to the comprehensive range of adjustable parameters necessary to perform installation, adjusting, service, maintenance, and testing of the elevator. When provided, for each elevator group controller, provide unrestricted access to the comprehensive range of options and adjustments necessary to perform installation, adjusting, service, maintenance, and testing of the elevator group. The elevator controller shall be provided, including necessary starting switches together with all relays, switches, solid-state components and hardware required for operation. A three (3) phase overload device shall be provided to protect the motor against overloading. Motor starting shall be accomplished by a solid-state reduced voltage motor starter.
1. Approved Manufacturers
 - a. GAL Manufacturing Corp. – Galaxy

- b. Motion Control Engineering – Motion 2000
 - c. Virginia Controls – MH Series
 - d. Smartrise Engineering Inc. - SRH
- D. A manual lowering feature shall permit lowering the elevator at slow speed in the event of power failure or for adjusting purposes.

2.2 EQUIPMENT: HOISTWAY COMPONENTS

- A. Plunger(s) and Cylinder(s): Each cylinder shall be constructed of steel pipe of sufficient thickness and suitable for the operating pressure. The top of each cylinder shall be equipped with a cylinder head with a drip ring to collect any oil seepage as well as an internal guide ring and self-adjusting packing. Each plunger shall be constructed of selected steel tubing or pipe of proper diameter machined true and smooth with a fine polished finish. Each plunger shall be provided with a stop ring electrically welded to it to prevent the plunger from leaving the cylinder. Each plunger and cylinder shall be installed plumb and shall operate freely with minimum friction. A sealed PVC cylinder protection system shall be installed. The system shall provide a means to monitor the space between the PVC sleeve and cylinder wall and evacuate unwanted fluids, so as to prevent such fluids from remaining in contact with the cylinder.
- B. Car Guide Rails: Tee-section steel rails with brackets and fasteners. Paint rail shanks with one coat black enamel.
- C. Spring Buffer: Helical coil spring type. Provide buffer data plate on each buffer
- D. Wiring: Wiring for hoistway electrical devices included in scope of the elevator system, hall panels, pit emergency stop switch, and the traveling cable for the elevator car. Suspend traveling cables by means of self-tightening webbed devices.
- E. Hoistway Entrances
1. Frames: Entrance frames shall be of bolted construction for complete one-piece unit assembly. All frames shall be securely fastened to fixing angles mounted in the hoistway and shall be UL fire rated steel. Additional sill angle support will be provided with 4'0" and 4'6" two speed opening door arrangements (4500 & 5000 lb. cars). Sills shall be extruded **[Select: <aluminum> or <bronze> or <nickel silver>.]**
 2. Doors: Entrance doors shall be of hollow metal construction with vertical internal channel reinforcements.
 3. Fire Rating: Entrance and doors shall be UL fire rated for 1-1/2 hour.
 4. Entrance Finish: **[This paragraph may be written as needed to indicate specific entrance finishes by the opening. Clearly indicate landing/opening designations for each finish. For example: "Lobby - satin finish stainless steel, floors 2 through 8 - with white powder paint". Frame & Door finish can be independent.] [Select finish: satin stainless steel> or <satin bronze> or <mirror stainless steel> or <mirror bronze> or <powder paint finish.> Color to be selected from the manufacturer's standard color chart.]**

5. Entrance Markings: Entrance jambs shall be marked with 4" x 4" plates having raised floor markings with Braille adjacent. Markings shall be provided on both sides of the entrance.
6. Sight Guards: Black sight guards will be furnished with any metal finish door. Powder paint matching sight guards will be furnished with powder paint doors.

2.3 EQUIPMENT: CAR COMPONENTS

[Select appropriate cab type]

- A. Car Frame: A suitable car frame shall be provided with adequate bracing to support the platform and car enclosure. The buffer striking plate on the underside of the car-frame platform assembly must fully compress the spring buffer mounted in the pit before the plunger reaches its lower limit of travel.

