

SPECIFICATIONS FOR

**Rowan College of South Jersey
Gloucester County
1400 Tanyard Road
Sewell, New Jersey 08080**

**College Center
2021 EOF and CAP Office Renovations**

for

Architect:
Garrison Architects
713 Creek Road
Bellmawr, New Jersey 08031
(856) 396-6200
Fax (856) 396-6205

Construction Manager:
GREYHAWK
2000 Midlantic Drive Suite 210
Mount Laurel, New Jersey 08054
(856) 722-1800
Fax: (856) 722-1806

Mechanical, Electrical & Plumbing Engineer:
Mulhern Consulting Engineers
321 South York Road
Hatboro, PA 19040
(215) 293-9900
Fax (215) 441-5984

**Issued for Bid: 10-06-2021
GA #21-88**

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BIDDER'S CHECKLIST

FAILURE TO PROVIDE THE FOLLOWING INFORMATION AND DOCUMENTATION IDENTIFIED IN THIS BIDDER'S CHECKLIST AT THE TIME OF BID MAY BE CAUSE FOR REJECTION

Initial to Reflect Compliance:

- _____ Bidder's Checklist (Include with your Bid Package)
- _____ BID FORM – PART A
- _____ Subcontractor List
- _____ Acknowledgment of Receipt of Addenda / Clarifications. If no Addenda / Clarifications are issued, then check the Box on the Form
- _____ Indemnification and Hold Harmless Agreement
- _____ Certification Regarding the Debarment, Suspension, Ineligibility and Voluntary Exclusion
- _____ Approved Apprenticeship Form
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- _____ Disclosure of Investment Activities in Iran
- _____ Bid Bond
- _____ Consent of Surety
- _____ Disclosure of Contributions to New Jersey Election Law Enforcement Commission Form
- _____ Public Works Contractor Registration Certificate
- _____ Business Registration Certificate (due prior to contract award for Contractor)

By signing below, bidder acknowledges that he/she has read the AMERICANS WITH DISABILITIES ACT OF 1990 which has been included in the Specifications in the Instructions to Bidders.

BIDDER'S CHECKLIST

I acknowledge that the above information is included with my Bid Package.

Acknowledged for: _____
(Name of Bidder)

By: _____
(Signature of Authorized Representative)

Name: _____

Title: _____

END OF SECTION

ROWAN COLLEGE OF SOUTH JERSEY
COLLEGE CENTER 2021 EOF AND CAP OFFICE RENOVATIONS

NOTICE IS HEREBY GIVEN THAT sealed bids will be received by Rowan College of South Jersey, 1400 Tanyard Road, Sewell, New Jersey 08080 on **Thursday, November 4, 2021, at 2:00 P.M.** for the Rowan College of South Jersey College Center 2021 EOF and CAP Office Renovations, together with all work incidental thereto, in accordance with the requirements of the drawings and specifications prepared by Garrison Architects, 713 Creek Road, Bellmawr, New Jersey 08031.

The Work of the Project will be completed in a single lump sum contract.

Electronic Copies of the Bid Documents may be obtained by contacting Garrison Architects via email at jangelo@garrisonarch.com, Phone number (856) 396-6200. There is no charge for obtaining an electronic copy of the Bid Documents.

Bidding shall be in conformance with the applicable requirements of the County College Contracts Law, N.J.S.A. 18A:64A-25.1 et seq.

Bids must be in duplicate (1 original and 1 copy) on the proposal forms provided and in the manner designated, enclosed in a sealed envelope bearing the name and address of the bidder and proposal identification on outside, and must be accompanied by a Certified Check, Cashier's Check, or Bid Bond drawn to the order of **Rowan College of South Jersey** in the amount not less than 10% of the Bid pursuant to N.J.S.A. 18A:64A-25.16 and must be delivered to the above place on or before the hour named. Rowan College of South Jersey assumes no responsibility for bids mailed or misdirected in delivery.

Prospective bidders are advised that this Project is one which will be subject to and governed by provisions of New Jersey State Law governing (a) Prevailing Wage Act N.J.S.A. 34:11-56.27 et seq., and (b) Ownership Disclosure Certification P.L. 2016, Chapter 43, (N.J.S.A. 52:25-24.2).

The Public Works Contractor Registration Act N.J.S.A. 34:11-56.48 et seq. requires that the Contractor and Subcontractors must be registered at the time of Bid. The Owner is requesting that copies of the Certificates be included in the Contractor's Bid Package. Pursuant to N.J.S.A. 52:32-44 all business organizations that do business with a local contracting agency are required to be registered with the State and provide proof of their Registration with the New Jersey Department of Treasury, Division of Revenue before the contracting agency may enter into a contract with the business.

In addition, and pursuant to N.J.S.A. 18A:64A-25.17, each bid must be accompanied by a Certificate from a Surety Company stating it will provide each bidder with separate Performance and Payment Bonds, each in the amount of 100% of the contract sum.

No bid may be withdrawn for a period of sixty (60) days after the dates set for the opening thereof. The right is reserved to reject all bids or to waive minor informalities or non-material exceptions.

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

The bidder must be pre-qualified by the New Jersey Department of Treasury, Division of Property Management and Construction, prior to the date that bids are received.

ROWAN COLLEGE OF SOUTH JERSEY
COLLEGE CENTER 2021 EOF AND CAP OFFICE RENOVATIONS

Wednesday	10/06/21	Advertisement and Bid packages available for Electronic Delivery
Wednesday	10/13/21	Pre-bid meeting at 2:00 P.M. at Rowan College of South Jersey, College Center Faculty Staff Lounge , 1400 Tanyard Road, Sewell, New Jersey 08080. The Pre-Bid Meeting will be conducted in a large room where there is space for bidders to attend safely according to the guidelines put forth by the State of New Jersey. Masks will be required to be worn at all times.
Wednesday	10/20/21	Deadline for Questions to Garrison Architects at 5:00 P.M. (send questions to jangelo@garrisonarch.com)
Friday	10/22/21	Addendum #1 Emailed to all Plan Holders
Thursday	11/04/21	Bids Due at 2:00 P.M. at Rowan College of South Jersey, College Center Faculty Staff Lounge , 1400 Tanyard Road, Sewell, New Jersey 08080. The Bid Opening will be conducted in a large room where there is space for bidders to attend safely according to the guidelines put forth by the State of New Jersey. Masks will be required to be worn at all times.

ROWAN COLLEGE OF SOUTH JERSEY
BOARD OF TRUSTEES

October 6, 2021

INSTRUCTIONS TO BIDDERS

(The following instructions shall be adhered to in the preparation of this Bid by the Bidder.)

1. DEFINITIONS

- a. Owner: The term "Owner" as used in the Contract Documents refers to Rowan College of South Jersey, 1400 Tanyard Road, Sewell, NJ 08080.
- b. Architect: The term "Architect" refers to Garrison Architects, 713 Creek Road, Bellmawr, New Jersey 08031, Telephone (856) 396-6200, Fax (856) 396-6205.
- c. Contractor: The term "Contractor" refers to the Contractor to whom an award is made to perform the work under Contracts enumerated in the Advertisement.
- d. Construction Manager: The term "Construction Manager" refers to Greyhawk, 2000 Midlantic Drive, Suite 210, Mount Laurel, New Jersey 08057, Telephone (856) 722-1800, Fax (856) 722-1806.

2. PREPARATION OF BIDS

- a. Bids shall be submitted on Form of Bid, hereto attached, or on an exact copy thereof which contains identical language. All blank spaces of the form shall be fully completed in accordance with these instructions, without variation, and there shall be no interlineations, deletions or additions. Base Bid Sum shall be stated both in writing and in figures; and, in case of discrepancy, written words shall be considered as being Bid Price.

Submit bid in duplicate (1 original and 1 copy).

- b. Bid shall not contain recapitulations of the work to be done. No oral, telegraphic or telephonic communications or modifications shall be considered.
- c. Bids shall be addressed to the Owner whose name appears in Paragraph 1a; it shall be mailed or delivered to the address stated in the Advertisement, enclosed in an opaque sealed envelope, marked with the name of the Project and Bidders names; and must be received on or before the time designated in the Advertisement. No responsibility will be attached to Architect or Owner for premature opening of a bid which is not properly identified. Rowan College of South Jersey assumes no responsibility for bids mailed or misdirected in delivery.

3. DISCREPANCIES OR OMISSIONS: BIDDER'S RESPONSIBILITY

- a. Bidders who find discrepancies in or omissions from the Contract Documents or are in doubt as to their meaning should at once notify the Architect in writing no later than 5:00 P.M. on the date set forth in the Advertisement. If it is deemed necessary, instructions in the form of Addenda / Clarifications to Specifications and / or Drawings will be issued to all Bidders by email on the date set forth in the Advertisement. The Owner or Architect will not be responsible for any oral instructions. **It will be assumed with the submission of the proposal that the Bidder has fully examined the site, the Drawings and the Specifications, and has made provisions for construction under the conditions as set forth and is responsible for seeing that his proposed Subcontractors are familiar with requirements of Contract Documents so far as applicable to their work.**

INSTRUCTIONS TO BIDDERS

- b. Proposals shall be based upon Drawings, Specifications and other documents constituting the Contract Documents referred to in the Advertisement, bound herewith, including related Addenda issued by Garrison Architects and may not be withdrawn for a period of 60 days after date set for receiving bids. Any proposal which has been opened by the Owner may not be withdrawn during the period specified in the Advertisement, bound herewith, as the period during which proposals may not be withdrawn by Bidders, except as specifically permitted by law.

4. BID SECURITY: FORFEITURE

- a. Bids shall be accompanied by a certified check, cashier's check or BID BOND IN THE FORM PROVIDED IN THE CONTRACT DOCUMENTS, with corporate surety satisfactory to the Owner, in an amount of 10% of the Base Bid), to be retained and applied as provided, in case the Bidder should default in executing the Agreement and furnishing the required insurance certificates within ten (10) days after notice that an award has been made to him or in case the Bidder should default in furnishing the required Performance and Payment Bond as required by the Contract Documents.

- b. Bid securities of the three lowest responsible Bidders for each Contract will be retained until Contract Documents have been properly executed by Bidder to whom Contract is awarded but in no event exceeding 60 days after bid opening. In the event that a Bid Bond is submitted with the Bid, the Bidder shall make certain that a proper power of attorney evidencing the authority of the agent of the surety to execute the Bid Bond is furnished therewith.

In addition, and pursuant to 18A:64A-25.17, each bid shall be accompanied by a Consent of Surety assuring that satisfactory arrangements have been made between the Surety and the Bidder, by which the Surety agrees to furnish the Bidder with a Performance Bond, a Payment Bond, and a Maintenance Bond, substantially in accordance with the forms attached hereto, each in the stated amount of one hundred percent of the Contract amount. The Consent of Surety shall be executed by an approved Surety Company authorized to do business in the State of New Jersey. The Surety's consent and guarantee to issue the Performance and Payment Bonds must be unconditional. **Submission of a Consent of Surety which contains any prior conditions upon the Surety's issuance of the required Bonds shall be cause for rejection of the Bid.**

- c. If a Bidder to whom five (5) days' notice of intention to accept his Bid has been made by or in behalf of the Owner fails to furnish a Performance and Payment Bond in form furnished herewith, as required by the law of the State where the work is to be performed, to the Owner, as a condition precedent to formal award of the Contract, or fails to execute the Agreement or to furnish the required insurance certificates, or fails to furnish the required form in compliance with N.J.S.A. 10:5-31, et seq. within ten (10) days after notice that an award has been made to him, the Owner may, at his sole discretion, award the Contract to the next lowest responsible Bidder or readvertise for bids, and the defaulting Bidder shall pay to the Owner the difference between the amount of his bid and any higher amount for which the Owner may contract for the required work, plus any advertising, Architect's, legal or other expenses incurred by reason of the default.

The security check of such defaulting Bidder or, as the case may be, the amount recovered from the surety of such Bidder on his Bid Bond shall be applied on account of such damages; and, if the amount of said difference, plus such expense, shall exceed the amount of such check or recovery, the defaulting bidder shall pay to the Owner the full amount of the excess.

INSTRUCTIONS TO BIDDERS

5. CONTRACT BONDS

Performance, Payment and Maintenance Bonds need not be submitted with the Bidder's Bid. Performance and Payment Bonds shall be in compliance with requirements of New Jersey State Law and substantially in accordance with the form of bonds attached and submitted and approved after the award of bid and prior to Owner's execution of the Contract. A Maintenance Bond shall be submitted and approved after final completion and prior to final payment. Upon acceptance by the Owner of the Maintenance Bond and final payment, Contractor's Performance Bond will be released.

6. AWARD OF CONTRACT

- a. Bidder responsibility including ability to complete the Project within the time specified, will be considered in making award. The Owner reserves the right to reject all bids and to waive minor informalities or non-material exceptions in the bid. Bids may be rejected if they show any omissions, alterations of form, additions or deductions not called for, conditional or uninvited alternate bids, or irregularities of any kind. Bids in which the prices are unbalanced may be rejected. Claims on account of mistakes in or omissions in bids will not be considered, except as specifically permitted by law.
- b. If awards are made, the Owner will execute the Agreement within twenty-one (21) days after the Contractor executes and delivers same to Owner, accompanied by insurance certificates.
- c. The award of Contract or rejection of bids will be made within sixty (60) days of the Bid Opening. The Owner can extend this period if both parties agree to such an extension.
- d. Copies of the Performance and Payment Bond forms included with these Specifications exemplify type of Contract forms that the successful Bidder will be required to execute before or after award has been made, as contemplated by Contract Documents and as required by State law in case of such Bonds.
- e. The Contract is subject to the appropriation of funds per N.J.A.C. 6A:23A-21.1(f).

7. CHANGES PRIOR TO OPENING OF BIDS

- a. During the period allowed for the preparation of bids, the Architect may furnish the prospective Bidders Addenda / Clarifications setting forth additions to or alterations of the Contract Documents, which additions or alterations shall be included by each Bidder in the computation of amounts to be inserted by him in the proposal which he submits, and which Addenda / Clarifications shall become a part of such Contract Documents as if the same were fully incorporated herein.
- b. It shall be the duty of each prospective Bidder to ascertain what Addenda / Clarifications, if any, have been issued by the Architect, which may affect the work to be covered by his proposal, and to inform his prospective Subcontractors thereof to the extent that they may be affected.
- c. Any Addenda / Clarification issued by the Architect will be sent by email to each prospective Bidder of whom the Architect shall have a record.

8. START OF WORK

Shop Drawings, Submittals, etc. can be commenced after Notice to Proceed has been given by Owner or Architect.

INSTRUCTIONS TO BIDDERS

9. COMPLETION OF THE PROJECT

The project must be completed by the date set forth in Section 01010, "Summary of Work".

10. BONDS AND INSURANCE

Requirements for Bonds and Insurance are stated in these Instructions to Bidders, Specifications and the AIA Document A201 – 2017 General Conditions of Contract for Construction. Separate Performance, Payment and Maintenance Bonds are required in the amount of 100% of Contract price for each Bond.

11. STATEMENT OF BIDDER'S QUALIFICATIONS

Each Bidder must submit with their bid the following documents from the State of New Jersey's Department of the Treasury, Division of Property Management and Construction:

(1) A NOTICE OF CLASSIFICATION indicating that they are qualified to bid on the public work as specified herein. The bidder must be pre-qualified as C008 – General Construction or C009 General Construction / Alterations and Additions by the New Jersey Department of Treasury, Division of Property Management and Construction, prior to the date that bids are received. The Prime Subcontractors listed must be pre-qualified by the New Jersey Department of Treasury, Division of Property Management and Construction, prior to the date that bids are received. The required categories for the Prime Subcontractors are: C032 – HVACR, C030 – Plumbing, and C047 – Electrical; and

(2) a TOTAL AMOUNT OF UNCOMPLETED CONTRACTS affidavit (Form DPMC 701) duly signed and notarized with the corporate seal affixed.

All bidders will also be required to supply an affidavit of no material adverse change in qualification information since the latest statement.

12. NEW JERSEY PREVAILING WAGE RATE / PUBLIC WORKS CONTRACTOR REGISTRATION

Bidders are required to comply with the State Prevailing Wage Rate for Public Works, N.J.S.A. 34:11-56.25 et seq., as amended.

Contractor shall ensure that all workers employed in the performance of this Contract shall be paid not less than the Prevailing Wage Rate designated for this locality by the Commission of Labor and Workforce Development. If it is found that any worker employed by the Contractor or any Subcontractor has been paid less than the Prevailing Wage Rate, the Owner may terminate the Contractor's or Subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The Contractor and his sureties shall be liable for any excess costs occasioned thereby to the Owner.

The Contractors can reference the State of New Jersey Department of Labor and Workforce Development Website <https://www.nj.gov/labor/wagehour/wagerate/CurrentWageRates.html> to view current Prevailing Wage Rates. The official wage rates are ordered upon award of the contract.

INSTRUCTIONS TO BIDDERS

The Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48 et seq. (the Act) requires that Contractors (and Subcontractors) must be registered pursuant to the Act prior to submitting a bid. The Bidder should provide a copy of its Public Works Contractor Registration Certificate at the time of submission of the bid proposal. The Contractor shall enter into subcontracts only with subcontractors who are registered pursuant to the Act. After the bid is made and prior to awarding of the contract, the Bidder shall submit the certificates of registration of all subcontractors listed in the bid proposal.

13. BUSINESS REGISTRATION AND USE TAX

Pursuant to N.J.S.A. 52:32-44, Rowan College of South Jersey ("Contracting Agency") is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

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

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

During the course of contract performance:

- (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- (2) the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.
- (3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

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

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

14. NON-COLLUSION AFFIDAVIT

The Bidder shall submit with its bid the Non-Collusion Affidavit included in the Specifications.

INSTRUCTIONS TO BIDDERS

15. OWNERSHIP DISCLOSURE CERTIFICATION N.J.S.A. 52:25-24.2

No corporation, partnership, or limited liability company shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies, the cost of which is to be paid with or out of any public funds, by the State, or any county, municipality or school district, or any subsidiary or agency of the State, or of any county, municipality or school district, or by any authority, board, or commission which exercises governmental functions, unless prior to the receipt of the bid or proposal, or accompanying the bid or proposal of said corporation, said partnership, or said limited liability company there is submitted a statement setting forth the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be.

If one or more such stockholder or partner or member is itself a corporation or partnership or limited liability company, the stockholders holding 10 percent or more of that corporation's stock, or the individual partners owning 10 percent or greater interest in that partnership, or the members owning 10 percent or greater interest in that limited liability company, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member, exceeding the 10 percent ownership criteria established in this act, has been listed.

To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest.

This Ownership Disclosure Certification form shall be completed, signed and notarized.

16. DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Pursuant to N.J.S.A. 52:32-58 and N.J.S.A. 18A:18A-49.4, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification enclosed in the bid to attest, under penalty of perjury, that the person or entity, or one of the person or entity, or one of the person or entity's parents, subsidiaries, or affiliates, is not identified on a list created and maintained by the Department of the Treasury as a person or entity engaging in investment activities in Iran.

In the event that a person or entity is unable to make the certification required because it or one of its parents, subsidiaries, or affiliates has engaged in investment activities in Iran, the person or entity shall provide to the State agency concerned, prior to the deadline for delivery of such certification, a detailed and precise description of such activities, such description to be provided under penalty of perjury.

INSTRUCTIONS TO BIDDERS

If the Owner determines that a person or entity has submitted a false certification concerning its engagement in investment activities in Iran, the board shall report to the New Jersey Attorney General the name of that person or entity, and the Attorney General shall determine whether to bring a civil action against the person or entity.

The Owner may also report to the Owner's attorney the name of that person or entity, together with its information as to the false certification, and the Owner's attorney may determine to bring such civil action against the person or entity.

17. N.J.S.A. 10:5-31, et seq. AFFIRMATIVE ACTION

Pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented, the following Affirmative Action Against Discrimination on the Project will be a condition of the Contract. The Bidder, its subconsultants and subcontractors shall comply with the anti-discrimination provisions of N.J.S.A. 10:2-1 et seq., the New Jersey Law Against Discrimination, N.J.S.A. 10:5-1 et seq., N.J.A.C. 17:27-1.1 et seq. and shall guarantee to afford equal opportunity in performance of this Agreement in accordance with an affirmative action program approved by the State Treasurer.

18. The Owner has determined that it would be in the best interest of this particular project, and reasonably related to the specific work to be performed, that all bidders be required to participate in an approved apprenticeship program pursuant to standards established under the Department of Wage and Industry Act of 1948 (N.J.S.A. 34:1A-34 et. seq.). This requirement may be met by either showing a written agreement with a Union with an appropriate apprenticeship program, or by maintaining an in-house program that materially follows the guidelines for apprenticeship set forth by the Union of the same trade:

All subcontractors used by the bidder shall also have an approved apprenticeship program.

If a bidder or sub-contractor does not have its own approved apprenticeship program as set forth above, the requirement may be met by showing that the bidder and/or their subcontractor has a written agreement with a Union which has an appropriate apprenticeship program.

The Bidders shall include with the bid the "Approved Apprenticeship Form for Construction Projects" contained in the Specifications.

19. § 10:2-1. Antidiscrimination provisions

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

a. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;

INSTRUCTIONS TO BIDDERS

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

20. DOMESTIC MATERIALS

Contractor shall use only domestic materials whenever available on Public Work.

21. CLAIMS AND SUITS

Contractor shall indicate on the attached form whether it or any of its principal officers, owners, stockholders or partners, who are noted in the ownership disclosure form, are presently (or within the last 12 months) parties to any lawsuit, litigation or criminal proceeding, arbitration, regulatory or administrative proceeding arising from any construction project. If the answer to this question is affirmative, Contractor shall provide a brief description of the proceeding, the specific name of the action, docket number, name of the court or agency in which it is pending and a brief description of the current status of the proceeding.

22. METHOD OF AWARD - LOWEST RESPONSIBLE BIDDER(S)

The Contract, if awarded, shall be to the lowest responsive and responsible bidder. The low bid will be determined based on the lowest base bid (with any accepted alternates) submitted by a responsible bidder.

23. SUBSTITUTION REQUESTS

Please refer to Specification Section 01300, "Submittals." "Or Equal" substitutions are permitted so long as they are equal to or superior to the basis of design and the Contractor takes full responsibility for all coordination and costs associated with collateral issues related to the substitution. No Substitutions will be reviewed during the bidding process. The Contractor takes full responsibility for all substitutions. Substitution submittals shall be made **no later than 30 days after Notice to Proceed** in order to provide time for comparison review. All submittals after 30 days shall be in strict accordance with the basis of design / specified products. **No "or equal" Substitutions will be considered after 30 days unless the original specified product becomes unavailable.**

24. Form AIA 101, "Standard Form of Agreement Between Owner and Contractor" as modified by the Owner shall be the standard agreement form used for this project.

INSTRUCTIONS TO BIDDERS

25. All references to separate Prime Contractors, each Prime Contractor, Mechanical Contractor, Electrical Contractor, Plumbing Contractor, or Structural Steel Contractor shall mean the Single Lump Sum Bid Contractor.

26. **MANDATORY ELEC DISCLOSURE REQUIREMENT, P.L. 2005, CHAPTER 271**

The Contractor is advised of its responsibility to file an annual disclosure statement on political contributions with the New Jersey Election Law Enforcement Commission (ELEC), pursuant to N.J.S.A. 19:44A-20.27 if the contractor receives contracts in excess of \$50,000 from a public entity in a calendar year. It is the contractor's responsibility to determine if filing is necessary. Failure to so file can result in the imposition of financial penalties by ELEC. Additional information about this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

27. The Owner reserves the right to reject all bids as permitted in N.J.S.A. 18A:64A-25.1 or as otherwise permitted by law, or to waive minor informalities or non-material exceptions in the bids.
28. In case of default by the bidder or contractor, the Owner may procure the articles or services from other sources and hold the bidder or contractor responsible for any excess cost occasioned thereby.
29. The bidder, if awarded the contract, agrees to protect, defend and save harmless the Owner, against damage for payment for the use of any patented material process, article or devise that may enter into the manufacture, construction or form a part of the work covered by either order or contract, and he further agrees to indemnify and save harmless the Owner from suits or actions of every nature and description brought against it, for, or on account of any injuries or damages received or sustained by any party or parties by, or from any negligent acts or failure to act of the contractor, its servants or agents.
30. Any changes, whiteouts, strikeouts, etc., on the proposal page must be initialed by the person responsible for signing the bid.
31. Bids shall be prepared on forms furnished by the Owner. All blank spaces shall be filled in, by typewrite or ink, and amounts clearly shown.
32. Bids may not be modified after submittal. Bidders may withdraw bids at any time before opening.
33. All bids submitted shall include in the price any applicable permits, or fees required by any other government entity that has jurisdiction to require the same.
34. By submission of bid, the bidder certifies that the merchandise to be furnished will not infringe upon any valid patent or trademark.
35. No Contractor shall influence, or attempt to influence or cause to be influenced, any officer or employee to use his/her official capacity in any manner which might tend to impair the objectivity or independence of judgment of said officer or employee.

INSTRUCTIONS TO BIDDERS

36. No Contractor shall cause or influence, or attempt to cause or influence, any officer or employee to use his/her official capacity to secure unwarranted privileges or advantages for the Contractor or any other person.
37. The provisions above shall not be construed to prohibit an officer or employee from contracting with Contractors under the same terms and conditions as are offered or made available to members of the general public.
38. Whenever a bid calls for an on-site inspection or a pre-bid meeting, by no means is anyone to assume that answers given at the site inspection or pre-bid meeting to be binding unless confirmed in writing via an addendum prior to the bid opening.
39. The Contractor hereby guarantees that all materials, supplies, and equipment furnished or delivered to the Owner as listed on any bid, request for proposal, quotation, contract or purchase order meet the requirements, specifications and standards as provided for under the Federal Occupational Safety and Health Act of 1970, as from time to time amended and enforced as of the date thereof.
40. New Jersey Worker and Community Right to Know Act, N.J.S.A. 34:5A-1 et seq. provides that each bidder must furnish Owner a "Material Safety Data Sheets" for each product they or their suppliers supply to the Owner for which the act requirements a "Material Safety Data Sheets." These Material Safety Data Sheets should be submitted during the shop drawing submission process.
41. The bidder should be aware, if awarded the contract, that it will be responsible for any and all subcontractors as well as itself and are required to comply with all applicable local, state, and federal safety, health, and environmental regulations, including provisions for protecting employees and the public from construction hazards.
42. The successful bidder will be required to supply to the Owner, a copy of their safety program and must also include a contact person to resolve any problems that may arise.
43. Contractor Safety Guidelines

In an effort to provide contractors with an overview of areas of concern, the following information is provided to all general contractors working on the Owner's property or under the Owner's auspices. It is the general contractor's responsibility to ensure that their subcontractors are in compliance.

- 1) The safety of the Owner's workers and the general public is paramount.
- 2) An outside contact person is to be provided on each job.
- 3) Material Safety Data Sheets are to be provided to the Construction Manager during the Shop Drawing Process.
- 4) Copies of all product MSDS's are to be maintained on site.
- 5) The Contractor shall assure compliance with all OSHA & PEOSH regulations. New Jersey's Indoor Air Quality Standard Section N.J.A.C 12:100-13.5 is available upon request and the Contractor shall be specifically responsible for complying with all other applicable laws, rules and regulations.

INSTRUCTIONS TO BIDDERS

- 6) Any disruption in building services, loud noises or excessive dust should be anticipated and addressed prior to the commencement of the specific work involved and the disturbance eliminated or minimized to the maximum extent possible.
 - 7) The Contractor is responsible for good housekeeping on the construction site. All exits and exit ways are to be kept free and clear of material storage, trash and equipment.
 - 8) Gloucester County has a Hot Work Permit System. Hot work permits are to be secured through the County Fire Marshal at (856) 307-7137.
 - 9) Access to the job site shall be provided to the Owner and its representatives.
 - 10) The Owner reserves the right to stop work if an imminent hazard exists. The costs, if any, created by the work stoppage are the responsibility of the Contractor if the Contractor or one of his subcontractors is determined to be responsible for the imminent hazard.
44. If and when requested by the Owner or the Owner's Representative, provide all required documentation including Submittals, Shop Drawings, and Cost Information (for materials and installation) for any equipment, systems or components, in order for the Owner to pursue grants and reimbursement through the New Jersey Office of Clean Energy. The Contractor may be required to provide detailed pricing information including invoices of materials and a breakdown of labor or equipment costs as it pertains to individual pieces of equipment, systems or components.
45. **AMERICANS WITH DISABILITIES ACT, 42 U.S.C. 12101**

The CONTRACTOR and the OWNER do hereby agree that the provisions of Title II of the Americans with Disabilities Act of 1990 (the "Act") (42 U.S.C. §12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the OWNER pursuant to this contract, the CONTRACTOR agrees that the performance shall be in strict compliance with the Act or ADA. In the event that the CONTRACTOR, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act or ADA during the performance of this Contract, the CONTRACTOR shall defend the OWNER in any action or administrative proceeding commenced pursuant to this Act or ADA. The CONTRACTOR shall indemnify, protect, and save harmless the OWNER, its agents, servants, and employees from and against any and all suits, claims, losses demands, or damages, or whatever kind or nature arising out of or claimed to arise out of the alleged violation. The CONTRACTOR shall at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the OWNER grievance procedure, the CONTRACTOR agrees to abide by any decision of the OWNER which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the OWNER or if the OWNER incurs any expense to cure a violation of the Act or ADA which has been brought pursuant to its grievance procedure, the CONTRACTOR shall satisfy and discharge the same at its own expense.

INSTRUCTIONS TO BIDDERS

The OWNER shall, as soon as practicable after a claim has been made against it, give written notice thereof to the CONTRACTOR along with full and complete particulars of the claim. If any action or administrative proceedings is brought against the OWNER or any of its agents, servants, and employees, the OWNER shall expeditiously forward or have forwarded to the CONTRACTOR every demand, complaint, notice, summons, pleading, or other process received by the OWNER or its representatives. It is expressly agreed and understood that any approval by the OWNER of the services provided by the CONTRACTOR pursuant to this contract will not relieve the CONTRACTOR of the obligation to comply with the Act or ADA and to defend, indemnify, protect, and save harmless the OWNER pursuant to this paragraph. It is further agreed and understood that the OWNER assumes no obligation to indemnify or save harmless the CONTRACTOR, its agents, servants, employees and subcontractors for any claim which may arise out to their performance of this Agreement. Furthermore, the CONTRACTOR expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the CONTRACTOR'S obligations assumed in this agreement, nor shall they be construed to relieve the CONTRACTOR from any liability, nor preclude the OWNER from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

46. **STUDENT AND FACULTY SAFETY REQUIREMENTS:**

All personnel or agents of the Contractor shall observe all rules and regulations in effect at the Owner's premises. Employees or agents of the Contractor, while on the Owner's property, shall be subject to the Owner's enforcement of rules and regulations in effect at the Owner's premises, but under no circumstances shall such persons be deemed to be employees or agents of the Owner. Contractor's personnel are required to sign in at the Main Office each time they report for service.

Contractor's personnel are not to engage with any activities with the students, staff or other Owner's employees unless duly authorized to do so in writing by the Owner's representative.

Contractor's personnel are to wear uniforms whenever possible. All contracted personnel are required to wear identification badges identifying the individual and the firm for which they are employed. The Contractor shall assume full responsibility for the actions of all personnel in their employ. The Contractor shall maintain proper supervision of the work in progress at all times.

All personnel used by the Contractor for the performance of this work shall be properly trained and qualified for work of this type and shall have the minimum ability and experience for his classification. Owner reserves the right to refuse to accept services from any personnel deemed by the Owner or its representative to be unqualified, disorderly, or unable to perform assigned work.

The Contractor shall provide evidence of qualifications for any personnel performing work under contract upon request.

Owner (and/or the Owner's Representatives) reserves the right to direct the removal from the site of any person, equipment and/or entity which displays inappropriate behavior, including but not limited to, alcohol consumption, drugs, fighting, intimidating or disruptive behavior, vandalism, theft, improper storage, illegal acts, unfit persons etc.

INSTRUCTIONS TO BIDDERS

Covid-19 Requirements: All onsite personnel shall comply with the latest Federal, State and Local authorities having jurisdiction regarding Covid-19 protocols. These requirements include, but are not limited to, the following:

- Require individuals to maintain 6' spacing wherever possible.
- Require personnel onsite to wear masks or cloth face coverings.
- Require personnel onsite to wear disposable gloves.
- Limit sharing of tools, equipment and machinery.
- Provide sanitation materials to workers; require frequent sanitization of restrooms, breakrooms, and other "high touch" areas.
- Send home anyone who appears to have symptoms of COVID-19.
- Immediately notify workers of any known exposure to COVID-19 at the work site.

47. RECORD MAINTENANCE

Pursuant to N.J.A.C. 17:44-2.2, the Contractor shall maintain all documentation related to products, transactions or services under this Contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

END OF SECTION

BID FORM - PART A

(DUPLICATE IF NECESSARY)

DATE: _____

Bidder's Information: (Print or Type)

Company Name: _____

Contact Name: _____

Contact Email Address: _____

Company Address: _____

Telephone Number: _____

Fax Number: _____

**Rowan College of South Jersey
1400 Tanyard Road
Sewell, NJ 08080**

Ladies and Gentlemen:

This Proposal is submitted in accordance with your Advertisement inviting proposals to be received for the Rowan College of South Jersey College Center 2021 EOF and CAP Office Renovations. Having carefully examined the Contract Documents and being familiar with various conditions affecting the work, the undersigned herein agrees to furnish all materials, perform all labor and do all else necessary to complete the **ENTIRE PROJECT** in accordance with said Contract Documents for the **LUMP SUM BASE BID OF:**

BID AMOUNT \$ _____

PLUS CASH ALLOWANCE (SECTION 01210 ALLOWANCES) \$ 5,000.00

TOTAL BASE BID (In Numbers) (Bid Amount Plus Cash Allowance) \$ _____

(In words) _____

Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

Accompanying this Proposal is a certified check, cashier's check or Bid Bond required by Paragraph 4a of the Instructions to Bidders, which is deposited as a Proposal guarantee, and is to be retained by you and applied as provided in Paragraph 4 of Instructions to Bidders, in case the undersigned shall default in executing the Contract or in furnishing the required bonds and insurance certificates within the time specified by the Contract Documents.

The undersigned hereby certifies that this Proposal is genuine and not sham or collusive or made in the interest of or in behalf of any person, firm or corporation not herein named and that the undersigned has not directly or indirectly induced or solicited any bidder to refrain from bidding and that the undersigned has not in any manner sought by collusion to secure for himself any advantages over any other bidder.

BID FORM - PART A

The undersigned, intending to be legally bound, agrees that this Proposal shall be irrevocable and shall remain subject to your acceptance for 60 days after date set for bid opening.

The undersigned submits this Proposal with the full knowledge of the Contract requirements and hereby agrees that the work of this Project, under this Contract, shall be fully and finally completed and ready for occupancy in accordance with the date found in "Section 01010 - Summary of Work".

NAME OF BIDDER

SIGNATURE

DATE

SUBCONTRACTOR LIST

The Prime Subcontractors listed below must be DPMC pre-qualified. The Bidder shall provide for each such Prime Subcontractor listed below, a valid and active DPMC Notice of Classification, a Total Amount of Uncompleted Contracts Affidavit (form DBC 701), No Material Adverse Change in Circumstances Form. The Owner is requesting that a Public Works Contractor Registration Certificate and a Business Registration Form for each Subcontractor listed below be included with the bid.

The following is a list of subcontractor(s) to complete:

ELECTRICAL WORK INCLUDING ANY ELECTRICAL POWER PLANTS, TELE-DATA, FIRE ALARM OR SECURITY SYSTEMS:

1. _____
(Name of Subcontractor)

(License Number)

PLUMBING AND GAS FITTING WORK:

1. _____
(Name of Subcontractor)

(License Number)

REFRIGERATION, HEATING, VENTILATING SYSTEMS AND EQUIPMENT:

1. _____
(Name of Subcontractor)

(License Number)

STRUCTURAL STEEL & ORNAMENTAL IRON WORK:

1. **NOT APPLICABLE**
(Name of Subcontractor)
NOT APPLICABLE
(License Number)

I hereby certify that any above-listed subcontractor(s) have provided price quotations to this bidder; and if this bid is accepted shall be the subcontractor(s) retained.

Signature: _____
(Bidder)

Sworn and subscribed

before me this _____
day of _____ 20____

NOTE:

Do not leave the subcontractor pages blank. If you do not intend to use any subcontractors, then you must so state that you will not be using subcontractors in the appropriate place on each page. If you plan to use in-house employees for this trade, then you must include with your bid the name of the license holder for this trade and a copy of his/her license.

ACKNOWLEDGMENT OF RECEIPT OF ADDENDA / CLARIFICATIONS

The undersigned Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number

Dated

Clarification Number

Dated

☐ Check here if No Addenda / Clarifications were issued.

Acknowledged for: _____
(Name of Bidder)

By: _____
(Signature of Authorized Representative)

Name: _____

Title: _____

**FAILURE TO ACKNOWLEDGE AND RETURN WITH YOUR BID SUBMISSION THE
RECEIPT OF ANY ISSUED ADDENDA FOR THIS BID ON THIS ACKNOWLEDGMENT OF
RECEIPT OF ADDENDA FORM MAY BE CAUSE FOR YOUR BID TO BE REJECTED.**

INDEMNIFICATION AND HOLD HARMLESS AGREEMENT

Contractor, for itself, its successors and assigns, agrees to defend, indemnify and save Owner, its successors, assigns, employees, agents, construction managers, architects and engineers, harmless from, and against any and all claims, demands, damages, actions or causes of action, together with any and all losses, costs or expenses in connection therewith or related thereto, including but not limited to attorney fees and costs of suit, for bodily injuries, death including bodily injury or death to an employee or subcontractor of Contractor for property damage arising in or in any manner growing out of the work performed, or to be performed under this Contract but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18 of the AIA Document A201-2017 General Conditions of the Contract for Construction. Contractor, of itself, its successors and assigns, agrees to defend and indemnify and hold the Owner, its successors, assigns, employees, agents, construction managers, architects, and engineers harmless against all fines, penalties or losses incurred for, including but not limited to attorney fees and costs of suit, or by reason of the violation by Contractor in the performance of this Contract, of any ordinance, regulation, rule of law of any political subdivision or duly constituted public authority.

Full Name of Contractor: _____

Business Address: _____

Telephone Number: () _____ Zip Code _____

Project Description: _____

Signature / Authorized Person _____

Print Name: _____

Witness Signature _____

Print Name: _____

---SUBMIT WITH BID---

I am _____ of the firm of _____,
 (Title) (Organization)

 (Address of Organization)

Page 1 of 2

INSTRUCTIONS FOR CERTIFICATION

1. By signing and submitting this certification, the contracting firm is providing the certification as set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the contracting firm knowingly rendered an erroneous certification, in addition to other remedies available to the Federal or State Government, the Owner may pursue available remedies including suspension and/or debarment.
3. The contracting firm shall provide immediate written notice to the Owner if at any time it learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the Owner for assistance in obtaining a copy of those regulations.
5. The contracting firm agrees by submitting this certification that, should the covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction.
6. The contracting firm further agrees by submitting this certification that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all subcontracts to this agreement as authorized by the Owner.

APPROVED APPRENTICESHIP FORM FOR CONSTRUCTION PROJECTS

APPROVED APPRENTICESHIP FORM **FOR CONSTRUCTION PROJECTS**

Apprenticeship is training in occupations that require a wide and diverse range of skills and knowledge, as well as maturity and independence of judgment. It involves planned, day-by-day training on the job and experience under proper supervision, combined with related technical instruction.

As practiced by modern industry, apprenticeship is a business-like system designed to provide workers entering industry with comprehensive training by exposing them to the practical and theoretical aspects of the work required in a highly skilled occupation. This is accomplished through structured training on the job and related theoretical instruction.

Under the National Apprenticeship Act, the Bureau of Apprenticeship and Training (BAT) is responsible for providing service to existing apprenticeship programs and technical assistance to organizations that would like to establish an apprenticeship program. The Bureau works very closely with State Apprenticeship Councils (SAC) and the educational system to deliver support services at the National, State and local level.

Approved Apprenticeship programs are usually available through local County Vocational Schools, through various Union Locals, and/or through the U.S. Department of Labor.

The U.S. Department of Labor for New Jersey may be reached at:

US Department of Labor
Bureau of Apprenticeship & Training
485 Route 1 South
Bldg. "E," Room 300
Iselin, New Jersey 08830

The Owner has determined that it would be in the best interest of this particular project, and reasonably related to the specific work to be performed, that all bidders be required to participate in an approved apprenticeship program pursuant to standards established under the Department of Wage and Industry Act of 1948 (N.J.S.A. 34:1A-34 et. seq.). This requirement may be met by either showing a written agreement with a Union with an appropriate apprenticeship program, or by maintaining an in-house program that materially follows the guidelines for apprenticeship set forth by the Union of the same trade:

All subcontractors used by the bidder shall also have an approved apprenticeship program.

If a bidder or sub-contractor does not have its own approved apprenticeship program as set forth above, the requirement may be met by showing that the bidder and/or their subcontractor has a written agreement with a Union which has an appropriate apprenticeship program.

APPROVED APPRENTICESHIP FORM FOR CONSTRUCTION PROJECTS

LIST OF TRADES FOR THIS PROJECT
SUBMITTED BY THE VENDOR

APPRENTICESHIP PROGRAM
ATTENDED

AFFIRMATIVE ACTION REQUIREMENTS

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

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

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

Subscribed and sworn to before me this

_____ day of _____, 202__,

My Commission expires:

Date

Signature

Name and Title
(Type or Print)

EXHIBIT B

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE

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

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

CONSTRUCTION CONTRACTS

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

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

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

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

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

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers

EXHIBIT B (Cont)

provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

- (1) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;
- (2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;
- (3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

EXHIBIT B *(Cont)*

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and nondiscrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) The contractor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.

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

EXHIBIT B (Cont)

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

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

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

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

COMPANY: _____ SIGNATURE: _____

PRINT NAME: _____ TITLE: _____

DATE: _____

PREVAILING WAGE RATE REQUIREMENTS

As required by law, you must pay prevailing wages. In addition, any sub-contractor you employ must also pay prevailing wages. It is your responsibility to make sure your subcontractors are paying prevailing wages.

Gloucester County has a Wage and Hour Compliance Office. A representative of that office will periodically interview your employees on this project to confirm that they are, in fact, receiving the New Jersey prevailing wages and benefits.

In addition, immediately upon beginning the project, you must provide a certified copy of your weekly/bi-weekly payroll records and your subcontractors. Also your certified payroll must show hourly benefits and gross benefits that are paid each employee as set forth by New Jersey prevailing rates.

Hourly rate
Total hours
Hourly benefits
Gross benefits
Gross pay

Should any apprentice from another state presently be working in the State of New Jersey, they must now be paid the full journeyman's rate, unless they are a member of a collective bargaining unit whose jurisdiction, according to the agreement, covers territory within New Jersey.