Options:

- [1. Satin stainless steel wainscot to be provided at the lower portion of the panels.]**

- B. **Removable Panels** Cab walls to be made of 16-gauge sheet steel painted with black powder paint and are to have perforations for hardware to mount removable panels. Laminate to be chosen from the manufacturer's standard selection.

Options: Select only one type of removable panels:

1. **Vertical** - vertical panel in plastic laminate edged in black PVC.

[OR]

2. **Horizontal** - horizontal panels in plastic laminate edged in black PVC.

[OR]

3. **Vertical w/Frieze** - vertical panel in plastic laminate edged in black PVC with 8" frieze. [Select finish of frieze: <mirror stainless steel> or <mirror bronze.>]

[OR]

4. **Horizontal w/Stainless wainscoting** - horizontal panels with top panel in plastic laminate and bottom panel in satin stainless steel, edged in black PVC.

[OR]

5. **Vendor Removable Panels:** Vendor removable panels; manufacture to provide hardware for vendor panels (clips).

[OR]

- B. **Steel Cab** Cab walls to be of 14-gauge sheet steel: [Select: < with powder paint finish. Color to be selected from the manufacturer's standard color chart.> or <satin stainless steel.>.]

[OR]

Steel Cab Cab walls to be of 16-gauge sheet steel: **patterned stainless steel.**

- C. Car Front Finish: Car front(s) and door finish can be independent. [Change to <Car front and rear> with all rear opening elevators. **[Select finish: <satin stainless steel> or <satin bronze> or <mirror stainless steel> or <mirror bronze> or <powder paint finish.>]** Color to be selected from the manufacturer's standard color chart.
- C1. Car Door Finish: Car front(s) and door finish can be independent. [Change to <Car front and rear> with all rear opening elevators. **[Select finish: <satin stainless steel> or <satin bronze> or <mirror stainless steel> or <mirror bronze> or <powder paint finish.>]** Color to be selected from the manufacturer's standard color chart.
- D. Car top to be of wood material clad on both sides with a natural finish aluminum panel.
- E. Ceiling Type:

[Select appropriate Ceiling Type]

Downlight suspended ceiling will have panels laminated with **[Select: <natural mirror finish> or <natural satin finish> or <bronze satin finish> or <bronze mirror finish> or <plastic laminate> Color to be selected from the manufacturer's standard color chart.]** Set with LED down lights, one per panel (120 volts).

[OR]

Lexan suspended ceiling shall consist of white translucent polycarbonate diffusers set in frame of extruded

[Select: <aluminum> or <aluminum w/gold-tone-paint>] with LED lighting fixtures.

[OR]

Aluminum Eggcrate suspended ceiling shall consist of aluminum eggcrate diffusers set in frame of extruded **[Select: <aluminum> or <aluminum w/gold-tone-paint>]** with LED lighting fixtures.

[OR]

Perimeter Lighted suspended ceiling which will have panels laminated with **[Select: <natural mirror finish> or <natural satin finish> or <bronze satin finish> or <bronze mirror finish> or <plastic laminate.> Color to be selected from the manufacturer's standard color chart.>]** Set with perimeter LED lighting.

- F. Emergency Car Lighting: An emergency power unit employing a sealed rechargeable battery and totally static circuits shall be provided to illuminate the elevator car and provide current to the emergency siren in the event of building power failure.
- G. Emergency Pulsating Siren: Siren mounted on top of the car that is activated when the Alarm button in the car operating panel is engaged. Siren shall have a rated sound pressure level of 80 dba at a distance of 3.0 m from the device. Siren shall respond with a delay of not more than 1 second after the switch or push button has been pressed
- H. Exhaust Fan: An exhaust fan shall be mounted on the car top.
- I. Utility Outlet: A 125V 15 amperes utility outlet with ground-fault circuit-interrupter

protection shall be furnished on top of the cab.