The Wage and Hour Compliance Office is located at County of Gloucester, Old Court House 1 North Broad St. Woodbury, New Jersey 08096. Payrolls must be sent to the office within ten (10) days of payment of wages.

Should this be a non-union contractual firm, your employees are to receive the New Jersey prevailing rates plus all benefits in their weekly/bi-weekly wages.

Should contractor(s)/subcontractor(s) be from another state, the New Jersey prevailing wage determination and benefits must be paid.

You are to forward to the Office of Wage and Hour Compliance the initial manning report and the Monthly Project Manning Report. Copies to be sent as designated. Failure to comply and submit certified payrolls and manning reports could result in a stop payment order on any monies due. Additionally, any forms to be completed by the primary or subcontractors must be returned to the Office of Wage and Hour Compliance prior to the start of any project.

Signed: _____
(Contractor)

Date: _____
(Contractor T/A)

(Telephone and Address)

(Construction Location)

Failure to comply and submit certified payrolls and manning reports could result in a stop payment of any monies due.

NON-COLLUSION AFFIDAVIT

THIS FORM MUST ACCOMPANY BID

STATE OF NEW JERSEY)

COUNTY OF)

I, _____ of the City of _____ in the County of, _____ and the State of _____ of full age, being duly sworn according to law on my oath depose and say that: I am of the firm of _____ the bidder making this Proposal/Bid for the Rowan College of South Jersey College Center 2021 EOF and CAP Office Renovations, and that I executed the said Bid with full authority so to do; that said bidder had not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the Rowan College of South Jersey College Center 2021 EOF and CAP Office Renovations; and that all statements contained in said Bid and in this affidavit are true and correct, and made with full knowledge that the Owner relies upon the truth of the statements contained in said Bid and in the statements contained in this affidavit in awarding the contract for the said project.

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

(Name of Bidder) (N.J.S.A. 52:34-15)

Bidder's Signature

Sworn to and subscribed before me

this ____ day of _____, 20____.

Notary Public of

My Commission expires _____ 20____

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY
DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION
33 W. STATE STREET
PO BOX 034
TRENTON, NEW JERSEY 08625-0034

TOTAL AMOUNT OF UNCOMPLETED CONTRACTS

I Certify that the amount of uncompleted work on contracts is \$ _____.

The amount claimed includes uncompleted portions of all currently held contracts from all sources (public and private) in accordance with N.J.A.C. 17:19-2.13.

I further certify that the amount of this bid proposal, including all outstanding incomplete contracts does not exceed my Division of Property Management and Construction prequalification dollar limit.

By:

Name of Firm

Signature:

Title:

Business Address:

Sworn to and subscribed before me this _____ day of _____, 2021.

Notary Public

NO MATERIAL CHANGE OF CIRCUMSTANCES

AFFIDAVIT

I, _____ being of full age under oath depose and say:

1. I am a(n) owner, partner, shareholder or officer of the company set forth below and am duly authorized to execute this affidavit on its behalf.
2. A statement as to the financial ability, adequacy of plant and equipment, organization and prior experience of [Bidder], has been submitted to the Department of Treasury within one (1) year preceding the date of opening of bids for this contract.
3. I certify, that there has been no material adverse change in the qualification information of [Bidder] since such statement was submitted to the Department of Treasury except:

_____.

SEAL

SIGNATURE

TITLE

COMPANY

Sworn to and subscribed
before me this day
of , 20____

Notary Public

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

This Statement Shall Be Included with All Bid and Proposal Submissions

Name of Business: _____

Address of Business: _____

Name of person completing this form: _____

N.J.S.A. 52:25-24.2:

"No corporation, partnership, or limited liability company shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies, the cost of which is to be paid with or out of any public funds, by the State, or any county, municipality or school district, or any subsidiary or agency of the State, or of any county, municipality or school district, or by any authority, board, or commission which exercises governmental functions, unless prior to the receipt of the bid or proposal, or accompanying the bid or proposal of said corporation, said partnership, or said limited liability company there is submitted a statement setting forth the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be.

If one or more such stockholder or partner or member is itself a corporation or partnership or limited liability company, the stockholders holding 10 percent or more of that corporation's stock, or the individual partners owning 10 percent or greater interest in that partnership, or the members owning 10 percent or greater interest in that limited liability company, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member, exceeding the 10 percent ownership criteria established in this act, has been listed.

To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest."

The Attorney General has advised that the provisions of N.J.S.A. 52:25-24.2, which refer to corporations and partnerships, apply to limited partnerships, limited liability partnerships, and Subchapter S corporations.

This Ownership Disclosure Certification form shall be completed, signed and notarized.

Failure of the bidder/proposer to submit the required information is cause for automatic rejection of the bid or proposal

Part I

Check the box that represents the type of business organization:

- ☐ Sole Proprietorship (skip Parts II and III, sign and notarize at the end)
- ☐ Non-Profit Corporation (skip Parts II and III, sign and notarize at the end)
- ☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership
- ☐ Limited Liability Company
- ☐ For-profit Corporation (including Subchapters C and S or Professional Corporation)
- ☐ Other (be specific): _____

Part II

- ☐ I certify that the list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be.

OR

- ☐ I certify that no one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or that no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be.

Sign and notarize the form below, and, if necessary, complete the list below. (Please attach additional sheets if more space is needed):

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

Part III - Any Direct or Indirect Parent Entity Which is Publicly Traded:

“To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest.”

- ☐ Pages attached with name and address of each publicly traded entity as well as the name and address of each person that holds a 10 percent or greater beneficial interest.

OR

- ☐ Submit here the links to the Websites (URLs) containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent.

AND

- ☐ Submit here the relevant page numbers of the filings containing the information on each person holding a 10 percent or greater beneficial interest.

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

(Notary Public)

My Commission expires:

(Affiant)

(Print name of affiant and title if applicable)

(Corporate Seal if a Corporation)

DISCLOSURE OF CLAIMS AND SUITS
(¶21 of Instruction to Bidders)

Contractor shall indicate below whether it or any of its principals, officers, owners, stockholders or partners who are noted on the ownership disclosure form are presently (or within the last 12 months) parties to any lawsuit, litigation or criminal proceeding, arbitration, regulatory or administrative proceeding arising from any construction project. Use additional sheets if necessary.

Name of Action	
Docket #	
Court or Agency	
Description of Action	

Name of Action	
Docket #	
Court or Agency	
Description of Action	

Name of Action	
Docket #	
Court or Agency	
Description of Action	

ROWAN COLLEGE OF SOUTH JERSEY
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Quote Number: _____ Bidder/Offeror: _____

PART I: CERTIFICATION

BIDDERS MUST COMPLETE PART I BY CHECKING EITHER BOX.

FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list is found on the Division's website at <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>. Bidders must review this list prior to completing the below certification. Failure to complete the certification will render a bidder's proposal non-responsive. If the Director finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party

PLEASE CHECK THE APPROPRIATE BOX:

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

OR

☐ I am unable to certify as above because the bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

You must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

EACH BOX WILL PROMPT YOU TO PROVIDE INFORMATION RELATIVE TO THE ABOVE QUESTIONS. PLEASE PROVIDE THOROUGH ANSWERS TO EACH QUESTION. IF YOU NEED TO MAKE ADDITIONAL ENTRIES, CLICK THE "ADD AN ADDITIONAL ACTIVITIES ENTRY" BUTTON.

Name: _____ Relationship to Bidder/Offeror: _____

Description of Activities: _____

Duration of Engagement: _____ Anticipated Cessation Date: _____

Bidder/Offer or Contact Name: _____ Contact Phone Number: _____

☐ ADD AN ADDITIONAL ACTIVITIES ENTRY

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above-referenced person or entity. I acknowledge that the State of New Jersey is relying on the information contained

herein and thereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the State to notify the State in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with the State of New Jersey and that the State at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print): _____

Signature: _____

Title: _____

Date: _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____
Company Name

Company Address

as Principal, and _____
Insurance Company Name

Insurance Company Address

as Surety, are hereby and firmly bound unto **Rowan College of South Jersey, 1400 Tanyard Road, Sewell, New Jersey 08080** as Owner, in the penal sum of Ten Percent (10%) of the Amount of Bid, pursuant to N.J.S.A. 18A:64A-25.16, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this _____ Day of _____, 20_____.

The condition of the above obligation is such that, whereas the Principal has submitted to **Rowan College of South Jersey** a certain bid, attached hereto and hereby made a part hereof to enter into a contract in writing for the **Rowan College of South Jersey College Center 2021 EOF and CAP Office Renovations**.

NOW, THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver an AIA Document A101 Standard Form of Agreement Between Owner and Contractor (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of the Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims thereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the Owner may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper offer, the day and year first set forth above.

Attest / Witness

Signature

Company Name

By: _____

Signature

Name and Title

Insurance Company Name

By: _____

Signature

Name and Title

ANY BOND COMPLYING WITH THE REQUIREMENTS OF N.J.S.A 18A:64A-25.16 MAY BE USED.

SURETY DISCLOSURE STATEMENT AND CERTIFICATION

_____, surety(ies) on the attached bond, hereby certifies(y) the following:

(1) The surety meets the applicable capital and surplus requirements of R.S. 17:17-6 or R.S. 17:17-7 as of the surety's most current annual filing with the New Jersey Department of Insurance.

(2) The capital (where applicable) and surplus, as determined in accordance with the applicable laws of this State, of the surety(ies) participating in the issuance of the attached bond is (are) in the following amount(s) as of the calendar year ended December 31, _____ (most recent calendar year for which capital and surplus amounts are available), which amounts have been certified as indicated by certified public accountants (indicating separately for each surety that surety's capital and surplus amounts, together with the name and address of the firm of certified public accounts that shall have certified those amounts):

(3) (a) With respect to each surety participating in the issuance of the attached bond that has received from the United States Secretary of the Treasury a certificate of authority pursuant to 31 U.S.C. § 9305, the underwriting limitation established therein and the date as of which that limitation was effective is as follows (indicating for each such surety that surety's underwriting limitation and the effective date thereof):

(b) With respect to each surety participating in the issuance of the attached bond that has not received such a certificate of authority from the United States Secretary of the Treasury, the underwriting limitation of that surety as established pursuant to R.S. 17:18-9 as of (date on which such limitation was so established) is as follows (indicating for each such surety that surety's underwriting limitation and the date on which that limitation was established):

(4) The amount of the bond to which this statement and certification is attached is \$_____.

(5) If, by virtue of one or more contracts of reinsurance, the amount of the bond indicated under item (4) above exceeds the total underwriting limitation of all sureties on the bond as set forth in items (3)(a) or (3)(b) above, or both, then for each such contract of reinsurance:

(a) The name and address of each such reinsurer under that contract and the amount of that reinsurer's participation in the contract is as follows:

(b) Each surety that is party to any such contract of reinsurance certifies that each reinsurer listed under item (5)(a) satisfies the credit for reinsurance requirement established under P.L.1993, c. 243 (C. 17:51B-1 et seq.) and any applicable regulations in effect as of the date on which the bond to which this statement and certification is attached shall have been filed with the appropriate public agency.

CERTIFICATE
(to be completed by an authorized certifying agent
for each surety on the bond)

I, _____ (name of agent) , as _____
_____ (title of agent) for _____
_____ (name of surety) , a corporation/mutual insurance company/other _____
_____ (indicating type of business
organization) (circle one) domiciled in _____ (state of domicile) , DO
HEREBY CERTIFY that, to the best of my knowledge, the foregoing statements
made by me are true, and ACKNOWLEDGE that, if any of those statements are
false, this bond is VOID.

(Signature of certifying agent)

(Printed name of certifying agent)

(Title of certifying agent)

CONSENT OF SURETY

The _____

(Name and Address of Surety)

a corporation existing under the Laws of the State of _____
and authorized to do business under the Laws of the State of New Jersey, hereby certifies that application
has been made to us by

(Name and Address of Contractor)

and satisfactory arrangements have been completed by which we have and do now agree to furnish a
Performance Bond equal to 100% of the Contract to ensure the faithful performance on the part of the
Bidder of the terms and conditions of the contract, and a separate Labor and Materials/Payment Bond,
equal to 100% of the Contract Price, to ensure the payment of the persons furnishing labor and materials
in accordance with the contract and a Maintenance Bond for two (2) years in the amount of 100% of the
Contract Price.

**Title of the Work: Rowan College of South Jersey College Center 2021 EOF and CAP
Office Renovations**

Location of the Project: College Center Drive, Sewell, New Jersey 08080

This proposition is made with the understanding that any change made in the specifications or agreements
without the consent of the bondsman shall in no way vitiate the bond.

WITNESS:

SURETY COMPANY

(Name of Surety Company)

Title: _____

(Attorney-in-fact)

By: _____

Date: _____

(Affix corporate seal)

IMPORTANT NOTE

The Surety Company executing the Bond must be authorized to transact business in the State of New
Jersey. For contracts in excess of \$850,000, the Surety shall be listed on the Treasury Department's most
current New Jersey List of Approved Sureties, located at www.state.nj.is/dobi/surety.htm.

**DISCLOSURE OF CONTRIBUTIONS TO NEW JERSEY ELECTION LAW ENFORCEMENT
COMMISSION IN ACCORDANCE WITH N.J.S.A. 19:44A-20.27**

STATE OF NEW JERSEY

: SS

COUNTY OF _____

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

I am a _____ in _____, the bidder making the proposal to

ROWAN COLLEGE OF SOUTH JERSEY

(Name of Owner)

for work under

ROWAN COLLEGE OF SOUTH JERSEY COLLEGE CENTER
2021 EOF AND CAP OFFICE RENOVATIONS

(Contract No. – Description)

and that I executed the said Proposal with full Authority to do so; that said Bidder acknowledges our responsibility to file an annual disclosure statement of political contributions with the New Jersey Election Law Enforcement Commission (ELEC) pursuant to N.J.S.A. 19:44A-20.27 if in receipt of contracts in excess of \$50,000.00 from public entities in a calendar year. I further acknowledge that business entities are solely responsible for determining if filing is necessary and that all statements contained in said Proposal and in this Affidavit are true and correct, and made with full knowledge that the

ROWAN COLLEGE OF SOUTH JERSEY

(Name of Owner)

relies upon the truth of the statements contained in said Proposal and in the statements contained in this Affidavit in awarding the Contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for commission, percentage brokerage, or contingent fee, except Bona Fide employees of the Contractor, and as may be permitted by law.

Signature: _____

Type or Print Name: _____

Subscribed and Sworn to before me this
_____ day of _____, 20_____.

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called "PRINCIPAL", and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called "SURETY", are held and firmly bound unto **ROWAN COLLEGE OF SOUTH JERSEY**; hereinafter called "OWNER" in the total aggregate penal sum of

_____ Dollars (\$ _____)
in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for:

"Rowan College of South Jersey College Center 2021 EOF and CAP Office Renovations".

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the SURETY and during the two-year guaranty period and if the PRINCIPAL shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said security, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed hereunder or the SPECIFICATION accompanying same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that it is expressly agreed that the BOND or LOC shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", wherever used in this BOND, and whether referring to this BOND, the Contract or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OWNER and the PRINCIPAL shall abridge the right of the other beneficiary hereunder, whose claim may be unsatisfied. The OWNER are the only beneficiaries hereunder.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of
(number)
Which shall be deemed an original, this ____ day of _____, 20____.

ATTEST:

(SEAL)

(Witness as to Principal)

(Address)

Principal

By _____

(Address)

SURETY DISCLOSURE STATEMENT AND CERTIFICATION

_____, surety(ies) on the attached bond, hereby certifies(y) the following:

(1) The surety meets the applicable capital and surplus requirements of R.S. 17:17-6 or R.S. 17:17-7 as of the surety's most current annual filing with the New Jersey Department of Insurance.

(2) The capital (where applicable) and surplus, as determined in accordance with the applicable laws of this State, of the surety(ies) participating in the issuance of the attached bond is (are) in the following amount(s) as of the calendar year ended December 31, _____ (most recent calendar year for which capital and surplus amounts are available), which amounts have been certified as indicated by certified public accountants (indicating separately for each surety that surety's capital and surplus amounts, together with the name and address of the firm of certified public accounts that shall have certified those amounts):

(3) (a) With respect to each surety participating in the issuance of the attached bond that has received from the United States Secretary of the Treasury a certificate of authority pursuant to 31 U.S.C. § 9305, the underwriting limitation established therein and the date as of which that limitation was effective is as follows (indicating for each such surety that surety's underwriting limitation and the effective date thereof):

(b) With respect to each surety participating in the issuance of the attached bond that has not received such a certificate of authority from the United States Secretary of the Treasury, the underwriting limitation of that surety as established pursuant to R.S. 17:18-9 as of (date on which such limitation was so established) is as follows (indicating for each such surety that surety's underwriting limitation and the date on which that limitation was established):

(4) The amount of the bond to which this statement and certification is attached is \$_____.

(5) If, by virtue of one or more contracts of reinsurance, the amount of the bond indicated under item (4) above exceeds the total underwriting limitation of all sureties on the bond as set forth in items (3)(a) or (3)(b) above, or both, then for each such contract of reinsurance:

(a) The name and address of each such reinsurer under that contract and the amount of that reinsurer's participation in the contract is as follows:

_____ ; and

(b) Each surety that is party to any such contract of reinsurance certifies that each reinsurer listed under item (5)(a) satisfies the credit for reinsurance requirement established under P.L.1993, c. 243 (C. 17:51B-1 et seq.) and any applicable regulations in effect as of the date on which the bond to which this statement and certification is attached shall have been filed with the appropriate public agency.

CERTIFICATE
(to be completed by an authorized certifying agent
for each surety on the bond)

I, _____ (name of agent) , as _____
_____ (title of agent) for _____
_____ (name of surety) , a corporation/mutual insurance company/other _____
_____ (indicating type of business
organization) (circle one) domiciled in _____ (state of domicile) , DO
HEREBY CERTIFY that, to the best of my knowledge, the foregoing statements
made by me are true, and ACKNOWLEDGE that, if any of those statements are
false, this bond is VOID.

(Signature of certifying agent)

(Printed name of certifying agent)

(Title of certifying agent)

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor) _____
(Address of Contractor)

a _____, hereinafter called "PRINCIPAL" and
(Corporation, Partnership or Individual)

hereinafter

(Name of Surety)

called SURETY, are held and firmly bound unto **ROWAN COLLEGE OF SOUTH JERSEY**, hereinafter called OWNER, and unto all persons, firms, and corporations, who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the PRINCIPAL entered into a certain contract with the OWNER, dated the _____ day of _____, 2019, a copy of which is hereto attached and made a part hereof for:

"Rowan College of South Jersey College Center 2021 EOF and CAP Office Renovations".

NOW, THEREFORE, if the PRINCIPAL shall make prompt payment to all persons, firms, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extensions or modification thereof, including all amount due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and for all labor costs incurred in such WORK including that by a SUBCONTRACTOR, and to any mechanic or materialman or lien-holder, whether it acquires its liens by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTOR, and person, firms, and corporations having a direct contract with the PRINCIPAL; or its SUBCONTRACTORS.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed hereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant:

(a) Unless claimant, other than one having a direct contract with the PRINCIPAL, shall have given written notice to any two of the following: The PRINCIPAL, the OWNER, or the SURETY above named within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope

addressed to the PRINCIPAL, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service needs to be made by a public officer.

(b) After the expiration of one (1) year following the date of which PRINCIPAL ceased work on said CONTRACT, it being understood, however, THAT any limitation embodied in the BOND is equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the Contract, or the loan documents, shall include any alteration, additions, extension or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the rights of any beneficiary hereunder, whose claim may be unsatisfied.

WITNESS WHEREOF, this instrument is executed in _____ counterparts, each of which
(number)
shall be deemed an original, this the _____ day of _____, 2019.

ATTEST:

(Principal Secretary)

(SEAL)

(Witness as to Principal)

(Address)

ATTEST:

(Witness as to Surety)

(Address)

(Principal)

By _____ (s)

(Address)

(Surety)

By _____
(Attorney - in Fact)

(Address)

NOTE: Date of BOND must not be prior to date of Contract.

If CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

SURETY DISCLOSURE STATEMENT AND CERTIFICATION

_____, surety(ies) on the attached bond, hereby certifies(y) the following:

(1) The surety meets the applicable capital and surplus requirements of R.S. 17:17-6 or R.S. 17:17-7 as of the surety's most current annual filing with the New Jersey Department of Insurance.

(2) The capital (where applicable) and surplus, as determined in accordance with the applicable laws of this State, of the surety(ies) participating in the issuance of the attached bond is (are) in the following amount(s) as of the calendar year ended December 31, _____ (most recent calendar year for which capital and surplus amounts are available), which amounts have been certified as indicated by certified public accountants (indicating separately for each surety that surety's capital and surplus amounts, together with the name and address of the firm of certified public accounts that shall have certified those amounts):

(3) (a) With respect to each surety participating in the issuance of the attached bond that has received from the United States Secretary of the Treasury a certificate of authority pursuant to 31 U.S.C. § 9305, the underwriting limitation established therein and the date as of which that limitation was effective is as follows (indicating for each such surety that surety's underwriting limitation and the effective date thereof):

(b) With respect to each surety participating in the issuance of the attached bond

that has not received such a certificate of authority from the United States Secretary of the Treasury, the underwriting limitation of that surety as established pursuant to R.S. 17:18-9 as of (date on which such limitation was so established) is as follows (indicating for each such surety that surety's underwriting limitation and the date on which that limitation was established):

(4) The amount of the bond to which this statement and certification is attached is \$_____.

(5) If, by virtue of one or more contracts of reinsurance, the amount of the bond indicated under item (4) above exceeds the total underwriting limitation of all sureties on the bond as set forth in items (3)(a) or (3)(b) above, or both, then for each such contract of reinsurance:

(a) The name and address of each such reinsurer under that contract and the amount of that reinsurer's participation in the contract is as follows:

; and

(b) Each surety that is party to any such contract of reinsurance certifies that each reinsurer listed under item (5)(a) satisfies the credit for reinsurance requirement established under P.L.1993, c. 243 (C. 17:51B-1 et seq.) and any applicable regulations in effect as of the date on which the bond to which this statement and certification is attached shall have been filed with the appropriate public agency.

CERTIFICATE
(to be completed by an authorized certifying agent
for each surety on the bond)

I, _____ (name of agent) , as _____
_____ (title of agent) for _____
_____ (name of surety) , a corporation/mutual insurance company/other _____
_____ (indicating type of business
organization) (circle one) domiciled in _____ (state of domicile) , DO
HEREBY CERTIFY that, to the best of my knowledge, the foregoing statements
made by me are true, and ACKNOWLEDGE that, if any of those statements are
false, this bond is VOID.

(Signature of certifying agent)

(Printed name of certifying agent)

(Title of certifying agent)

**MAINTENANCE
BOND**

Bond No: _____

KNOW ALL MEN BY THESE PRESENTS, That we, _____,
_____, as Principal,
and _____ **INSURANCE COMPANY OF AMERICA**, a
corporation duly organized under and by the virtue of the laws of the State of New Jersey
and authorized to become sole surety on bonds in the State of New Jersey, as Surety, are
held and firmly bound unto **Rowan College of South Jersey, 1400 Tanyard Road,
Sewell, NJ 08080**, hereinafter called Obligee, in the just and penal sum of

_____ Dollars (\$ _____), lawful money of the United States of America, to the
payment of which well and truly to be made the Principal binds itself, its successors and
assigns, and the Surety binds itself, its successors and assigns, jointly and severally, firmly
by these presents.

WHEREAS, the Principal has by means of a written agreement, dated _____
contracted with the Obligee aforesaid, for furnishing all materials and performing all of the
work in connection with **“Rowan College of South Jersey College Center 2021 EOF and
CAP Office Renovations”**, as specifically set forth in said contract for said work, and

WHEREAS, the Principal has completed the said contract in accordance with the plans
and specifications thereof, and

WHEREAS, the Obligee has requested the Principal to guarantee said work against
defective workmanship or faulty materials for a period of two (2) years from date of
acceptance of said work _____; and

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH,
that if the Principal shall well and truly make good any defects in material or
workmanship which may arise in said work within two (2) years from the date of
acceptance of said work, then this obligation shall be null and void, otherwise it shall
remain in full force and effect.

IN WITNESS WHEREOF, we have set our hands and seals this _____ day of
_____, 20_____.

Principal (SEAL)

Surety

STATE OF NEW JERSEY

DEPARTMENT OF LABOR & WORKFORCE DEVELOPMENT
CONSTRUCTION EEO COMPLIANCE MONITORING PROGRAM

FORM AA-201

Revised 11/11

INITIAL PROJECT WORKFORCE REPORT CONSTRUCTION

Official Use Only

Assignment

Code

For instructions on completing the form, go to: http://www.state.nj.us/treasury/contract_compliance/pdf/aa201ins.pdf

1. FID NUMBER		2. CONTRACTOR ID NUMBER		5. NAME AND ADDRESS OF PUBLIC AGENCY AWARDED CONTRACT							
3. NAME AND ADDRESS OF PRIME CONTRACTOR (Name) (Street Address) (City) (State) (Zip Code)				Name:							
				Address:							
4. IS THIS COMPANY MINORITY OWNED [] OR WOMAN OWNED []				CONTRACT NUMBER				DATE OF AWARD		DOLLAR AMOUNT OF AWARD	
				6. NAME AND ADDRESS OF PROJECT				7. PROJECT NUMBER			
9. TRADE OR CRAFT				PROJECTED TOTAL EMPLOYEES				PROJECTED MINORITY EMPLOYEES			
				MALE FEMALE				MALE FEMALE			
				J AP J AP				J AP J AP			
1. ASBESTOS WORKER											
2. BRICKLAYER OR MASON											
3. CARPENTER											
4. ELECTRICIAN											
5. GLAZIER											
6. HVAC MECHANIC											
7. IRONWORKER											
8. OPERATING ENGINEER											
9. PAINTER											
10. PLUMBER											
11. ROOFER											
12. SHEET METAL WORKER											
13. SPRINKLER FITTER											
14. STEAMFITTER											
15. SURVEYOR											
16. TILER											
17. TRUCK DRIVER											
18. LABORER											
19. OTHER											
20. OTHER											

I hereby certify that the foregoing statements made by me are true. I am aware that if any of the foregoing statements are willfully false, I am subject to punishment.

(Signature)

10. (Please Print Your Name)

(Title)

(Area Code)

(Telephone Number)

(Ext.)

(Date)

**INSTRUCTIONS FOR COMPLETING THE INITIAL PROJECT
WORKFORCE REPORT – CONSTRUCTION (AA201)**

DO NOT COMPLETE THIS FORM FOR GOODS AND/OR SERVICE CONTRACTS

1. Enter the Federal Identification Number assigned to the contractor by the Internal Revenue Service, or if a Federal Employer Identification Number has been applied for but not yet issued, or if your business is such that you have not or will not receive a Federal Identification Number, enter the social security number assigned to the single owner or one partner, in the case of a partnership.
2. Note: The Department of Labor & Workforce Development, Construction EEO Monitoring Program will assign a contractor ID number to your company. This number will be your permanently assigned contractor ID number that must be on all correspondence and reports submitted to this office.
3. Enter the prime contractor's name, address and zip code number.
4. Check box if Company is Minority Owned or Woman Owned
5. Enter the complete name and address of the Public Agency awarding the contract. Include the contract number, date of award and dollar amount of the contract.
6. Enter the name and address of the project, including the county in which the project is located.
7. Note: A project contract ID number will be assigned to your firm upon receipt of the completed Initial Project Workforce Report (AA201) for this contract. This number must be indicated on all correspondence and reports submitted to this office relating to this contract.
8. Check "Yes" or "No" to indicate whether a Project Labor Agreement (PLA) was established with the labor organization(s) for this project.
9. Under the Projected Total Number of Employees in each trade or craft and at each level of classification, enter the total composite workforce of the prime contractor and all subcontractors projected to work on the project. Under Projected Employees enter total minority and female employees of the prime contractor and all subcontractors projected to work on the project. Minority employees include Black, Hispanic, American Indian and Asian, (J=Journeyworker, AP=Apprentice). Include projected phase-in and completion dates.
10. Print or type the name of the company official or authorized Equal Employment Opportunity (EEO) official include signature and title, phone number and date the report is submitted.

This report must be submitted to the Public Agency that awards the contract and the Department of Labor & Workforce Development, Construction EEO Compliance Monitoring Program after notification of award, but prior signing the contract.

**THE CONTRACTOR IS TO RETAIN A COPY AND SUBMIT COPY TO THE PUBLIC AGENCY AWARDING
THE CONTRACT AND FORWARD A COPY TO:**

**NEW JERSEY DEPARTMENT OF LABOR & WORKFORCE DEVELOPMENT
CONSTRUCTION EEO COMPLIANCE MONITORING UNIT
P.O. BOX 209
TRENTON, NJ 08625-0209
(609) 292-9550**

AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

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

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. For a full enumeration of Contract Documents which include the Instructions to Bidders, the Advertisement and forms required at the time of and after the receipt of the bids. See Article 9 of the A101-2017 Standard Form of Agreement Between Owner and Contractor. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

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

§ 1.1.3 The Work

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

§ 1.1.4 The Project

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

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services and shall include the Instructions to Bidders, the Advertisement and forms required at the time of and after the receipt of the bids.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith. ***The Architect shall be the Initial Decision Maker.***

§ 1.2 Correlation and Intent of the Contract Documents

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

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

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

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

§ 1.3 Capitalization

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

§ 1.4 Interpretation

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

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants. ***Drawings,***

specifications and other documents, including those in electronic form, prepared by the Architect and the Architect's consultants are Instruments of Service for use solely with respect to this Project, except that Owner shall be authorized to use any Instruments of Service for future additions or alterations to this Project or for other Projects. The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service and shall retain all common law, statutory and other reserved rights, including copyrights.

§ 1.5.3 *The Contractor will be furnished free of charge two (2) sets of signed and sealed drawings and specifications. If more documents are required by the Contractor, the additional documents may be obtained at the cost of \$2.00 per sheet and \$100.00 per specification.*

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. ~~The parties will use AIA Document E203™ 2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.~~

§ 1.8 Building Information Models Use and Reliance

~~Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™ 2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™ 2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.~~

§ 1.9 EXECUTION OF CONTRACT DOCUMENTS

§ 1.9.1 *Contract Documents requiring signature shall be signed by the Owner and Contractor. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Documents upon request. The Agreement shall be signed in not less than triplicate by the Owner and Contractor.*

§ 1.9.2 *Execution of the Contract by the Contractor is a representation that said Contract Documents are full and complete, are sufficient to have enabled the Contractor to determine the cost of the Work therein to enter into the Contract and that the Contract Documents are sufficient to enable it to construct the Work outlined therein, and otherwise to fulfill all its obligations hereunder, including, but not limited to, Contractor's obligation to construct the Work for an amount not in excess of the Contract Sum on or before the date(s) of Substantial Completion established in the Agreement. The Contractor further acknowledges and declares that it has visited and examined the site, examined all physical, legal, and other conditions affecting the Work and is fully familiar with all of the conditions thereon and thereunder affecting the same. In connection therewith, Contractor specifically*

represents and warrants to Owner that it has, by careful examination, satisfied itself as to: (1) the nature, location and character of the Project and the site, including, without limitation, the surface and subsurface conditions of the site and all structures and obstructions thereon and thereunder, both natural and man-made, and all surface and subsurface water conditions of the site and the surrounding area; (2) the nature, location, and character of the general area in which the Project is located, including without limitation, its climatic conditions, available labor supply and labor costs, and available equipment supply and equipment costs; and (3) the quality and quantity of all materials, supplies, tools, equipment, labor, and professional services necessary to complete the Work in the manner and within the cost and time frame required by the Contract Documents. In connection with the foregoing, and having carefully examined all Contract Documents, as aforesaid, and having visited the site, the contractor acknowledges and declares that it has no knowledge of any discrepancies, omissions, ambiguities, or conflicts in said Contract Documents and that if it becomes aware of any such discrepancies, omissions, ambiguities, or conflicts, it will promptly notify Owner and Architect of such fact.

§ 1.9.3 The Contract Documents include all items necessary for the proper execution and completion of the Work by the Contractor. The Work shall consist of all items specifically included in the Contract Documents as well as all additional items of work which are reasonably inferable from that which is specified in order to complete the Work in accordance with the Contract Documents. The Contract Documents are complementary, and what is required by any one Contract Document shall be as binding as if required by all. Any differences between the requirements of the Drawings and the Specifications or any differences noted within the Drawings themselves or within the Specifications themselves have been referred to the Owner and Architect by Contractor prior to the submission of bids and have been clarified by an Addendum issued to all bidders.

If any such differences or conflicts were not called to the Owner's and Architect's attention prior to submission of bids, the Architect shall decide which of the conflicting requirements will govern based upon the most stringent of the requirements, and subject to the approval of the Owner, the Contractor shall perform the Work at no additional cost and/or time to the Owner in accordance with the Architect's decision. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonable inferable therefrom as being necessary to produce the intended results.

1.9.3.1 The term "reasonably inferable" includes work necessary to "provide" work indicated or specified, as defined in section: Definitions and Standards; that is: furnish and install, complete, in place and ready for use.

1.9.3.2 Details referenced to portions of the Work shall apply to other like portions of the Work not otherwise detailed.

1.9.3.3 The Contractor shall submit a Request for Information "RFI" to the Architect/Engineer for interpretation of apparent discrepancies, conflicts, or omissions in the Specifications and Drawings. Subcontractors shall forward such requests through the Contractor. Such requests, and the Architect/Engineer's interpretation, shall be in written form; other forms of communications shall be used to expedite resolution of concerns, but will not be binding.

§1.9.4 Explanatory notes shall take precedence over conflicting drawn note indications. Large scale drawings shall take precedence over small scale drawings. Figured dimensions shall take precedence over scaled measurements. Should contradictions be found, the Architect shall determine which indication is correct.

§1.9.5 When more than one material, brand, or process is specified for a particular item of Work, the choice shall be the Contractor's. Contractor may, after notifying the Architect and Owner, select the one it considers to be the

best. Approval by Architect or Owner of materials, suppliers, processes, or Subcontractors does not imply a waiver of any Contract requirements including, without limitation, Contractor's warranty.

§1.9.6 In all cases, the details, drawings, and specifications shall be checked with existing conditions and with work in place, and variations, if any, shall be referred by the Contractor to the Architect for adjustment, as the Contractor will be responsible for the fit or work in place.

§1.9.7 When a profile, section or other finished condition is shown, furring or other method of obtaining such finished conditions shall be provided. The drawings may show work fully drawn out or only a portion thereof, the remainder being in outline. The drawn-out portions apply to other like or similar places.

§1.9.8 Where it is required in the specifications that materials, products, processes, equipment, or the like be installed or applied in accordance with manufacturers' instructions, directions, or specifications, or words to this effect, it shall be construed to mean that said application or installation shall be in strict accordance with printed material concerned for use under conditions similar to those at the job site. Three copies of such instructions shall be furnished to the Architect and his written approval thereof obtained before work is begun.

§1.9.9 Any material specified by reference to the number, symbol, or title of a Commercial Standard, Federal Specification, ASTM Specification, trade association standard, or other similar standards, shall comply with the requirements in the latest revision thereof and any amendments or supplements thereto in effect one month prior to the date on which bids are opened and read, except as limited to type, class, or grade, or modified in such reference. The standards referred to, except as modified in the specifications, shall have full force and effect as though printed in the specifications. The Architect will furnish upon request information as to how copies of the standards referred to may be obtained.

ARTICLE 2 OWNER

§ 2.1 General

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

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

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to

make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

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

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work. *The furnishing of these surveys and the legal description of the site shall not relieve the Contractor from its duties under the Contract Documents. Neither Owner nor the Architect shall be required to furnish Contractor with any information concerning subsurface characteristics, utilities or conditions of the areas where the Work is to be performed. When the Owner or Architect has made investigations of subsurface characteristics or conditions of the areas where the Work is to be performed, such investigations, if any, were made solely for the purposes of Owner's study and Architect's design. Neither such investigations nor the records thereof are a part of the Contract between Owner and Contractor. To the extent such investigations or the records thereof are made available to Contractor by the Owner or Architect, such information is furnished solely for the convenience of Contractor. Neither Owner nor Architect assumes any responsibility whatsoever in respect of the sufficiency or accuracy of the investigations thus made, the records thereof, or of the interpretations set forth therein or made by the Owner or Architect in its use thereof, and there is no warranty or guaranty, either express or implied, that the conditions indicated by such investigations or records thereof are representative of those existing*

throughout the areas where the Work is to be performed, or any part thereof, or that unforeseen developments may not occur, or that materials other than or in proportions different from those indicated may not be encountered. The Contractor shall undertake such further investigations and studies as may be necessary or useful to determine subsurface characteristics and conditions. In connection with the foregoing, Contractor shall be solely responsible for locating (and shall locate prior to performing any Work) all utility lines, telephone company lines and cables, sewer lines, water pipes, gas lines, electrical lines, including, without limitation, all buried pipelines and buried telephone cables and shall perform the Work in such a manner so as to avoid damaging any such lines, cables, pipes, and pipelines.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2 *and 1.5.3.*

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, *or fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, materials, or equipment so as to be able to complete the Work within the Contract Time or fails to remove and discharge (within ten days) any lien filed upon Owner's property by anyone claiming by, through, or under Contractor, or disregards the instructions of Architect or Owner when based on the requirements of the Contract Documents,* the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, ~~except to the extent required by Section 6.1.3.~~

§ 2.4.1 *The Owner shall have the authority to immediately correct, service, repair, replace or otherwise make operational any component of their facilities including equipment if in the sole discretion of the owner the damaged component is a threat to education, safety or security. The Owner is obligated to put the Contractor on notice of the issue threatening education, safety or security, and their intent to remedy immediately with other resources and to back charge the contractor for the cost of said service, but there are no notice provisions required for the corrective actions necessary to protect the Owner.*

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ~~ten-day~~ *seven-day* period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's *and Construction Manager's* additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor *and/or his/her Surety* shall pay the difference to the Owner. ~~If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.~~

§ 2.5.1 *The Owner shall have the authority to immediately correct, service, repair, replace or otherwise make operational any component of their facilities including equipment if in the sole discretion of the owner the damaged component is a threat to education, safety or security. The Owner is obligated to put the Contractor on notice of the issue threatening education, safety or security, and their intent to remedy immediately with other resources and to backcharge the contractor for the cost of said service, but there are no notice provisions required for the corrective actions necessary to protect the Owner.*

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative. ***The Term "Contractor" shall mean the respective Prime Contract person or entity identified as such in the Owner Contractor Agreement, for each respective Prime Construction Contract, as responsible for the supervisory control over allocation, coordination of all Subcontractors or trades, performance and completion of all portions of the Work, including cooperation with those doing portions of the Work under Separate Contract with the Owner.***

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

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents. ***In addition to and not in derogation of Contractor's duties under Paragraphs 1.9.2 and 1.9.3, the Contractor shall carefully study and compare the Contract Documents with each other and shall at once report to the Architect errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner or Architect for damage resulting from errors, inconsistencies or omissions in the Contract Documents that could not have been discovered by a prudent and experienced contractor in advance and that are not in the nature of items described in and intended to be covered in Paragraphs 1.9.2 and 1.9., unless the Contractor recognized or reasonably should have recognized such error, inconsistency or omission and failed to report it to the Architect. If the Contractor performs any construction activity involving an error, inconsistency or omission in the Contract Documents that the Contractor recognized***

or reasonably should have recognized without such notice to the Architect, the Contractor shall assume complete responsibility for such performance and shall bear the full amount of the attributable costs for correction.

§ 3.2.2.1 *If any errors, inconsistencies, or omissions in Contract Documents are recognized or reasonably should have been recognized by the Contractor, any member of its organization, or any of its Subcontractors, the Contractor shall be responsible for notifying the Architect in writing of such error, inconsistency, or omission before proceeding with the Work. The Architect will take such notice under advisement and within a reasonable time commensurate with job progress render a decision. If Contractor fails to give such notice and proceeds with such Work, it shall correct any such errors, inconsistencies, or omissions at no additional cost to the Owner.*

Deviations from the construction documents must be noted by the Contractor at the time of shop drawing submission. Failure to do so will result in the implication of the above Sections 3.2, 3.2.1, 3.2.2 and 3.2.2.1.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to, ***unless the Contractor recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Architect,*** the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

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

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

§ 3.3.4 The Contractor, when requested by the Architect, shall meet with representative of the Architect at all times and furnish all information requested; he shall allow the Architect to inspect the work at all times. Neither the Owner, nor the Architect shall be liable to the Contractor for extra compensation or damages for interference or delays on account of any such meetings, information, or inspections so requested or other acts of the Architect done in good faith and within the scope of their employment by the Owner. In addition, the Contractor is entrusted with the oversight, management control, and general direction of this project to ensure that all contract completion dates are met. In the event that there are any delays caused to any subcontractor on this project, liability shall lie with the Contractor and not with the Owner.

§ 3.3.5 The Contractor has the responsibility to ensure that all material suppliers and Subcontractors, their agents, and employees adhere to the Contract Documents, and that they order materials on time, taking into account the current market and delivery conditions and that they provide materials on time. The Contractor shall coordinate its Work with that of all others on the Project including deliveries, storage, installations, and construction utilities. The Contractor shall be responsible for the space requirements, locations, and routing of its equipment. In areas and locations where the proper and most effective space requirements, locations and routing cannot be made as indicated, the Contractor shall meet with all others involved, before installation, to plan the most effective and efficient method of overall installation.

§ 3.3.6 The Contractor shall establish and maintain benchmarks and all other grades, lines, and levels necessary for the Work, report errors or inconsistencies to the Architect before commencing Work and review the placement of the building(s) and permanent facilities on the site with the Owner and Architect after all lines are staked out and before foundation Work is started. Contractor shall provide access to the Work for the Owner, the Architect, other persons designated by Owner, and governmental inspectors. Any encroachments made by Contractor or its Subcontractor (of any tier) on adjacent properties due to construction as revealed by an improvement survey, except for encroachments arising from errors or omissions not reasonably discoverable by Contractor in the Contract Documents, shall be the sole responsibility of the Contractor, and Contractor shall correct such encroachments within thirty (30) days of the improvement survey (or as soon thereafter as reasonably possible), at Contractor's sole cost and expense, either by the removal of the encroachment (and subsequent reconstruction on the Project site) or agreement with the adjacent property owner(s) (in form and substance satisfactory to Owner in its sole discretion) allowing the encroachments to remain.

§ 3.3.7 Coordination:

- 1. The Lump Sum Single Prime Contractor "The Contractor" is the sole responsible party for the coordination of the entire project.*
- 2. The Contractor shall be responsible to coordinate and expedite the total construction process and all of its parts. The Owner relies upon the organization, management, skill, cooperation and efficiency of the Contractor to supervise, direct, control and manage the work and to coordinate and expedite the efforts of the other prime contractors and subcontractors so as to deliver the work conforming to the contract within the scheduled time. The Contractor is responsible for proper sequence and coordination. It shall determine the location of work and resolve conflicts amongst Contractors.*
- 3. The Contractor shall provide a qualified full-time staff member or members to manage the project. THIS PROJECT MANAGER shall coordinate, organize and manage the project from the contractor's main office and oversee the shop drawing process signing off for quality assurance and conformance with the Contract Documents on each shop drawing. The Project Manager shall be subject to the approval of the Owner, Construction Manager and Architect who at all times have the right to require the contractor to replace this Project Manager if they fail to perform. The Project Manager shall conduct an onsite meeting at least once a week with the construction superintendent*

and all other prime and/or subcontractors in attendance to coordinate the project and review the schedule. The Construction Manager will attend but is not responsible for organizing or taking minutes. The Project Manager shall provide a meeting agenda and issue minutes within four (4) working days of each meeting.