J. Handrail:

[Select appropriate Handrail Type]

Rectangular Tubular Metal Bar 1/2" x 1-1/2" [**Select:** <satIn> or <mirror>] finish [**Select** <stainless steel> or <bronze>] provided on the [**Select location(s)<rear> or <sides> or <sides and rear>**] of the car enclosure.

[OR]

Flat Solid Metal 1/4" x 8" [**Select:** <satIn> or <mirror>] finish [**Select** <stainless steel> or <bronze>] provided on the [**Select location(s)<rear> or <sides> or <sides and rear>**] of the car enclosure.

[OR]

Round Tubular Metal 1-1/2" or 2" [**Select:** <satIn> or <mirror>] finish [**Select** <stainless steel> or <bronze>] provided on the [**Select location(s)<rear> or <sides> or <sides and rear>**] of the car enclosure.

[OR]

[Optional] Bumper Rail:

Flat Solid Metal 1/4" x 8" satin stainless steel provided on the [**Select location(s)<rear> or <sides> or <sides and rear>**] of the car enclosure. [**Finish independent from top-handrail finish.**]

K. Threshold: [**Select:** <aluminum> or <bronze> or <nickel silver>.]

L. Protective pad hooks and quilted fire retardant protective pads: Pad Buttons will be provided with non-suspended ceiling.

M. [Optional] An electrical contact shall be provided on the car-top exit.

N. [Optional w/ powder paint car door(s)] Kickplate for car doors. [**Select finish:** <satIn stainless steel> or <satIn bronze>.]

O. Applied Base Finish - [**Select finish:** <satIn stainless steel> or <satIn bronze> or <mirror stainless steel> or <mirror bronze>.]

P. Applied Reveal Finish - [**Select finish:** <satIn stainless steel> or <satIn bronze> or <mirror stainless steel> or <mirror bronze>.]

Q. [Optional] Glass rear cab wall - [**Select thickness:** <1/4"> or <9/16">] laminated safety glass per ANSI code. If exposed to direct sun light then a variable speed fan will be necessary. Aluminum tube frame painted black. Two piece design with handrail space between the top and bottom pieces of glass. No shrouding at the top or bottom of car.

2.4 EQUIPMENT: DOOR OPERATOR

- A. VVVF drive, AC motor, and PC onboard car and hall door operator.
 - 1. Approved Manufacturers
 - a. GAL Manufacturing Corporation

2.5 EQUIPMENT: SIGNAL DEVICES AND FIXTURES

- A. Car Operating Panel: A car operating panel shall be provided which contains all push buttons, key switches, and message indicators for elevator operation. The car operating panel shall have
 - 1. Illuminating operating call buttons identified to correspond to landings served by elevator car. **[For two openings at a floor, provide two buttons, marked "FRONT" and "REAR" above buttons.]**
 - 2. "DOOR OPEN" and "DOOR CLOSE" buttons.
 - 3. Keyed "STOP" switch in accordance with ASME A17.1 barrel style #512.
 - 4. "ALARM" button in compliance with UFAS, ADA, and ASME A17.1. Furnish a red alarm button with engraved legend "ALARM." Allow alarm button to illuminate when pushed. Locate "ALARM" button at panel bottom.
 - 5. "FIRE DEPARTMENT" key switch barrel style #515, with "OFF-HOLD-ON" positions, in that order with key to be removable in all positions. Provide fire sign or jewel, and audible signal device, in accordance with ASME A17.1. Both visual and audible signals are activated when Phase I key switch in hall is activated or when smoke detector activates return of elevator(s) to main fire response floor. Keep visual and audible signal activated until car has reached main or designated alternate fire response floor. Upon arrival at fire response floor visual signal remains illuminated and audible signal becomes silent.
 - 6. Emergency two-way communication. Provide momentary pressure, single illuminating pushbutton operated communication device that complies with ASME A17.1, UFAS, and the Americans with Disabilities Act.
 - 7. Car Position Indicator at the top of and integral to the car operating panel.
 - 8. Light key-switch. Barrel style #513.
 - 9. Fan key-switch. Barrel style #513.
 - 10. Firefighter's Phase II Key-switch
 - 11. Call Cancel Button
 - 12. Landing Passing Signal: A chime bell shall sound in the car to signal that the car is either stopping at or passing a floor served by the elevator.
 - 13. Telephone Cabinet: A telephone compartment with telephone, shall be furnished in the return panel below the car operating panel. Necessary wires for the telephone shall be included in the compartment and connected to the car traveling cable.
 - [13. **Sound-actuated firefighter phone jack.]**
 - [14. **Help Button – The help button shall initiate two-way communication between the car and a location inside the building, switching over to another location if the call is unanswered, where personnel are available who can**