- 4. The Contractor shall provide a qualified full-time staff member or members to manage the project on site. THIS CONSTRUCTION SUPERINTENDENT shall coordinate, organize and manage the project from the contractor's on-site field office and oversee their own work and the work of their sub-contractors. Should the prime contractor be responsible for multiple projects at different sites, or multiple locations on one large site, then the contractor shall provide a separate qualified superintendent for each of the projects or locations. This determination shall be made by and subject to the approval of the Owner, Construction Manager and Architect who at all times may require additional manpower. The superintendent shall be responsible for onsite safety, quality assurance, conformance with the Contract Documents and perform coordination with all on site construction personnel and/or subcontractors. The Construction superintendent shall be subject to the approval of the Owner, Construction Manager and Architect who at all times have the right to require the contractor to replace this Construction superintendent if they fail to perform.*
- 5. The other subcontractors shall also have a designated superintendent and/or foreman who will at all times be subject to the approval of the Owner, Construction Manager and Architect. The Owner, Construction Manager and Architect reserves the right to require the contractor to replace the superintendent and/or foreman if, in the opinion of the Owner, Construction Manager and Architect, the superintendent and/or foreman is not performing satisfactorily.*
- 6. Each prime subcontractor shall coordinate his activities with the activities of other contractors.*
- 7. All questions pertaining to the work are to be made to the Architect sufficiently in (via an RFI Form) advance of construction to permit comparisons investigation or references to drawings and shop drawings as necessary.*
- 8. The Contractor is required to submit a site logistics plan coordinating all Owner or Construction Manager functions with the access and safety of the job site.*
- 9. The Contractor is required to coordinate all the inspection and material testing to meet the contract documents specifications.*
- 10. The Contractor has full and sole responsibility for construction methods and implementation of a "quality control system" to insure coordination.*
- 11. The Contractor is responsible for field verification of all dimensions/measurements for the coordination of materials and trades. Check field dimensions, clearances, relationships to available space, and anchors.*
- 12. The Contractor shall make all necessary arrangements to conduct work so that all parts shall be carried on harmoniously and simultaneously or sequentially, so as components or increments of the same shall not interfere or retard the progress of others.*
- 13. Minor changes in locations of equipment, parts, etc. due to field conditions shall be made, if so directed, at no additional cost.*
- 14. The Contractor shall coordinate the delivery, unloading, movement, relocation, storage and protection of all materials.*
- 15. The Contractor shall examine the drawings and dimensions and is responsible for satisfactory joining and fitting of all parts of the work.*
- 16. Accurate dimensions, sleeved and opening drawings are to be submitted prior to placement in the field.*

17. *The Contractor shall prepare coordination drawings for all above ceiling areas throughout the entire project. Drawings showing all piping, duct, cable trays, electrical duct banks, and similar items, but not electrical conduit less than 4 inches in diameter. Complete architectural, mechanical and electrical reflected ceiling layouts, (including ductwork, conduits, piping, lighting, etc.).*
18. *The Contractor is responsible for any omissions of the subcontractors and is required to provide a complete operating facility.*
19. *The Contractor shall be responsible for preserving the integrity of ceiling heights and room sizes and shall:*
 - a. *Check compatibility with equipment, other work, electrical characteristics, and operational control requirements. Check motor voltages and control characteristics. Coordinate controls, interlocks, wiring of pneumatic switches, and relays. Coordinate wiring and control wiring diagrams. Review the effect of changes on other work. Obtain and distribute installation data on each item of equipment requiring mechanical or electrical connections;*
 - b. *Coordinate and observe start-up and demonstration of equipment and systems. Observe and maintain record of tests and inspections. Coordinate maintenance of record documents;*
 - c. *Assist the Consultant and Construction Manager with final inspections.*
 - d. *Inform the Owner via the Construction Manager when coordination of his work is required;*
 - e. *Coordinate all mechanical, plumbing, electrical, food service and equipment/furnishings work, and coordinate that work with all other work.*
20. *Where space is limited, coordinate arrangement of mechanical, electrical, and other work to fit, show plan and cross-section dimensions of space available, including structural obstructions and ceilings as applicable.*
21. *Coordinate cutting and patching activities and sequencing.*
22. *The Architect, Construction Manager and Owner shall assist in resolution of any coordination items.*

§ 3.4 Labor and Materials

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

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive *and the provisions of Section 01300 of the Contract Specifications.*

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

§ 3.4.4 *The Contractor must provide suitable storage facilities at the site for the proper protection and safe storage of his materials. Such storage facilities must be approved in advance in writing by the Architect.*

§ 3.4.5 *All materials delivered to the premises which are to form a part of the work are to be considered the property of the Owner and must not be removed without the Architect's consent; but the Contractor shall remove all surplus materials upon completion of each phase of the work and as directed by the Architect.*

§ 3.4.6 *When any room is used as a shop, storeroom, etc., during the progress of the work, the Contractor making use of the space will be responsible for any repairs, patching, or cleaning arising from such use. Prior approval of the Construction Manager or Architect for use of such areas is mandatory.*

§ 3.4.7 *Not later than seven (7) days from the Notice to Proceed, the Contractor shall provide a list showing the name of the manufacturer proposed to be used for each of the products identified in the Specifications Divisions 1-16, and if applicable, the installing Subcontractor's name.*

§ 3.4.8 *The Contractor will be held to be to be thoroughly familiar with all conditions affecting labor in the locale of the Project, including, but not limited to, trade jurisdictions and agreements, incentive and premium time, pay, procurement, living and commuting conditions. Contractor shall assume responsibility for costs resulting from his failure to verify conditions affecting his labor.*

§ 3.4.9 *Contractor shall be responsible for labor peace on the Project and shall at all times make its best efforts and judgment as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes where reasonably possible and practical under the circumstances, and shall at all times maintain Project-wide labor harmony. Except as specifically provided in Subparagraph 8.3.1, Contractor shall be liable to Owner for all damages suffered by Owner occurring as a result of work stoppages, slowdowns, disputes, or strikes.*

§ 3.5 Warranty

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

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence upon *final inspection and acceptance by the Owner*.

§ 3.5.2 *The Contractor represents that all manufacturer and supplier warranties shall run directly to or be specifically assignable to the Owner. The Contractor warrants that all portions of the work that will be covered by a manufacturer's or supplier's warranty shall be performed in such a manner so as to preserve all rights under such warranties. The Contractor hereby assigns to the Owner effective upon the termination of this contract all manufacturer's and supplier's warranties relating to the Work, and the Contractor shall upon request of the Owner, execute any document reasonably requested by Owner to effectuate such assignment. If the Owner attempts to enforce a claim based upon a manufacturer's or supplier's warranty and such manufacturer or supplier refuses to honor such warranty based in whole or in part on a claim of defective installation by the Contractor, the Contractor shall be responsible for any resulting loss or damages incurred by the Owner as a result of the manufacturer's or supplier's refusal to honor such warranty. The Contractor's obligations under this Subparagraph 3.5.2 shall survive the expiration or earlier termination of the Contract. The warranty period for all work of each Contractor shall be two (2) years from the date of final inspection and acceptance by the Owner unless otherwise specified.*

§ 3.6 Taxes

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

§ 3.6.1 The owner is exempt from most taxes including Federal Excise Tax, fuel tax, transportation taxes and State Sales or Use Tax.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded. The Contractor shall be required to secure permits or government approvals necessary for the proper execution and completion of the work. The Contractor shall obtain business licenses required by the State, County and/or City/Township and shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the work.

3.7.1.1 The required Building Permit or Permits shall be secured by the Contractor for his trade; or by the Prime Contractor in charge of the Work when the Contract combines more than one trade under a Single Contract. This shall include permits required for the Construction Manager's Trailer.

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

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction. ***all costs attributable to the correction thereof or related thereto, including all fines and penalties.***

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than ~~14 days~~ ***three (3) days*** after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately

suspend any operations that would affect them and shall notify the Owner and Architect. ~~Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations.~~ The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances (See Specification “Section 01210 – Allowances”)

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

§ 3.8.2 Unless otherwise provided in the Contract Documents,

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

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

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

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner’s consent, which shall not unreasonably be withheld or delayed.

§ 3.9.4 *A Construction Superintendent for the contractor shall be required for the overall project and a Foreman shall be required at each project site. The number of necessary Assistants to the superintendent shall be the areas where work is in progress shall be adequately supervised by the Contractor’s superintendent or one of his assistants. If, in the Construction Manager’s, Architect’s or Engineer’s opinion, the quality or progress of the work are adversely affected by lack of adequate supervision, the Contractor shall be required to increase the number of foremen and/or assistants at no increase in the Contract sum.*

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. *The schedule which is prepared by the Contractor shall indicate the proposed starting and completion date for the various subdivisions of the Work as well as the totality of the Work. The schedule shall be updated every thirty (30) days and must be submitted to the Architect with Contractor's Applications for Payment. If the schedule is not submitted with the payment application, no payment will be processed. Each schedule shall contain a comparison of actual progress with the estimated progress for such point in time started in the original schedule. If any schedule submitted sets forth a date for Substantial Completion for the Work or any phase of the Work beyond the Date(s) of Substantial Completion established in the Contract (as the same may be extended as provided in the Contract Documents), then Contractor shall submit to Architect and Owner for their review and approval a description of the means and methods which Contractor intends to employ to expedite the progress of the Work to ensure timely completion of the various phases of the Work as well as the totality of the Work. To ensure such timely completion, Contractor shall take all necessary action including, without limitation, increasing the number of personnel and labor on the Project and implementing overtime and double shifts. In that event, Contractor shall not be entitled to an adjustment in the Contract Sum or the schedule.*

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

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

§ 3.10.4 *Schedules shall comply with the requirements of the Division 1 "Section 01040 - Project Coordination," Section 01310, "Construction Progress Documentation." And Section 01315, "CPM Schedule."*

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed. *See Specification "Section 01300 - Submittals," and "Section 01700 - Project Closeout," for specific details and requirements.*

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

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

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

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

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

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

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.12.11 *Detailed requirements are specified in Specification "Section 01300 - Submittals."*

§3.12.12 *All shop drawings are to include manufacturer's data. All shop drawings and samples are to be submitted by the Contractor to the Architect for review. Each sheet of the shop drawings shall identify the project, contractor, subcontractor, and fabricator or manufacturer and the date of the drawings. All shop drawings shall be numbered in consecutive sequence and each sheet shall indicate the total number of sheets in the set.*

§ 3.12.13 *Substitutions: All substitutions or deviations from plans and specification must be clearly noted as such on all shop drawings. Contractor shall identify, coordinate and pay for any additional requirements as a result of substitutions, deviations, etc., including necessary change orders. In addition, substitution submittals shall be made no later than 30 days after Notice to Proceed in order to provide time for comparison review. All submittals after 30 days shall be in strict accordance with the basis of design / specified products.*

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.1 *Location and weights of all equipment and materials and the Contractor intends to place on the slab shall be submitted to the Architect for review.*

§ 3.13.2 *Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage and all other adversity is solely the responsibility of the Contractor.*

§ 3.13.3 *The Contractor and any entity for whom the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner.*

§ 3.13.4 Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials and equipment likely to cause hazardous conditions. Without limitation of any provision of the Contract Documents, Contractor shall use its best efforts to minimize any interference with the occupancy or beneficial use of (1) any areas and buildings adjacent to the site of the Work or (2) the Building in the event of partial occupancy, as more specifically described in Paragraph 9.9.

§ 3.13.5 Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including without limitation, lavatories, toilets, entrances and parking areas other than those designated by the Owner. Without limitation of any other provision of the Contract Documents, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the Building, as amended from time to time.

The Contractor shall immediately notify the Owner in writing if during the performance of the Work, the Contractor finds compliance with any portion of such rules and regulations to be impracticable, setting forth the problems of such and suggest alternatives through which the same results can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives or require compliance with the existing requirement of the rules and regulations. The Contractor shall also comply with all insurance requirements and collective bargaining agreements applicable to use and occupancy of the Project site and the Building.

§3.13.6 The Contractor shall provide a temporary construction fence whether shown on the contract documents or not as required to separate the area or areas under construction from the Owners area or areas used by the public. The temporary fencing shall be approved by the Owner prior to installation. The fence shall be 6' high and have vinyl privacy fabric obstructing views into the construction area.

§ 3.14 Cutting and Patching (See Specification "Section 01045 – Cutting and Patching")

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

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

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so, and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.15.3 The Contractor shall perform all daily clean up and removal of debris from the site including that of his subcontractors. The Contractor shall maintain an adequate supply of laborers to accomplish daily clean up and removal of debris from the site and work areas. No debris will be allowed to accumulate in or around the building including masonry debris. The building site must be maintained free of all litter, dirt, dust and debris on a daily basis. The Owner, Construction Manager, and/or Architect may stop all work and require all personnel on site to clean up. No accumulation of flammable material is permitted. Prior to installation of finishes the floors will be swept or vacuumed and kept free of dust and dirt until turned over to the Owner.

§ 3.15.4 Cleaning and debris removal may be considered a safety concern by judgment of the Owner or his agents and as such the work may be stopped to provide time and labor for immediate clean up.

§ 3.15.5 Final Clean-Up: The Contractor has the responsibility for the final clean-up and policing of the entire site after other contractors have removed their own waste materials, rubbish, equipment, tools and plant. In addition, thereto, the Contractor shall have a professional cleaning company perform the following immediately prior to the Architect's inspection for Substantial Completion:

- .1 Removal of all manufacturer's temporary labels from materials, equipment and fixtures.*
- .2 Removal of all stains from glass and mirrors; wash, polish, inside and outside.*
- .3 Removal of marks, stains, fingerprints, other soil, dust, dirt, from painted, decorated, or stained woodwork, plaster or plasterboard, metal, acoustic tile, and equipment surfaces.*
- .4 Remove spots, paint, soil, from resilient flooring.*
- .5 Remove temporary floor protections; clean, strip and provide three (3) coats of wax on new VCT floors or otherwise treat as directed by the material manufacturers recommendation, all finished floors. Final vacuum all carpet.*
- .6 Clean all interior finished surfaces, including doors and window frames, and hardware required to have a polished finish, of oil, stains, dust, dirt, paint, and the like; leave without fingerprints, blemishes.*
- .7 Final site clean-up shall extend beyond the Contract Limit Lines as reasonably required to ensure the complete removal of all construction debris from the entire site, including staging areas.*

§ 3.16 Access to Work

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

§ 3.16.1 The Contractor shall promptly notify the Architect/Engineer and Owner of the presence of hazardous conditions at the site, including the start of hazardous operations or the discovery or exposure of hazardous substances.

§ 3.16.2 Contractor shall be responsible for snow plowing and snow removal as required to maintain access/egress to construction area.

§ 3.16.3 Contractor shall keep only necessary equipment on site and shall cooperate with the Owner regarding location of stored material.

§ 3.16.4 The Contractor is to maintain reasonable access to site for structural steel erection including crane, steel deliveries, etc. The Contractor will be responsible to coordinate requirements with the Construction Manager a minimum of 21 days prior to deliveries.

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

§3.18.1 Contractor, for itself, its successors and assigns, agrees to defend, indemnify and save Owner, its successors, assigns, employees, agents, construction managers, architects and engineers, harmless from, and against any and all claims, demands, damages, actions or causes of action, together with any and all losses, costs or expenses in connection therewith or related thereto, including but not limited to attorney fees and costs of suit, for bodily injuries, death including bodily injury or death to an employee or subcontractor of Contractor for property damage arising in or in any manner growing out of the work performed, or to be performed under this Contract but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18. Contractor, of itself, its successors and assigns, agrees to defend. Indemnify and hold the Owner, its successors, assigns, employees, agents, construction managers, architects, and engineers harmless against all fines, penalties or losses incurred for, including but not limited to attorney fees and costs of suit, or by reason of the violation by Contractor in the performance of this Contract, of any ordinance, regulation, rule of law of any political subdivision or duly constituted public authority.

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

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement. *The term "Architect" means the Architect or the Architect's authorized representative.*

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

§ 4.1.3 *If the employment of the Architect is terminated, the Owner shall employ a successor architect whose status under the Contract Documents shall be that of the Architect.*

§ 4.2 Administration of the Contract

§ 4.2.1 *The Architect and Construction Manager will provide administration of the Contract as described in the Contract Documents, and will be the Owner's representatives (1) during construction, (2) until final payment is*

due and (3) with the Owner's concurrence, from time to time during the two-year period for correction of Work described in Paragraph 12.2. The Architect and Construction Manager will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract. The Owner has hired a Construction Manager to provide onsite Project Management services. The Construction Manager will be the Owner's Representative for this Project. The Construction Manager and the Architect will share administration duties, which will be delineated at the Pre-construction meeting. The Construction Manager will essentially be the single point of contact, defer to the Contractors for means and methods and will defer to the Architect for final clarifications and determinations of disputes, design issues, and aesthetics.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner *and the Architect*. The Contract Documents may specify other communication protocols.

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

§ 4.2.6 The Architect *and Construction Manager* have authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections *13.4.1*, 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance

with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect *or Construction Manager* will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect *and the Construction Manager* will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning *the Contractor's* performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

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

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

§ 4.2.15 *The Owner has hired A Construction Manager to provide on-site Project Management services. Construction Manager will be the Owner's Representative/Agent for this Project. Construction Manager and the Architect will share administrative duties, which will be delineated at the Pre-construction conference. The Construction Manager will essentially be the single point of contact, defer to the Contractor for means and methods and will defer to the Architect for final clarifications and determinations of disputes, design issues, and*

aesthetics. The Construction Manager, along with the Architect, will manage the following processes - shop drawings, change orders, payments, correspondence, RFP's, construction schedules, documentation, job meetings, quality assurance, punchlists, etc.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

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

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection. *The names of all subcontractors and material suppliers shall be submitted to the Architect for approval not later than seven (7) days after the date of the notice to proceed. The list of proposed subcontractors shall include a description of the materials and equipment each proposes to furnish and install in the work. The description shall be in sufficient detail to allow the Architect to determine general conformance to Contract requirements. Approval of the submittals required under the Article shall not relieve the Contractor from conformance to the Contract Requirements.*

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

5.2.2.1 The Architect will promptly reply in writing to the Contractor stating whether the Owner or Architect, after due investigation, has reasonable objection to any such proposal. If adequate data on any proposed manufacturer or installer is not available, the Architect may state that action will be deferred until the Contractor provides further data. Failure of the Owner or Architect to reply promptly shall not constitute a waiver of any of the requirements of the Contract Documents, and all products furnished by the listed manufacturer must conform to such requirements.

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

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

§ 5.3 Subcontractual Relations

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

§ 5.3.1 The Contractor shall obligate each subcontractor specifically to comply with the New Law Against Discrimination N.J.S.A. 10:5-31 and N.J.A.C. 17:27 et seq. to avoid discriminatory practice in employment.

§ 5.3.2 The Contractor shall obligate each subcontractor to comply with the applicable prevailing wage schedule of the New Jersey Department of Labor and Workforce Development.

§ 5.3.3 The Contractor shall obligate each Sub-Contractor to comply with the Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48 et seq.

§ 5.4 Contingent Assignment of Subcontracts

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

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

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

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

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

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

§ 6.1.3 ~~The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.~~ **THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL WORK. All trades have a mutual obligation to coordinate their work with the other trades and cooperate as necessary with the Contractor, Construction Manager and the Construction schedule – to complete the work as required by the Owner. The Construction Manager will provide assistance to the Contractor for coordination between their work and the Owner. The Contractor is required to have their superintendent or foreman on site at all times when their work or that of their subs is in progress.**

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

§ 6.2 Mutual Responsibility

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

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect **and Construction Manager** of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent. **Should the Contractor be damaged by any other separate Contractor on the work by reason of such other Contractor's failure to perform properly his Contract with the Owner, no action will lie against the Owner and the Owner shall have no liability therefor, but the Contractor may assert his claim for damage against such separate Contractor as a third party beneficiary under the Contract between such other Contractor and the Owner.**

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. ~~The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.~~

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5 *or to other completed or partially completed construction or property on the site or to property of any adjoining Owner or other party.*

6.2.4.1 Should the Contractor cause damage to the work or property of any separate Contractor on the Project, the Contractor shall, upon due notice, settle with such other Contractor by agreement or Court of Law if he will so settle. If such separate Contractor sues the Owner, or the Architect or initiates a Court of Law proceeding on account of any damage alleged to have been so sustained, the Contractor agrees that he will hold the Owner or Architects harmless against any such suit, and that he will reimburse to the Owner or Architect, as the case may be, the cost of defending such suit, including reasonable attorney's fee and if judgment against Owner or Architect arises therefrom, the Contractor shall pay all judgment cost incurred by the Owner or Architect.

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

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible *as the Owner determines to be just, based on the recommendation of the Architect.*

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

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

7.1.1.1 A field directive or field order shall not be recognized as having any impact upon the Contract Sum or the Contract Time and the Contractor shall have no claim therefor unless it shall, prior to complying with same and in no event no later than five (5) working days from the date such direction or order was given, submit to the Construction Manager its change proposal for the Owner's approval.