take the appropriate action. Visual indicators are provided for call initiation and call acknowledgement.]

- B. Service Controls
 - 1. Inspection switch that transfers car control to top-of-car inspection operating controls and prevents car operation from in-car control panel. Barrel style #514.
 - 2. Independent service switch.
 - 3. Two car light switches, one for light in car and one for lights on top and bottom of car frame.
 - 4. Fan switch, two-speed.
 - 5. 120-volt ac 60 Hz single-phase duplex electrical outlet of ground-fault-circuit-interrupt (GFCI) design.
 - 6. Device for communication between car and elevator machine room.
- C. Certificate Window Provide 4 inch high by 6 inch wide certificate window in car operating panel for elevator inspection certificate.
- D. Hall Lanterns and Chime: A directional lantern visible from the corridor shall be provided at each hall entrance. When the car stops and the doors are opening, the lantern shall indicate the direction in which the car is to travel and a chime will sound.

[Include the following options as required. Re-letter accordingly]

- E. **[Optional]** Hall Position Indicator centered above the entrance at **[enter landing designation(s), maximum two landings.]**
- F. **[Optional]** Hall call cutout key-switches to disable activation of hall buttons **[enter landing designation(s)].**
- G. **[Optional]** Key-switch Operation in lieu of hall buttons **[enter landing designation(s).]**
- H. **[Optional]** Access key-switch at top floor in entrance jamb.
- I. **[Optional]** Access key-switch at lowest floor in entrance jamb.
- J. **[Optional]** Coaxial cable (RG6) in traveling cable.
- K. **[Optional]** Card reader provisions, 4 twisted shielded pairs in traveling cable.
- L. **[Optional, Duplex only]** Emergency (standby) Power key-switch: Manual selection of each elevator in normal operation after automatic return in standby power operation has been initiated.
- M. **[Optional, available with 3 to 4 car groups]** Emergency (standby) Power Cabinet: Manual selection of each elevator in normal operation after automatic return in standby power operation has been initiated. This is achieved via a strip switch inside the standby-power cabinet.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Immediately notify architect of any conditions prohibiting installation of the elevator system in accordance with design documents and/or manufacturer's recommendations.

3.2 INSTALLATION

- A. Installation of all elevator components except as specifically provided for elsewhere by others.
 - 1. **INSTALLATION** Install in accordance with manufacturer's instructions, ASME A17.1, 36 CFR 1191, and NFPA 70.
 - 2. **Traveling Cables** Do not allow abrupt bending of traveling cables.
 - 3. **Automatic Shutoff Valve** Locate in supply-return line, as close as possible to cylinder-plunger unit.
 - 4. **Structural Members** Do not cut or alter. Restore any damaged or defaced work to original condition.
 - 5. **Safety Guards** Completely enclose selector cables or tapes exposed to possibility of accidental contact in machine room with 1.5 mm 16 gage thick sheet metal or expanded metal guards, both horizontally and vertically. Protect exposed gears, sprockets, and selector drums from accidental contact in accordance with ASME A17.1.
 - 6. **Other Requirements** Include recesses, cutouts, slots, holes, patching, grouting, and refinishing to accommodate elevator installation. Use core drilling to drill all new holes in concrete. Finish work to be straight, level, and plumb. During installation, protect machinery and equipment from dirt, water, or mechanical damage. At completion, clean all work, and spot paint. Completion of firefighters' service includes installation and wiring of all smoke detectors in accordance with ASME A17.1. Coordinate smoke detector installation for firefighters' service.