7.1.1.2 When submitting its change proposal, the Contractor shall include and set forth in clear and precise detail breakdowns of labor and materials for all trades involved and the estimated impact on the construction schedule including a specific number of days for a time extension. If the Change Order Request does not provide an additional time request, the Contractor shall not be entitled to an extension of time. The Contractor shall furnish spread sheets from which the breakdowns were prepared, plus spread sheets if requested of any Subcontractors. The Contractor may not claim additional time at a later date and shall remove any language to that effect from his/her Change Order Request.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the

Contractor. An order for a minor change in the Work may be issued by the Architect alone *in accordance with Paragraph 7.4.*

§ 7.1.2.1 Neither this Contract nor the Work to be performed hereunder can be changed by oral agreement. No course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work and no claims that the Owner has been unjustly enriched by any alteration or addition to the Work, whether there is, in fact, any unjust enrichment to the Work, shall be the basis for any alleged implied agreement by the Owner to the change, any alleged waiver of the Owner's right under this Contract or any increase in any amounts due under the Contract or any or a change in any time period provided for in the Contract Documents.

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

§ 7.1.4 A directive or order from the Owner or the Architect, other than a Change Order, a Construction Change Directive or any Order for a minor change pursuant to this Article 7, shall not be recognized as having any impact on the Contract Sum or the Contract Time and the Contractor shall have no claim, therefore. If the Contractor believes that a directive or order would require it to perform work not required by the Contract Documents, the Contractor shall so inform the Owner and Architect in writing prior to complying with the same and in no event, any later than five (5) working days from the day such direction or order was given, and shall submit to the Owner and Architect for the Owner's and Architect's approval its change proposal.

§ 7.2 Change Orders

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

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

§ 7.2.2 Methods used in determining adjustments to the Contract Sum include those listed in Subparagraph 7.3.4. The total for overhead and profit shall NOT exceed 15%.

§ 7.2.3 Any change in work authorized in writing by the Owner and Architect that will require a change in the cost of the work, whether an additive or deductive change in cost, shall show a complete cost breakdown of labor, material, appropriate overhead and profit (15% maximum) and contract time.

§ 7.2.4 When a Change Order involves both additions and deletions in material, the net quantity is to be determined and the 15% overhead and profit is to be applied to the net quantity.

§ 7.2.5 When any change in the Work, regardless of the reason therefor, requires or is alleged to require an adjustment in Contract Time, such request for time adjustment shall be submitted by the Contractor as part of the change proposal. Any Change Order approved by the Owner and for which payment is accepted by the Contractor, in which no adjustment in Contract Time is stipulated, shall be understood to mean that no such adjustment is required by reason of the change, and any and all rights of the Contractor or any subsequent request for adjustment of Contract Time by reason of the change is waived.

§ 7.2.6 Request by the Contractor for adjustment of the Contract Amount regardless of the reason therefor, shall be submitted to the Architect and the Owner with itemized labor and material quantities and unit prices to permit

proper evaluation of the request. A submission by the Contractor containing unsubstantiated lump sum requests for adjustment of the Contract Amount will not be considered by the Owner and Architect. The Owner and Architect will not be liable for any delay incurred by reason of the Contractor's failure to submit satisfactory justification and back-up with any request for adjustment to the Contract Amount.

§7.2.7 Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the initial Work which is the subject to the Change Order, including, but not limited to, all direct, indirect and impact costs associated with such change and any and all adjustment to the Contract Sum and the Construction Schedule. The Contractor will not be entitled to any compensation for additional work, impact costs or delays in the Construction Schedule not included in the Change Order.

§ 7.2.8 No additional time will be granted to the Contractor for minor change orders unless each individual change order totals more than \$100,000.

§ 7.3 Construction Change Directives

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

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

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

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement ~~not to exceed 15%. or if no such amount is set forth in the Agreement, a reasonable amount.~~ In such case, and also under Section 7.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor *shall be in accordance with the New Jersey Prevailing Wage Rates at the time of the Contract commencement with no additional "labor burden", future increases or any other considerations.* including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, *only when machinery or equipment is not already on site* whether rented from the Contractor or others;

- .4 Costs of premiums for all bonds and insurance *shall be limited to 1.5%*, ~~permit fees, and sales, use, or similar taxes,~~ directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change **ARE NOT PERMITTED!**

§ 7.3.4.1 The allowance for overhead and profit combined, included in the total cost to the Owner, may only include a Contractor, his Subcontractor and shall be limited to a total of 15% of the cost.

§ 7.3.4.2 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs, including labor, materials and subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are subcontractors, they shall be itemized.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

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

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

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

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect *and/or the Construction Manager* may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's *and/or the Construction Manager's* order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect/*Construction Manager* **within five (5) calendar days** and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's *and/or*

Construction Manager's order for a minor change without prior notice to the Architect/**Construction Manager** that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

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

§ 8.1.2 ~~The date of commencement of the Work is the date established in the Agreement.~~ ***The Work to be performed under this Contract shall commence after the required insurance has been obtained and approved and within three days after issuance of the notice to proceed by the Owner. The Contract Time shall commence as of the date of the Notice to Proceed unless otherwise specified in the agreement.***

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

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

§ 8.2 Progress and Completion

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

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

§ 8.2.4 Owner, or his/her representative, in coordination with the Contractor, shall set work hours. Contractor may be required to work nights, weekends or holidays as necessary to complete the work in accordance with the Schedule or in coordination with owner's activities. Under no circumstances shall the Contractor begin or continue with work that is adversely impacting Owner's activity or operations. All utility shutdowns, interruptions, work in or adjacent to existing buildings will be coordinated through the Owner, or his representative, and may have to be performed during hours when the Owner is not in operation. All cutting, hammering or other activity that is noisy, produces smoke or fumes or is otherwise disruptive to the Building may have to be done during hours when the Owner is not in operation. Work required to be performed after normal operating hours, as determined by the Owner or his representative, will be performed at no additional cost to the Owner.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; ***or by occurrences beyond the control and without the fault or negligence of the Contractor and which by the exercise of reasonable diligence the Contractor is unable to prevent or provide against, including labor disputes (other than disputes limited to the work force of, or provided by, the Contractor or its Subcontractors), fire, unusual delay in deliveries not reasonably anticipatable, unavoidable casualties, or by other occurrences which the Architect, subject to the Owner's approval, determines may justify delay, then, provided that the Contractor is in compliance with Subparagraph 8.3.3 hereof, the Contract Time shall be extended by Change***

Order or Construction Change Directive for the length of time actually and directly caused by such occurrence as determined by the Architect and approved by the Contractor and Owner (such approval not to be unreasonably withheld, delayed, or conditioned); provided, however, that such extension of Contract Time shall be net of any delays caused by or due to the fault or negligence of the Contractor or which are otherwise the responsibility of the Contractor and shall also be net of any contingency or "float" time allowance included in the Contractor's construction schedule. The Contractor shall, in the event of any occurrence likely to cause a delay, cooperate in good faith with the Architect and Owner to minimize and mitigate the impact of any such occurrence and do all things reasonable under the circumstances to achieve this goal (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15. Any claim for extension of time shall be made in writing to the Architect not more than five (5) days after the commencement of the delay, otherwise, it shall be waived. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the work. No claim made beyond the five (5) days shall be considered valid.

§ 8.3.2.1 The Contractor agrees that if any delay in the Contractor's works unnecessarily delays the work of any other Contractor or Contractors, the Contractor shall in that case pay all costs and expenses incurred by such parties due to such delays and hereby authorizes the Owner to deduct the amount of such costs and expenses from any moneys due or to become due the Contractor under this Contract. The Architect shall be responsible for ascertaining whether the Contractor is responsible for delaying any of the work of any other Contractor. His decision shall be final.

§ 8.3.3 Notwithstanding anything to the contrary in the Contract Documents, any extension of the Contract Time, to the extent permitted under Paragraph 8.3.1., shall be the sole remedy of the Contractor for any (1) delay in the commencement, prosecution or completion of the Work, (2) hindrance or obstruction in the performance of the Work, (3) loss of productivity or (4) other similar claims (collectively referred to in this Paragraph 8.3.3. as "delays"), whether or not such delays are foreseeable, unless a delay is caused by acts of the Owner constituting active interference with the Contractor's performance of the Work and only to the extent such acts continue after the Contractor furnishes the Owner with written notice of such interference. In no event shall the Contractor be entitled to any compensation or recovery of any damages in connection with any delay including without limitation consequential damages, lost opportunity cost, impact damages or other similar remuneration. The Owner's exercise of any of its rights or remedies under the Contract Documents (including without limitation ordering changes in the Work or directing suspension, rescheduling or correction of the Work) regardless of the extent or frequency of the Owner's exercise of such rights or remedies shall not be construed as an act of interference with the Contractor's performance of the Work. This Section 8.3 does not preclude recovery of damages for delay by either party the Owner under other provisions of the Contract Documents.

§ 8.3.4 The Contractor agrees that the Owner can deduct from the Contract Sum, any wages paid by the Owner to any Inspector or Architect or other professional necessarily employed by the Owner for any number of days in excess of the number of days allowed in the specifications for completion of work.

§ 8.3.5 Where the cause of delay is due to weather conditions, an extension of time shall be granted if such Claim has been documented by data substantiating that weather conditions were unusually severe for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction as determined by reference to historical data. The term "historical data" as used in the previous sentence shall be construed according to this formula: Average rainfall (or snow or low temperature) for the past five years.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.1.3 Payment procedures shall be as follows:

1. Contractor shall submit Schedule of Values to the Construction Manager and Architect for review
2. Prior to end of each pay period, Contractor shall submit a rough draft ("pencil copy") for their payment application for review and approval by the Construction Manager and the Architect.
3. Upon approval of pencil copy, Contractor shall submit at least four copies of their payment application to the Architect for approval along with their certified payrolls and monthly manning reports.
4. Architect and Construction Manager will approve payments and forward to the Owner.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work *which in the aggregate equals that total Contract Sum, divided so as to facilitate payments to Subcontractors, supported by such evidence of correctness as the Architect may direct or as required by the Owner. It will be necessary for all Contractors to divide their contract into a separate schedule for the work performed at the project. These schedules, when approved by the Architect, Construction Manager and Owner, shall be used to monitor the progress of the Work and as a basis for Certificates for Payment. All items with entered values will be transferred by the Contractor to the "Applications and Certificate for Payment," and shall include the latest approved Change Orders and Construction Change Directives. Change Order values and Construction Change Directive values shall be broken down to show the various subcontracts. The Application for Payment shall be on AIA Document G702 and G703 and the approved Voucher obtainable from the Owner. Each item shall show its total scheduled value, value of previous applications, value of the application, percentage completed, value completed and value yet to be completed. All blanks and columns must be filled in, including every percentage complete figure.* The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.2.2 The Contractor shall include the following separate items in his/her schedule of values:

Punch List Work - Minimum of 1% of contract value

Value for testing

Value for Record Drawings and manuals

Value for final clean-up and monthly value for daily clean up by the Contractor

Value for equipment start-up and commissioning

Value for shop drawings

Value for Owner's attic stock

*Safety protections
Project Schedule and Monthly Updates
Winter Protection
Allowance
TAB coordination shiv, belts and modifications as required*

§ 9.3 Applications for Payment

§ 9.3.1 *The Contractor shall submit to the Architect an itemized Application for Payment for their Contract on AIA Document G702 and G703 and the approved Voucher obtainable from the Owner. Payroll Certification for all employees of all of the workers on the project shall be submitted as well as other such data for the purposes of summarizing the work and tracking the project. The Architect and the Construction Manager will process the application and forward it with his recommendations to the Owner. At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.*

§ 9.3.1.1 *As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.*

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

§ 9.3.1.3 *Until substantial completion, the Owner will pay 98% of the amount due the Contractor on account of progress payments until a balance of \$500,000 is due the Contractor. The retainage will then be increased to Five Percent (5%) of the \$500,000.00 balance of the contract until final completion. The retainage will be held until final acceptance of the project by the Architect and the Owner. The Contractor shall submit a separate voucher for the full amount of the retainage along with the Consent of Surety, A.I.A. Form G707A and the Contractor shall be required to furnish a Maintenance Bond for 100% of the Project Cost for a period of two (2) years from the Date of Final Acceptance.*

§ 9.3.1.4 *Upon acceptance of the work performed pursuant to this Contract for which the Contractor has agreed to the withholding of payments pursuant to Article 9 of this Contract, all amounts being withheld by the Owner shall be paid in accordance with Paragraph 9.3.1.3 without further withholding of any amounts for any purposes whatsoever, provided that the Contract has been satisfactorily completed.*

§ 9.3.1.5 *Each application for payment shall be accompanied by the following, all in form and substance satisfactory to the Owner and Architect:*

- 1. A current contractor's lien waiver and duly executed and acknowledged sworn statement by an officer of the Contractor showing all subcontractors and materialmen with whom the Contractor has entered into subcontracts, the amount of each such subcontract, the amount requested for any subcontractor and materialmen in the requested progress payment and the amount to be paid to the Contractor from such progress payment.*
- 2. A Purchase Order or Voucher if required by the Owner.*
- 3. A Schedule Update approved by the Construction Manager and Architect.*
- 4. A Third Party (not the General Contractor) written Field Safety Inspection Report.*

5. An updated Shop Drawing Log showing the status of all of the required Shop Drawings.

§ 9.3.2 Unless otherwise provided in the Contract Documents, *At the Owner's Option*, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures **Paragraphs 9.3.2.1, 9.3.2.2, 9.3.2.3 and 9.3.2.4** and satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.2.1 *With each Application for Payment the Contractor shall submit to the Architect and Owner a written list identifying each location where materials are stored off the Project site and the value of materials at each location. The Contractor shall procure insurance satisfactory to the Owner for materials stored off the Project site in an amount not less than the total value thereof.*

§ 9.3.2.2 *The consent of any surety shall be obtained to the extent required prior to the payment for any materials stored off the Project site.*

§ 9.3.2.3 *Representatives of the Owner shall have the right to make inspections of the off-site storage areas at any time.*

§ 9.3.2.4 *Materials stored off site shall be protected from diversion, destruction, theft and damage to the satisfaction of the Owner, shall specifically be marked for use on the Project and shall be segregated from other materials at the storage facility.*

§ 9.3.3 *The Contractor warrants and agrees that title to all Work will pass to the Owner either by incorporation in the construction or upon receipt of payment therefor by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests, or encumbrances whatsoever, that the vesting of such title shall not impose any obligation on Owner or relieve Contractor of any of its obligations under the Contract, that the Contractor shall remain responsible for damages to or loss of the Work, whether completed or under construction, until responsibility for the Work has been accepted by Owner in the manner set forth in the Contract Documents, and that no Work covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.* The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven *Fourteen* days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment,

and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. ***The Architect must receive this information in accordance with the schedule set forth at the Pre-Construction Meeting***

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

§ 9.5 Decisions to Withhold Certification

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

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.
- .8 ***The failure of the Contractor to comply with mandatory requirements for maintaining record drawings. The Contractor shall be required to check record drawings each month. Written confirmation that the record drawings are up-to-date shall be required by the Architect before approval of the Contractor's monthly payment requisition will be considered.***
- .9 ***The Contractor shall provide a third-party Insurance Safety Site Inspection Report monthly and remedy all issues promptly.***
- .10 ***Shop drawings not submitted as required by the Contract Documents.***
- .11 ***Failure to cooperate with Owner, Construction Manager or Architect relative to construction schedule, material storage, coordination with the Owner, clean up or safety.***

~~§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.~~

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

§ 9.5.4 If the Architect *or Construction Manager* withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect. ***Notwithstanding Certification by the Architect, the Owner may refuse to make payment based on any default by the Contractor including, but not limited to those defaults set forth in Subparagraphs 9.5.1 through 9.5.1.11. The Owner shall not be deemed in default by reason of withholding payment while any of such defaults by the Contractor remain uncured.***

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than ten-days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

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

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

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

~~§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum,~~ Payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor. ~~create any~~

fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, The Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.6.9 *The Owner will issue timely payments to the Contractor in accordance with the requirements of "The Prompt Payment Act", N.J.S.A. 2A:30A-1, et seq. The Contractor is hereby notified that the Owner, as a public entity, requires all payments to be approved at scheduled public Board of Trustees meetings. The vote on authorization for payments will be made at the first public meeting of the Board, following the Board's receipt of the Architect's authorization for payment, and paid during the subsequent payment cycle. The time schedule will be established at the Pre-Construction Meeting and subsequent project meetings.*

§ 9.7 Failure of Payment

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

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof *which the Owner agrees to accept separately* is sufficiently complete in accordance with *this definition and* the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. *The Work will not be considered substantially complete until all project systems included in the Work are operational as designed and scheduled, all designated or required inspections, certifications, permits, approvals, licenses and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial use and occupancy of the Project are received, designated instruction of Owner's personnel has been completed, and all final finishes within the Contract are in place. In general, the only remaining Work shall be minor in nature, so that the Owner can occupy the building on that date and the completion of the Work by the Contractor would not materially interfere or hamper the Owner's (or those claiming by, through or under the Owner) normal operations. Contractor recognizes that normal operations require the use and occupancy of the Work by students and faculty without interruption and that any punchlist or corrective work shall be done at times when the Work is not so occupied. As a further condition of substantial completion acceptance, the Contractor shall certify that all remaining Work will be completed within thirty (30) consecutive calendar days or as agreed upon following the date of substantial completion. In addition to any other definitions of Substantial Completion as defined by the contract documents, the following is required before the project is considered "Substantially Complete":*

In addition to the above the following items must be completed in order to deem the work Substantially Complete:

- 1. All required final inspections have been completed by the authority having jurisdiction resulting in a TCO or CO.*
- 2. Air Balancing Reports: Reports can be handwritten field notes but must be reviewed and approved via the shop drawing process by the Mechanical Engineer. Final Air and Water Balancing Reports certified*

by the licensed balancer are required for "Final Acceptance" and the start of the warranty period. (These reports must be submitted in accordance with the shop drawing process to Garrison Architects so that they can be tracked and approved and distributed to all applicable parties).

3. **Equipment Start Up Reports:** Reports can be handwritten field notes but must be reviewed and approved via the shop drawing process by the Mechanical Engineer. (These reports must be submitted in accordance with the shop drawing process to Garrison Architects so that they can be tracked and approved and distributed to all applicable parties).
4. **Owner On-site ATC Training:** Refer to the ATC specifications for training requirements on-site and off-site. The Owner does not have beneficial use of the mechanical system until they can operate it following this training.
5. **Completion of Commissioning:** Refer to the Start-up and Adjustment specifications. This process will require the Owner's Operator, Construction Manager and the Mechanical Engineer on site to witness a demonstration and operation of every mechanical device. The devices shall be operated from the on-site Owner's ATC Computer and verified by the Mechanical Contractor's field personnel to confirm proper operation. In addition to this demonstration, the contractor shall demonstrate Owner required maintenance of all mechanical equipment to maintain the manufacturer's warranty. This should include but not be limited to belt tension/adjustments, filters, etc. Please schedule several days for the commissioning process.
6. **Written certification from a qualified, AHC (Certified Architectural Hardware Consultant) that the hardware, cores and keying has been installed and tested in every door and is 100% complete for each phase or the total project whichever comes first.**
7. **Provide a Fire Alarm System NFPA Record of Inspection and Testing Certification Form.**

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

§ 9.8.2.1 *The Contractor shall perform a Quality Control / Quality Assurance QC/QA Punchlist of all work prior to requesting Substantial Completion and a punch list from the Construction Manager. The Contractor's Project Manager shall take the lead and conduct an onsite review with the Contractor's superintendent and representation from the Contractor's subcontractors. Notification of this onsite walk thru shall be provided in writing to all members of the Owners Team who may or may not choose to attend. The Contractor's Project Manager shall record and distribute this QC/QA Punchlist in a matrix that provides an additional column for the Contractor to document the completion of the work and the date. After successful completion of the Contractor's QC/QA Punchlist and all work, the Contractor shall request the Construction Manager perform a Punchlist. Substantial Completion shall be requested in accordance with paragraph 9.8.1.*

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

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

§ 9.8.4.1 *The Architect's Certificate of Substantial Completion shall be subject to the Owner's final approval.*

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

§ 9.9 Partial Occupancy or Use

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

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

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

§ 9.9.4 *The occupancy of any portion of the Work shall not constitute acceptance of any Work, except as hereinafter stated, nor does it waive the Owner's right to Liquidated Damages. Final Acceptance of the Work shall be for the whole Work only and not part.*

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. *All warranties and guarantees required pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Owner as part of the final application for payment. The final Certificate for*

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

§ 9.10.1.1 *The Architect's Certificate of Final Completion shall be subject to the Owner's final approval.*

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) **evidence of compliance with all requirements of the Contract Documents: notices, certificates, affidavits, other requirements to complete obligations under the Contract Documents: including but not limited to (a) instruction of Owner's representatives in the operation of mechanical, electrical, plumbing and other systems, (b) delivery of keys to Owner with keying schedule: master, sub-master and special keys, (c) delivery to Architect of Contractor's General Warranty (as described in Paragraph 3.5) and each written warranty and assignment thereof prepared in duplicate, certificates of inspections, and bonds for Architect's review and delivery to Owner, (d) delivery to Architect a printed or typewritten operating, servicing, maintenance and cleaning instructions for all Work; parts lists and special tools for mechanical and electrical Work, in approval form, (e) delivery to the Architect of specified Project record documents and (f) delivery to Owner of a Final Waiver of Liens (AIA Document G-706 or other form satisfactory to Owner), covering all Work including that of all Subcontractors, vendors, labor, materials and services, executed by an authorized officer and duly notarized. In addition to the foregoing, all other submissions required by other articles and paragraphs of the Specifications including final construction schedule shall be submitted to the Architect before approval of final payment** if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

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

§ 9.10.4 The making of final payment shall **not** constitute a waiver of Claims by the Owner. ~~except those arising from~~

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

~~.4—audits performed by the Owner, if permitted by the Contract Documents, after final payment.~~

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

9.11 LIQUIDATED DAMAGES

§ 9.11.1 *The Contractor understands and agrees that all work must be performed in an orderly and closely coordinated sequence so that the date for substantial completion is met.*

§ 9.11.2 *If the Contractor fails to complete his work or fails to complete a portion of his work, he shall pay the Owner, as liquidated damages and not as a penalty, the sum as specified herein. Such amount is agreed upon as a reasonable and proper measure which the Owner will sustain each calendar day by failure of the Contractor to complete work within the stipulated time.*

§ 9.11.3 *For projects that have milestone completion dates, liquidated damages shall apply to all phased construction milestone dates as established by the phasing plan, sequencing section and/or the Summary of Work.*

§ 9.11.4 *Substantial completion will be determined by the Architect as defined in paragraph 9.8.1.*

§ 9.11.5 *For damage occurring at the time of delay, the Owner may retain the amount due to him under this clause from any payments due to the Contractor.*

§ 9.11.6 *The Owner will suffer financial loss if the project is not substantially complete on the date set forth in the Contract Documents. The Contractor (and the Contractor's Surety) shall be liable for and pay to the Owner the sum of \$2,500.00 stipulated and fixed, agreed as liquidated damages for each calendar day of delay until the work is substantially complete.*

§ 9.11.7 **TWO THOUSAND FIVE HUNDRED (\$2,500) PER DAY CALENDAR DAY FOR PUNCH LIST ITEMS.** *Contractor has thirty (30) days to complete the final punch list. Liquidated damages will be addressed starting on the 31st day after receipt of Notice of Substantial Completion or issuance of the Final Punch List, whichever comes later, to that date of the Construction Manager's and Architect's acceptance that all punch list(s) have been completed.*

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

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

§ 10.1.1

- 1. The Contractor shall fully comply with the job safety requirements in addition to all Federal, State and Local safety guidelines. All cost associated with complying with all safety requirements shall be included in each contractor's base bid.*
- 2. The Contractor will serve as the overall Project Safety Coordinator and shall be responsible for all issues of safety and protection. The Contractor shall designate a safety person at the job site while the contractor is working on the project site. The designated safety person shall be responsible for the safety of their work and for their workers and to make continuous inspections for all safety issues relating to*

his work. The Architect and/or the Construction Manager are not responsible for safety on this project but will endeavor to promote safety. Each Contractor must comply with job Safety Requirements in addition to OSHA and local agency requirements. Failure to comply with safety issues will be grounds for withholding of payments.

3. *Contractor shall comply with all reasonable requests of the Owner and Construction Manager with respect to additional security and protections required for work interfacing with Facility Operations. Safety is of utmost importance on this project and all issues relative to safety and protection of the Facility, Staff and Occupants will be treated as emergency needs and will not be subject to the 7-day notice requirements of Article 14, Section 14.2.2.*

- A. *The Contractor shall provide, maintain, relocate and remove, in coordination the Construction Manager, a 6' high, perimeter security fence. Fence will surround the building and proposed parking areas and will have signage attached at 100' intervals advising "Construction Area – Please Keep Out". The Contractor to be responsible for opening and securing site each day.*
- B. *Orange safety fencing shall be installed around the entire area of any and all earthwork, excavations, etc. and will be maintained until the work is complete.*
- C. *This is a hard hat job. Identifying hard hats shall be worn at all times.*
- D. *Hot work permits will be required for all activities involving open flames.*

4. *The proper execution of the required safety provisions is directly related to the general condition safety line item on the schedule of values. The failure to provide a competent person on site to properly identify and take immediate corrective action may result in deductions to the general condition safety line item of the schedule of values.*
5. *The Contractor shall be responsible for the immediate investigation and resolution of all safety and environmental complaints / issues generated by contractor employees, owners, owner's representatives or members of the public.*
6. *Contractor shall maintain all egress routes throughout building. Contractor shall post exit signs as coordinated with the Construction Manager. Contractor shall provide wall hung fire extinguishers throughout building as deemed necessary by the Construction Manager and fire officials.*
7. *Contractor's safety representative shall perform a daily safety inspection walk through to ensure that all requirements of the OSHA Standards, Fire Protection Standards and Safe Work Practices are being with and/or corrected. The responsibility of the Contractor is to provide a safe and healthy work environment for construction personnel, Owner's personnel and representative, and the public.*
8. *Upon written receipt of safety concerns and /or issues, the Contractor shall respond in writing addressing how the safety concerns or issues were resolved. The Construction Manager shall be copied on all safety-related correspondence.*
9. *The Contractor's response and compliance with correction of deficiencies noted in the safety concerns notice issued by the Authority having jurisdiction is mandatory. Failure to comply will be grounds for withholding of progress payments until the conditions are acceptable to O.S.H.A or Authority having local jurisdiction.*
10. *The Contractor shall submit to the Construction Manager, a copy of all licenses (welding, power nailers, asbestos, etc.) as required by applicable agencies.*
11. *Contractor shall have all required personal protective equipment and materials available for use by each employee as required by Federal, State and Local guidelines.*
12. *Contractor shall supply proper equipment and crew sizes as necessary to safely complete the work.*
13. *Contractor shall provide documented safety training for each of their employees and subcontractor's employees no later than the first day they arrive on site. The training shall be documented and signed by the trainer and employee. A copy of all safety-training documents is to be provided to the Owner and updated as manpower loading increases.*

14. *The Contractor shall supply (2) two OSHA approved means of access/egress to each floor and roof for the course of the entire project for use by all applicable parties. The Contractor shall erect and maintain OSHA approved pedestrian walking bridges, for emergency access/egress and as necessary to protect personnel from overhead work.*
15. *The Contractor shall be responsible for providing and maintaining all temporary emergency egress routes. The Contractor shall obtain the approval of the Building and Fire Departments for all temporary emergency egress routes. General Contractor to provide for fire separation walls between occupied areas as required by local officials.*
16. *Contractor shall provide, relocate and /or maintain barricades, signage, provide flagmen etc. as necessary to ensure public safety and safe egress. Contractor to provide, maintain, relocate and remove in coordination with the Construction Manager, the perimeter security fence.*
17. *Notify the Construction Manager, immediately upon arrival of OSHA to the site.*
18. *Contractor shall submit to the Construction Manager all MSDS sheets and shall cooperate in the posting of all required notifications relative to the use of hazardous substances on the property. Contractor to comply with NJ Law regarding the use or storage of hazardous substances in Schools. MSDS sheets shall be posted prior to product being delivered to site.*
19. *Contractor, subcontractor, vender, etc. should enforce a full time no smoking or alcohol use policy for all employees during the entire course of the project. Any worker found violating these reflections, or being belligerent, will be subject to removal from the site at the sole discretion of Owner.*
20. *Contractor shall be responsible to secure the site at the end of each workday by an effective means and maintain until all parties determine no longer required.*
21. *For the safety of occupants, staff, and the public, the steel erection must be scheduled and coordinated with the Construction Manager. Swinging of steel and crane boom over occupied space will not be allowed. Steel contractor shall provide additional barricades and fencing around his crane and steel at all times.*
22. *Contractor must submit an acceptable OSHA compliant site specific written safety plan to the Construction Manager for review within fourteen (14) days from the notice to proceed or prior to mobilizing on site, whichever comes first. The written safety plan shall include (as applicable to their work) but is not limited to the following:*
 - *Full time no smoking policy or alcohol use is allowed on the project. Any worker found violating these restrictions, or being belligerent, will be subject to removal from the site. (Contractors shall post required signs).*
 - *Full time hard hat policy (identifying hard hats shall be worn at all times).*
 - *Site specific emergency action plan with contractor phone numbers, active 24 hours a day, 7 days a week.*
 - *Competent on-site safety representative, named and active (Provide alternate)*
 - *Scaffold erection plan, including a log of daily inspections.*
 - *Full time fall protection plan for exposures over 6'-0".*
 - *Job site signage plan (Perimeter fence warning signs posted 50'-0" o/c.*
 - *First aid and CPR provisions.*
 - *OSHA 200 log and Job Safety and Health Protection poster.*
 - *Daily clean up.*
 - *Hazard Communication Program with MSDS logged and maintained.*
 - *Hazard Communication program.*
 - *Daily diary of work, issues, and incident, etc.*
 - *Sheeting, shoring and excavations protection line.*
 - *GFI safety program.*
 - *Hazardous Energy Control Lock out tag out program.*

- *Required safety clothes; Eye & ear protection, respirators, boots, belts, gloves etc. as appropriate to their work requirement.*
- *Fire Extinguishers.*
- *Removal guard rail and protection at material loading areas, 200lb force minimum requirement.*
- *All stairs and platforms must have railings, 200lb force minimum requirement. Stair pains and landings must be filled prior to their use.*
- *Daily inspection of tools and equipment; verify safety devises are operational.*
- *Ladder usage plan.*
- *Weekly toolbox meetings, documented and signed by each employee*
- *Temporary heat procedures.*

23. *Contractor shall maintain and submit a complete copy of the written safety plan, logs, diaries, plans and programs on site for the project files.*
24. *The Contractor shall provide a third-party Insurance Safety Site Inspection Report monthly and remedy all issues promptly.*

The speed limit within the project property is 5MPH. Contractor employees operating vehicles in excess of the speed limit or in any otherwise unsafe manner will be directed to leave the site and not permitted to return.

§ 10.2 Safety of Persons and Property

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

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction. *as well as any other real or personal property of the Owner.*
- .4 *The Contractor shall provide a third-party Insurance Safety Site Inspection Report monthly and remedy all issues promptly.*

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

§ 10.2.2.1 *Contractor shall comply with all regulations required by the Federal Occupational Safety and Health Act (OSHA).*

§ 10.2.2.2 *The Contractor shall conform to all applicable New Jersey Department of Environmental Protection regulations.*

§ 10.2.2.3 *Contractors must comply with construction and environmental standards contained in Federal and State Regulations and other applicable laws.*

§ 10.2.2.4 *It is the Contractor's responsibility to determine the existence of potentially hazardous materials, including lead, and to protect his workmen and the work area.*

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

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

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

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

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

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

§ 10.2.9 The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The area within the site limits under the Contractor's control shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site. Contractor shall comply with all reasonable requests of the Owner and Construction Manager with respect to additional security and protections required for work interfacing with School Operations. Safety is of utmost importance on this project and all issues relative to safety and protection of the Administration, Public, Staff and Students will be treated as emergency needs and will not be subject to the 7-day notice requirements of Article 14, Section 14.2.2.

§ 10.2.10 The Contractor shall remove snow or ice which may accumulate on the site within areas under his control which might result in damage or delay.

§ 10.2.11 The Contractor shall take all precautions necessary to prevent loss or damage caused by vandalism, theft, burglary, pilferage, or unexplained disappearance of property of the Owner and Contractor, whether or not forming part of the Work, located within those areas of the Project to which the Contractor has access.

Whenever unattended, including nights and weekends, mobile equipment and operable machinery shall be kept locked and made inoperable and immovable.

§ 10.2.12 Neither the Owner nor the Construction Manager nor the Architect shall be responsible for providing a safe working place for the Contractor, the Subcontractors or their employees, or any individual responsible to them for the work.

§ 10.2.13 The Contractor shall conform to requirements of OSHA. The requirements of the New Jersey and Local Building Construction Codes shall apply where there are equal to or more restrictive than the requirements of the Federal Act.

§ 10.2.14 When all or a portion of the Work is suspended for any reason, the Contractor shall securely fasten down all coverings and protect the Work as necessary from injury or any cause.

§ 10.2.15 The Contractor shall promptly report in writing to the Owner, Construction Manager and Architect all accidents arising out of or in connection with the Work which caused death, personal injury or property damage giving full details and statements of any witnesses. In addition, if death, serious personal injury or serious property damage is caused, the accident shall be reported immediately by telephone or messenger to the Owner, Construction Manager and Architect.

§ 10.2.16 Contractor is required to follow and enforce the work rules set forth below. Failure to comply with or enforce any of these rules will be grounds for suspension and/or termination of this Contract:

- .1 No use of alcoholic beverages or cannabis or cannabis products prior to or during working hours. Anyone found impaired after lunch will be escorted from the Project site.*
- .2 No use of illegal drugs or prescription medications which could induce drowsiness or otherwise impair perception or performance. Use of illegal drugs may result in prosecution to the fullest extent of the law. Any warning associated with use of prescription drugs must be complied with, particularly warning against operation of machinery and equipment.*
- .3 No horseplay or rough-housing will be allowed.*
- .4 No sexual, racial, or ethnic harassment, or similar conduct will be tolerated.*
- .5 All employees shall use proper sanitation habits including use of toilet facilities and garbage cans.*
- .6 All employees shall dress in clothing appropriate for the work they are to perform. All personnel are to wear hardhats, safety shoes, glasses, gloves, masks or respirators, noise protection devices, and other protective clothing and equipment as required by OSHA standards.*
- .7 All equipment is to be properly stored and/or secured at the end of the workday or if it is to remain idle for greater than one hour.*
- .8 All personnel are to be made aware of the availability of Material Safety Data Sheets for materials used at the Project site. The Contractor shall maintain a copy of all MSDS forms at the construction site office for all personnel to review.*

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing

the condition, immediately stop Work in the affected area and notify the Owner, **Construction Manager** and Architect of the condition.

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

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

§ 10.3.4 ~~The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.~~

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

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

§ 10.3.7 *The Contractor shall submit to the Owner all MSDS sheets and shall cooperate in the posting of all required notifications relative to the use of hazardous materials on Owner's property.*

§ 10.3.8 *Prior to bringing any fill material (such as topsoil, engineered fill, DGA, tire scrub at the construction entrance, etc.) onto the project site, the Contractor must have the material tested and certified to be clean and free from any hazardous material. Provide this information per the submittal requirements via a shop drawing.*

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

§ 10.4.1 – EMERGENCY/SAFETY PLAN

All parties involved in the construction process should be aware of emergency services that may be required during the construction process.

Contractor shall establish the site-specific Emergency Action Plan and, after approval by the owner, and local authorities, shall display at site trailers and various locations at the site.

In case of an accident, emergency, or injury on the job site, the Contractor shall immediately follow the Site-Specific Emergency Action Plan. Following the incident, the Contractor shall submit to the Construction Manager a complete written accident report detailing the circumstances which caused the accident, extent of injuries, damage to the building, time of accident, corrective action required, etc.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

All insurance provisions shall be confirmed with Owner's Insurance Agent.

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, **Construction Manager**, Architect, and Architect's consultants, **the State of New Jersey, and Gloucester County** shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§11.11.2 Construction Manager to be included as additional insured in all places where Architect is named. Contractor shall, without in any way altering Contractor's liability under the Contract or applicable law, obtain, pay for and maintain insurance for the coverages and amounts of coverage not less than those set forth below in the Schedule of Insurance Coverages and shall provide to Owner certificates issued by insurance companies satisfactory to Owner to evidence such coverage no later than 7 days of the date of the execution of this Contract and prior to any personnel or equipment being brought onto and/or before any work commences at the job site. The coverage afforded under any insurance obtained pursuant to this paragraph shall be primary to any valid and collectible insurance carried separately by any of the indemnities. Such certificates shall provide that there shall be no cancellation, non-renewal or material change of such coverage without thirty (30) days prior written notice to Owner. In the event of any failure by Contractor to comply with the provisions of this Article 11, Owner may, at its option, on notice to Contractor, suspend the Contract for cause until there is full compliance with this Article 11 and / or terminate the Contract for cause. Alternatively, Owner may purchase such insurance at Contractor's expense, provided that Owner shall have no obligation to do so, and if Owner shall do so, Contractor shall not be relieved of or excused from the obligation to obtain and maintain such insurance amounts and coverages. Contractor shall provide to Owner a copy of any and all applicable insurance policies. The Owner, Construction Manager, Garrison Architects, the State of New Jersey, and Gloucester County shall be named as an additional insured on a primary and non-contributory basis on all Insurance Policies to be provided by the Contractor.

§ 11.1.1.3 Schedule of Insurance Coverages

- .1 **Commercial General Liability, Each Occurrence**
 - a. **Each Occurrence:** \$ 1,000,000.00
 - b. **Damage to Rented Premises:** \$ 300,000.00
 - c. **Medical Expense (Any one person):** \$ 15,000.00
 - d. **Personal & Adv Injury:** \$ 1,000,000.00
 - e. **General Aggregate:** \$ 2,000,000.00
 - f. **Products – Comp/Op Agg:** \$ 2,000,000.00
- .2 **Automobile Liability: (Hired autos, scheduled autos, non-owned autos)**
 - a. **Combined Single Limit (each accident):** \$ 1,000,000.00
- .3 **Workers Compensation and Employers Liability:**
 - a. **WC Statutory Limits:**
 1. **E.L. Each Accident:** \$ 1,000,000.00
 2. **E.L. Disease – Each Employee:** \$ 1,000,000.00
 3. **E.L. Disease – Policy Limit:** \$ 1,000,000.00
- .4 **Builder's Risk Insurance: The Contractor shall provide Builder's Risk Insurance for all risk of physical loss or damage to the property described hereunder in an amount equal to the Total Project Value; excepting excavations, foundations and other structures customarily excluded by such insurance. The Policy shall name the Owner, State of New Jersey, and Gloucester County as loss payee as their interests may appear on a primary and non-contributory basis. The Builders Risk Policy is to include coverage for the perils of Earthquake, Flood, Full Windstorm, Equipment Breakdown and Theft (excluding employee theft), contain an endorsement allowing permission to occupy and include coverage for both transit and offsite storage. The policy is also to include all contractors, subcontractors and sub-subcontractors as well as the Owner, State of New Jersey, Gloucester County, the Construction Manager and Garrison Architects as Additional Named Insureds on a primary and non-contributory basis. The contractor and all subcontractors are responsible for all policy deductibles and uninsured or underinsured losses.**
- .5 **The Policy shall name the following as Additional Insured: The Owner, Garrison Architects, Construction Manager, the State of New Jersey, and Gloucester County as additional insureds on a primary and non-contributory basis**
- .6 **Contractual liability insurance as applicable to the Contractor's obligations under Paragraph 3.18 of the AIA General Conditions.**
- .7 **Workers' Compensation Insurance of not less than statutory limits.**
- .8 **Completed Operations Insurance written to the limits specified for liability insurance specified under subparagraph .1 above. Coverage shall be required from the date of the start of Beneficial Occupancy until one year after the issuance date of Final Certificate for Payment.**

- .9** *Certificates of insurance must be submitted on the ACORD Form, Certificate of Insurance. Contractor's ACORD Certificate of Insurance must state "Contractual Liability Included" or it will be rejected.*
- .10** *The Contractor shall either*
- .1** *require each of his subcontractors to procure and to maintain during the life of their subcontracts, Subcontractor's Public Liability and Property Damage, of the type and in the same amounts as specified in the preceding paragraph; or*
- .2** *insure the activities of their subcontractors under their respective policies.*

§ 11.1.2 The Contractor shall provide surety bonds *for the entire contract amount* of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

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

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents; the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.1.5 Contractor shall furnish a performance bond and a separate labor and material payment bond and a maintenance bond meeting all statutory requirements of the State of New Jersey in form and substance satisfactory to the Owner and without limitation complying with the following specific requirements:

- .1** *Except as otherwise required by statute, the form and substance of such bonds shall be substantially in accordance with the forms of bonds in the Bid Package and satisfactory to the Owner in the Owner's sole judgment;*
- .2** *The bonds shall be executed by a responsible surety licensed in the State of New Jersey with a Best's rating of no less than A-/X and shall remain in effect for a period of not less than two years following the date of final acceptance or the time required to resolve any items of incomplete or inadequate work and the payment of any disputed amounts, whichever time period is longer. After final completion and prior to final payment, Contractor shall submit a maintenance bond in the amount of 100% of the cost of the project for a period of two years from final acceptance. Upon acceptance of the maintenance bond and final payment, Contractor's performance bond will be released.*
- .3** *The performance bond and the labor and material payment bond shall each be in an amount equal to the Contract Sum;*
- .4** *The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power of attorney indicating the monetary limit of such power;*

- .5 *Payment and performance bonds must have attached thereto a fully executed Surety Disclosure Statement and Certification;*
- .6 *Any bond under this Paragraph 11.1.5 must display the surety's bond number.*

§ 11.1.6 If any of the foregoing insurance coverages are required to remain in force after final payment, including, but not limited to coverage for completed operations, an additional certificate evidencing continuation of such coverage shall be submitted with the Final Application for Payment.

§ 11.1.7 In no event shall any failure of the Owner to receive certificates of policies required under Paragraph 11.1 or to demand receipt of such certificates prior to the Contractor commencing Work be construed as a waiver of the Owner or the Architect of the Contractor's obligations to obtain insurance pursuant to this Article 11. The obligation to procure and maintain any insurance required by this Article 11 is a separate responsibility of the Contractor and independent of the duty to furnish a certificate of such insurance policies.

§ 11.1.8 If the Contractor fails to purchase and maintain or require to be purchased and maintained any insurance required under this Article 11, the Owner may, but shall not be obligated to, upon 5 days written notice to the Contractor, purchase such insurance on behalf of the Contractor and shall be entitled to deduct said cost from the Contractor's Contract Sum.