3.3 DEMONSTRATION

- A. The elevator contractor shall make a final check of each elevator operation with the Owner or Owner's representative present prior to turning each elevator over for use. The elevator contractor shall determine that control systems and operating devices are functioning properly.

3.4 FIELD QUALITY CONTROL

- A. After completing elevators system installation, notify Owner's representative that elevator system is ready for final inspection and acceptance test. In conjunction with the notification submit a plan detailing the testing procedures 28 days prior to performing the elevator tests.
- B. Perform all required tests and demonstrate proper operation of each elevator system and prove that each system complies with contract requirements and ASME A17.1. Inspection procedures in ASME A17.2 form a part of this inspection and acceptance testing. Conduct all testing and inspections in the presence of the Owner's representative and the Elevator Inspector.
- C. The elevator installer shall maintain a copy of the results of all tests and inspection results, Elevator Inspection Certificate after successful completion of inspection and testing. The Contractor is responsible for all costs involved with reinspection and retesting required to correct discrepancies discovered during testing and the subsequent retesting required.
- D. Testing Materials and Instruments: Provide testing materials and instruments required for final inspection. Include calibrated test weights, tachometer, 600-volt megohm meter, volt meter and ammeter, three Celsius calibrated thermometers, door pressure gage, spirit level, stop watch, hydraulic pressure test gauge, and a 100 foot tape measure.
- E. Field Tests: Submit Field Tests Reports after completing each of the specified tests, as required in the Submittals paragraph.
 - 1. Endurance Tests: Test each elevator with specified rated load in the car. Restart test period from beginning, following any shutdown or failure. During the test run, stop car at each floor in both directions of travel for standing period of 10 seconds per floor. The requirements for Rated Speed, Leveling, Temperature Rise, and Motor Amperes testing specified herein must be met throughout the duration of the Endurance test.
 - 2. Automatic Shutoff Valve Tests: Test the automatic shutoff valve twice. Once at beginning of acceptance test and again at conclusion of test to ensure consistent performance of shutoff valve, regardless of temperature of equipment and oil.
 - 3. Speed Tests: Determine actual speed of each elevator in both directions with rated load and with no load in elevator car. Make Speed tests before and immediately after Endurance test. Determine speed by tachometer reading, excluding accelerating and slow-down zones in accordance with ASME A17.2. Minimum acceptable speed is the Rated Speed as specified. Maximum acceptable elevator speed is 110 percent of Rated Speed.
 - 4. Leveling Tests: Test elevator car leveling devices for landing accuracy of plus or minus 1/4 inch at each floor with no load in car, symmetrical load in car, and with rated load in car in both directions of travel. Determine accuracy of floor landing both before and immediately after endurance tests.
 - 5. Pressure Tests: Check operating pressure at pump and cylinder head under no load and rated load. Test pressure at which relief valve operates.
 - 6. Insulation Resistance Tests: Perform tests to ensure wiring systems free from short circuits and grounds. Minimum acceptable insulation resistance for electrical

conductors is one megohm between each conductor and ground and between each conductor and other conductors. Prior to megohm meter test, make provision to prevent damage to the electronic devices.

7. Temperature Rise Tests: Determine the temperature rise of the hydraulic pump motor during the full load test run. Under these conditions, do not exceed maximum acceptable temperature rise indicated on the manufacturer's data plate. Start test only when equipment is within 5 degrees C of ambient temperature.
8. Motor Ampere Tests: Measure and record motor amperage when motor is running and elevator is lifting at rated load and speed. Measure and record motor amperage at the beginning and the end of Endurance test.

3.5 OPERATION AND MAINTENANCE TRAINING

- A. The Elevator Representative shall instruct City of Virginia Beach personnel in care, adjustment, and maintenance of elevator equipment for a period of not less than 8 hours immediately following acceptance of system. Training shall include elevator, elevator controller, and elevator monitoring equipment.

END OF SECTION 14000

SECTION 16445
ELEVATOR CONTROL SWITCH

PART 1 GENERAL

1.01 DESCRIPTION

A. Work of this section shall conform to the requirements of the Contract Documents.

1.02 SECTION INCLUDES

A. Provide Elevator Control Switch(es), fuses and accessories as required and specified on Contract Drawings to distribute electrical power to all Elevators.

1.03 RELATED SYSTEMS

A. (Reference other sections of the specification which cover Elevator installation)

1.04 CODES

A. All work shall be performed in accordance with the current edition of applicable standards, codes and laws including, but not limited to:

1. NFPA 70
2. ANSI/ASME A17.1
3. NFPA 72

1.05 STANDARDS

A. Except as modified by governing codes, all equipment shall be manufactured in accordance with the latest applicable standards:

1. Enclosed Switches, U.L. 98 and CSA – C22.2 No. 4

1.06 QUALIFICATIONS

The manufacturer of the assembly shall be the manufacturer of the major components within the assembly.

For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.

The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.

1.07 SUBMITTALS

- A. Submit shop drawings and product data under the provisions of the General Conditions.
- B. Product Data: Provide manufacturer's catalog information showing dimensions, configurations, and methods of mounting and installation.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be handled and stored in accordance with manufacturer's instructions. One (1) copy of these instructions shall be included with the equipment at time of shipment.
- B. Submit listing of all types, sizes and quantity of fuses, which will be installed including the location of each.
- C. Spare fuses shall be supplied as required by (reference fuse specification section).

PRODUCTS

2.01 MANUFACTURERS

- A. Eaton
- B. Bussmann® Power Module™ – PS

2.02 GENERAL CONDITIONS & REQUIREMENTS

- A. Provide Elevator Control Switch in a single NEMA enclosure with all necessary relay(s), control transformer and other options (as listed below), and as shown on drawings. The Elevator Control Switch shall be constructed, listed, and certified to the standards as listed in above. The Elevator Control Switch shall have an ampere rating as shown on the Contract Drawings, and shall include a horsepower rated fusible switch with shunt trip capabilities. The ampere rating of the switch shall be based upon elevator manufacturer requirements and utilize Class J Fuses (provided separately). It shall include as an accessory, a 100 VA control power transformer with primary and secondary fuses. The primary voltage rating shall be _____volts with a 120 volt secondary. It shall also contain an isolation relay (3PDT, 10 amp, 120V). The coil of the isolation relay shall be _____(120 Vac or 24 Vdc). A normally open dry contact shall be provided by the Fire Alarm Safety System to energize the isolation relay and activate the shunt trip solenoid (140 VA in rush at 120V). (Note: If 24 Vdc coil is selected, a separate 24 Vdc source and contact must be provided by the Fire Alarm Safety System.) The switch shall include a 120 volt key to test switch and a 1-NO/1-NC mechanically interlocked auxiliary contact rated 5A, 120 Vac as standard. The switch shall contain the following options:^f

^f Note to Spec. Writer – Insert data in blanks

“ON” Pilot Light (Green, Red or White)

Isolated Full Capacity Neutral Lug

Fire Alarm Voltage Monitoring Relay (Needed to comply with NFPA 72)

NEMA _____ [1] [12] [3R] [4] Enclosure

Main Switch Auxiliary Contacts (1 NO/1 NC)

Complete catalog number for the Elevator Control Switch shall be . The module shall have been successfully tested to a short circuit rating exceeding the available fault current of the electrical system at the location of the switch. All switches shall have shunt trip capabilities at 120 Vac from remote fire safety signal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All material installation shall be in accordance with manufacturers recommendations and the provisions of applicable codes.

PART 4

TABLE OF CONTENTS

PART 4 ATTACHMENTS
Project Description and Narrative
List of Drawing Numbers/Titles/Dates of Drawings

End of Table of Contents

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