§ 11.1.9 When any required insurance due to the attainment of a normal expiration date or renewal date shall expire the Contractor shall supply the Owner with certificates of insurance and amendatory riders or endorsements that clearly evidence the continuation of all coverage in the same manner, limits of protection and scope as was provided by the previous policy. In the event, any renewal or replacement policy for whatever reason obtained or required is written by a carrier other than that with whom the coverage was previously placed, or the subsequent policy differs in any way from the previous policy, the Contractor shall also furnish replacement policy unless the Owner provides the Contractor with prior written consent to submit only a certificate of insurance for any such policy. All renewal and or replacement policies shall be in form and substance satisfactory to the Owner and written by carriers acceptable to the Owner.

§ 11.1.10 The Contractor shall cause each subcontractor to (1) procure insurance in the amounts set forth in Article 11 and (2) name the indemnitees under Paragraph 3.18 as additional insureds under the subcontractor's comprehensive general liability policy. The additional insured endorsement included on the subcontractor's comprehensive general liability policy shall state that coverage is afforded the additional insureds with respect to claims arising out of operations performed by or on behalf of the Contractor. If the additional insureds have other insurance which is applicable to the claims, such other insurance shall be on an excess or contingent basis. The amount of the insurance liability under this insurance policy shall not be reduced by the existence of such other insurance.

§ 11.1.11 Property insurance provided by the Owner shall not cover any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring, or other similar items commonly referred to as construction equipment which may be on the site and the capital value of which is not included in the work. The Contractor shall make its own arrangements for any insurance it might require on such construction requirement. Any such policy obtained by the Contractor under this Paragraph 11.4.7 shall include a waiver of subrogation.

§ 11.1.12 The Contractor may carry whatever additional insurance he deems necessary to protect himself against hazards not covered for theft, collapse, water damage, materials and equipment stored on the site, and for materials and equipment stored off site, and against loss of owned or rented capital equipment and tools owned by mechanics or any tools, equipment, scaffolding, stagings, towers and forms owned or rented by the Contractor, the capital value of which is not included in the cost of the Work.

§ 11.1.13 All insurance coverage procured by the Contractor shall be provided by insurance companies having policy holder ratings no lower than "A-" and financial rating no lower than, "X" in the Best's Insurance guide, latest edition in effect as the date of the Contract and subsequently in effect at the time of the renewal of the policies required by the Contract Documents.

§ 11.1.14 If the Owner or the Contractor is damaged by the failure of the other party to purchase or maintain insurance required under Article 11, then the party who failed to purchase or maintain the insurance shall bear all reasonable costs (including attorney's fees and court and settlement costs) properly attributable thereto.

§ 11.1.15 The Contractors must remove all "X, C & U" exclusions from their policies.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds

of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense. *If prior to the date of Substantial Completion, the Contractor, a subcontractor or anyone for whom either is responsible, uses or damages any portion of the Work, including without limitation, the mechanical, electrical, plumbing and other building systems, machinery, equipment or other mechanical device, the Contractor shall cause each such item to be restored to "like new condition" at no expense to the Owner.*

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within ~~one-year~~ *two (2) years* after the date of Substantial Completion *Final Acceptance* of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. ~~During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.~~ If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

- .1 The obligations under Item 12.2 shall cover any repairs and replacement to any part of the Work or other property caused by the defective Work.*
- .2 Upon completion of any work under or pursuant to Item 12.2., the two-year correction period in connection with the work requiring correction shall be renewed and recommenced.*

§ 12.2.2.2 The ~~one-year~~ *two-year* period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion *Final Acceptance* by the period of time between Substantial Completion *Final Acceptance* and the actual completion of that portion of the Work.

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

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

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

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the ~~two-year~~ one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made. ***This paragraph relates exclusively to the knowing acceptance of nonconforming work by the Owner. It has no applicability to work accepted by the Owner or Architect without the knowledge that such work fails to conform to the requirements of the Contract Documents.***

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, ~~excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.~~

§ 13.2 Successors and Assigns

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

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

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

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

§ 13.4 Tests and Inspections

§ 13.4.1 ***The Owner shall provide and contract for "structural tests and special inspections" as required by the NJ DCA Bulletin 03-5. The Contractor shall coordinate, schedule, and provide on-site supervision and man-power to facilitate the testing. All other Tests, inspections and approvals of portions of the Work shall be made as***

required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor. The Architect, Owner and Contractor shall be afforded a reasonable opportunity to attend, observe, and witness all inspections and tests of the Work. The Architect or Owner may at any time request and receive from the Contractor satisfactory evidence that materials, supplies or equipment are in conformance with the Contract Documents. The Conduct of any inspection of test and the receipt of any approval shall not operate to relieve the Contractor from its obligations under the Contract Documents unless specifically so stated by Owner in writing. Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense. *The Contractor also agrees that the cost of testing services required for the convenience of the Contractor in his scheduling and performance of the Work and the cost of testing services related to remedial operations performed to correct deficiencies in the Work shall be borne by the Contractor.*

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

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

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

§ 13.5 Interest

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

§ 13.5.1. The Contractor shall not be entitled to any payment of interest for any reason, action or inaction by the Architect or the Owner unless required by law under N.J.S.A. 2A:30A-2(c). Owner is a governmental entity that requires the entity's governing body to vote on authorizations for each periodic payment, final payment or retainage monies, the amount due may be approved and certified at the next scheduled public meeting of the entity's governing body, and paid during the entity's subsequent payment cycle, provided this exception has been defined in the bid specifications and contract documents.

§ 13.5.2 Any payments withheld for time delays, faulty materials, or workmanship, shall not bear interest for period of delay or non-acceptance.

§ 13.6 WRITTEN NOTICE

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

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract in the manner provided in Subparagraph 14.1.2 if repeated suspensions, delays or interruptions by the Owner as described in Paragraph 14.3 constitute in the aggregate more than 100% of the total number of days scheduled for completion or 120 days in any 365-day period, whichever is less, or if all the Work is entirely stopped for a continuous period of 30 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;*
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;*
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment (without cause) within the time stated in the Contract Documents; or*
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.*

§ 14.1.2 If any one of the above reasons exists, the Contractor may, upon fourteen (14) days written notice to the Owner and Architect, terminate the Contract, unless this reason is cured prior to the expiration of the notice, and recover from the Owner payment of work properly executed in accordance with the Contract Documents (the basis for such payment shall be as provided in the Contract) and for payment for cost directly related to work thereafter performed by Contractor in terminating such work including reasonable demobilization and cancellation charges provided said work is authorized in advance by Architect and Owner. The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than

100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 *The Owner shall not be responsible for damages for loss of anticipated profits on work not performed on account of any termination described in Subparagraph 14.1.1 and 14.1.2.*

If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

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

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly-refuses or fails to supply enough properly skilled workers or proper materials *and/or equipment*;
- .2 fails to make *prompt* payment to Subcontractors or suppliers in accordance with the Prompt Payment Act N.J.S.A. 2A:30A-2 (b);
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents or *disregards the instructions of Architect or Owner (when such instructions are based on the requirements of the Contract Documents)*.
- .5 *Is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of Contractor's creditors, or a trustee or a receiver is appointed for Contractor or for any of its property, or files a petition to take advantage of any debtor's act, or to recognize under bankruptcy or similar laws; or*
- .6 *Breaches any warranty made by the Contractor under or pursuant to the Contract Documents.*
- .7 *Fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with the requirements of the Contract Documents.*
- .8 *Fails after the commencement of the Work to proceed continuously with the construction and completion of the work for more than 10 days except as permitted under the Contract Documents.*
- .9 *Otherwise does not fully comply with the Contract Documents.*

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

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

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

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

§ 14.3 Suspension by the Owner for Convenience

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

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

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

§ 14.4 Termination by the Owner for Convenience

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

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

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

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

§ 14.4.4 If Owner terminates the Contract for cause pursuant to Paragraph 14.2 and it is subsequently determined that the Owner was not authorized to terminate the Contract as provided in Paragraph 14.2, the Owner's termination shall be treated as a termination for convenience under this Paragraph 14.4 and the rights and obligations of the parties shall be the same as if the Owner has issued a notice of termination to the Contractor as provided in this Paragraph 14.4.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other

disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the **law and** requirements of **the State of New Jersey** ~~the binding dispute resolution method selected in the Agreement~~ and within the period specified by applicable law, ~~but in any case not more than 10 years after the date of Substantial Completion of the Work.~~ The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.2.1 Contractor shall promptly pay to Owner all costs and reasonable attorney's fees incurred in connection with any action or proceeding in which Owner prevails, based on a breach of the Contract or other dispute arising out of or in connection with the Contract.

§15.1.2.2 In the event of the appointment of a trustee and/or receiver or any similar occurrence affecting the management of the account of the Contractor pertaining to the Work, it shall be the obligation of the Contractor, its representatives, receivers, sureties, or successors in interest to continue the progress of the Work without delay and specifically to make timely payment to Subcontractors and Suppliers of all amounts that are lawfully due them and to provide the Owner and all Subcontractors and Suppliers whose work may be affected with timely notice of the status of receivership, bankruptcy, etc., and the status of their individual accounts.

§ 15.1.2.3 Regularly scheduled job meetings shall be held at a location and time convenient to the Owner's representatives, the Architect and the Contractor. The Contractor shall attend such meetings, or be represented by a person in authority who can speak for and make decisions for the Contractor.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within ~~21~~ **5** days after occurrence of the event giving rise to such Claim or within ~~21~~ **5** days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding five (5) days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the *final resolution of the claim*. ~~decision of the Initial Decision Maker.~~

§ 15.1.4.3 *Claims for Concealed or Unknown Conditions. Subject to the Contractor's obligations under Articles 1.9.2 and 2.3.4, if conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than five (5) days after first observance of the conditions. The Architect will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within 5 days after the Architect has given notice of the decision. If the conditions encountered are materially different, the Contract Sum and Contract Time shall be equitably adjusted, but if the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Architect for initial determination, subject to further proceedings pursuant to Section 15.2.5.1.*

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in ~~Section 15.1.3 herein~~ shall be given *to the Owner, Construction Manager and Architect* before proceeding to execute the portion of the Work that is the subject of the Claim *and within five (5) days after the occurrence of the event giving rise to such Claim for increase in the Construct Sum. The foregoing written notice shall contain a written statement from the Contractor setting forth in detail the nature and cause of the Claim and an itemized statement of the increase requested. No such written notice shall form the basis of an increase to the Contract Sum unless and until such increase has been authorized by a written Change Order executed and issued according to the terms and conditions set forth herein. The Contractor hereby acknowledges that the Contractor shall not have any right to and the Owner will not consider any requests for an increase in the Contract Sum that is not submitted in compliance with the foregoing requirements.* . Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. *Said notice shall itemize all claims and shall contain sufficient detail and substantiating data to permit evaluation of same by Owner and Architect. No such claim shall be valid unless so made.* The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. *Any change in the Contract Sum resulting from such claim shall be authorized only by Change Order or Construction Change Directive, as the case may be. All required notices for additional costs shall be made by Certified Mail.*

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were unusually severe for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction *as determined by reference to historical data. The term "historical data" as used in the previous sentence shall be construed according to this formula: Average rainfall (or snow or low temperature) for the past five years.*

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for *the following* consequential damages arising out of or relating to this Contract. ~~This mutual waiver includes~~

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

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, ~~and 11.5~~, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

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

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

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon

receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§15.2.5.1 All claims and disputes and other matters in question between the Contractor and the Owner not resolved through mediation and arising out of or relating to the Contract Documents or a breach thereof with regard to the Architect's decision, shall be decided through suit in New Jersey Superior Court venued in Gloucester County and Contractor consents to personal and subject matter jurisdiction of the New Jersey Superior Court venued in Gloucester County. The Contractor shall carry on all work and maintain its progress during such suit and the Owner shall continue to make payments not related to the dispute of the Contractor in accordance with Contract Documents.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

~~§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.~~

§ 15.2.7 In the event of a Claim against the Contractor, the Owner **and Architect** may, but are not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner **and Architect** may, but are not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

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

§ 15.3 ALTERNATE DISPUTE RESOLUTION: MEDIATION

1. Controversies and Claims Subject to Mediation:

Any controversy or claim arising from or related to the contract or the breach thereof, shall be submitted to mediation. If a dispute between the Owner and the Contractor arises during the course of the contract, the parties will attempt to resolve the dispute, in good faith, through mediation.

2. Contract Performance Pending Mediation:

During mediation proceedings, the Contractor shall continue to perform under the terms of the contract and the Owner shall continue to make payments under the terms of the contract.

3. When Mediation May Be Demanded:

Prior to either party requesting or demanding mediation, they shall attempt to resolve the problem directly. The aggrieved party shall submit, in writing, to the other party, a notice of dispute.

The other party shall respond in writing.

Demand for mediation of any claim shall not be made until the earlier of the following:

- (a) Written notice of dispute is given to other party and written response is provided to the aggrieved party.*
- (b) Thirty days after submission of original written claim by aggrieved party to other party and the other party has not responded in writing.*

A party who files a "Notice of Demand for Mediation" must assert in the demand all claims then known to that party on which mediation is permitted to be deemed. When a party fails to include a claim through oversight, inadvertence or excusable neglect, or when a claim has matured or been acquired subsequently, the mediator or mediators may permit amendments.

If a party submits a claim and is not satisfied with the written response received, the aggrieved party has forty-five (45) days from the receipt of the written response to file a request for mediation.

4. *Procedures to Request Mediation:*

- a) Either party may demand mediation by written notice to the other party. The written notice shall contain at least (1) a brief statement of the nature of the dispute, and (2) the name, address and the phone number of that party's designated representative for purposes of mediation.*
- b) The other party shall designate its representative for mediation in writing no later than five (5) business days after receipt of the demand for mediation.*
- c) The respective designees shall thereupon, and promptly, with due regard for the need for timely action, choose a mediator.*
- d) If the parties cannot agree on a mediator, they shall choose a reputable mediation firm.*
- e) Any mediation firm so chosen shall present a list of at least five (5) proposed mediators to the parties and shall provide the parties with a summary of each person's qualifications to serve as mediator.*
- f) Each party shall rank the proposed mediators in order of preference.*
- g) The fifth and any lower ranked persons on each list will be excluded from further consideration.*
- h) The chosen mediator shall be the remaining person who is the combined highest-ranking mediator on both preference lists, after deleting all excluded persons.*
- i) In the event of a tie, the mediator shall be chosen by lot.*

5. *Procedures at Mediation:*

The mediation shall be conducted in such reasonable and efficient manner as may be agreed between the parties and the mediator or, in the lack of such an agreement, as may be determined by the mediator.

The parties will not be bound by the Rules of Evidence in presenting their positions before the mediator.

6. **Cost of Mediation:**

Each party will bear its own costs of participation in mediation and they will divide the costs of the mediator equally.

7. **Failure of Mediation:**

If, after a good faith effort to resolve the dispute through mediation, the dispute is not resolved, either party may terminate the mediation by written notice to the mediator and to the other party, whereupon either party may submit the dispute to the Superior Court of New Jersey, Gloucester County, for adjudication, which court shall have exclusive original jurisdiction over the dispute.

DRAFT AIA® Document A101™ - 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the « » day of « » in the year Two Thousand Twenty-One
(In words, indicate day, month and year.)

BETWEEN the Owner:

(Name, legal status, address and other information)

Rowan College of South Jersey
1400 Tanyard Road
Sewell, New Jersey 08080

and the Contractor:

(Name, legal status, address and other information)

« »
« »
« »
« »

for the following Project:

(Name, location and detailed description)

Rowan College of South Jersey
Center 2021 EOF and CAP Office Renovations

The Architect:

(Name, legal status, address and other information)

Garrison Architects
713 Creek Road
Bellmawr, New Jersey 08031

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

The parties should complete A101™-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.



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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

☐ [« »] The date of this Agreement.

☒ [X] A date set forth in a notice to proceed issued by the Owner/Construction Manager.

☐ [« »] Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

☐ Not later than ☐ (☐) calendar days from the date of commencement of the Work.

☒ By the following date: **July 30, 2022**

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates: **NOT APPLICABLE**

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ☐ (\$ ☐), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates NOT APPLICABLE

§ 4.2.1 Alternates, if any, included in the Contract Sum: **NOT APPLICABLE**

Item	Price
------	-------

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. **NOT APPLICABLE**

(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

§ 4.3 Allowances, if any, included in the Contract Sum:

(Identify each allowance.)

Item	Price
CASH ALLOWANCE	\$5,000.00

§ 4.4 Unit prices, if any: **NO APPLICABLE**

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

§ 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any.)

The Contractor understands and agrees that all work must be performed in an orderly and closely coordinated sequence so that the dates for Substantial Completion and Final Completion are met. **TIME IS OF THE ESSENCE.**

If the Contractor fails to complete his work or fails to complete a portion of his work and therefore not achieve Substantial Completion and/or Final Completion on the respective dates required, he shall pay the Owner, as liquidated damages and not as a penalty, Two Thousand Five Hundred Dollars (\$2,500.00) per day, which is agreed upon as a reasonable and proper measure which the Owner will sustain each calendar day by failure of the Contractor to complete work within the stipulated time for the milestone dates.

The Owner will suffer significant financial loss if the project is not substantially complete on time. Liquidated Damages will be assessed if the Project is not substantially complete by **July 30, 2022**. The Contractor (and the Contractor's Surety) shall be liable for and pay to the Owner the sum of \$2,500.00 stipulated and fixed, agreed as liquidated damages for each calendar day of delay until the work is substantially complete.

Final Completion must be reached Thirty (30) days following the date fixed in the contract for Substantial Completion. The Contractor (and the Contractor's Surety) shall be liable for and pay to the Owner the sum of \$2,500.00 stipulated and fixed, agreed as liquidated damages for each calendar day of delay until the work is finally complete.

Substantial Completion will be determined by the Architect as defined in paragraph 9.8.1 of the A201 - General Conditions.

For damage occurring at the time of delay, the Owner may retain the amount due to him under this clause from any payments due to the Contractor. Final Completion and Substantial Completion liquidated damages shall be stacked and are not concurrently imposed.

§ 4.6 Other: **NOT APPLICABLE**

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

The Owner will issue timely payments to the Contractor in accordance with the requirements of "The Prompt Payment Act", N.J.S.A. 2A:30A-1, et seq. The Contractor is hereby notified that the Owner, as a public entity, requires all payments to be approved at scheduled public Board of Trustees meetings. The vote on authorization for payments will be made at the first public meeting of the Board, following the Board's receipt of the Architect's authorization for payment, and paid during the subsequent payment cycle. The time schedule will be established at the Pre-Construction Meeting and subsequent project meetings.

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment *(Federal, state or local laws may require payment within a certain period of time.)*

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. Contractors are requested **not to project work** beyond the date of the pencil copy of the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™-2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Until substantial completion, the Owner will pay 98% of the amount due the Contractor on account of progress payments until a balance of \$500,000 is due the Contractor. The retainage will then be increased to Five Percent (5%) of the \$500,000.00 balance of the contract until final completion. The retainage will be held until final acceptance of the project by the Architect and the Owner.

§ 5.1.7.1.1 The following items are not subject to retainage: **NOT APPLICABLE**

(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

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§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows: **NOT APPLICABLE**

(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

« »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7.

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall **only be responsible to** pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201-2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 ~~the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201-2017, and to satisfy other requirements, if any, which extend beyond final payment; and~~
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

§ 5.3 Interest

The Contractor shall not be entitled to any payment of interest for any reason, action or inaction by the Architect or the Owner unless required by law under N.J.S.A. 2A:30A-2(c). Any payments withheld for time delays, faulty materials, or workmanship, shall not bear interest for period of delay or non-acceptance. The Owner is a governmental entity that requires the entity's governing body to vote on authorizations for each periodic payment, final payment or retainage monies, the amount due may be approved and certified at the next scheduled public meeting of the entity's governing body, and paid during the entity's subsequent payment cycle, provided this exception has been defined in the bid specifications and contract documents.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201-2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker. *(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

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§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201-2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201-2017

☒ Litigation in a court of competent jurisdiction in Gloucester County, New Jersey

☐ Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201-2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201-2017, then the Owner shall pay the Contractor a termination fee as follows: **NOT APPLICABLE**

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

« »
§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

Mr. Jim Lauria
Greyhawk
2000 Midlantic Drive, Suite 210
Mount Laurel, New Jersey 08054

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

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« »
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« »

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in Article 11 of the AIA Document A201™–2017.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A201™–2017.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below: **NOT APPLICABLE**

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 8.7 Other provisions:

The Drawings, Specifications and Addenda shall be considered as part of this Contract.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .3 Drawings :See Attached Index
- .4 Specifications: See Attached Indexes

.5 Addenda, if any:

Number	Date	Pages

.6 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[☐] AIA Document E204™-2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.) **NOT APPLICABLE**

« »

[☐] The Sustainability Plan: **NOT APPLICABLE**

[☒] Supplementary and other Conditions of the Contract: The Supplementary General Conditions are incorporated directly into the AIA201 - General Conditions of the Contract for Construction.

.7 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

The Drawings, Specifications, Addenda and Contractor's complete Bid Package shall be considered as part of this Contract. The New Jersey Prevailing Wage Rates are incorporated herein by reference. In the event of a conflict in the provisions of any of the Contract Documents the provision most favorable to the Owner shall control.

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

« »

(Printed name and title)

CONTRACTOR (Signature)

« »

(Printed name and title)

SECTION 01010 - SUMMARY OF WORK

1.1 GENERAL

- A. The Project consists of Renovations to the EOF and CAP Offices in the College Center of Rowan College of South Jersey's Gloucester Campus.
 - 1. Owner: Rowan College of South Jersey, 1400 Tanyard Road, Sewell, New Jersey 08080.
- B. Contract Documents were prepared for the Project by Garrison Architects, 713 Creek Road, Bellmawr, NJ 08031
- C. The work for the Renovations to the EOF and CAP Offices at the College Center includes but is not limited to the following (Reference the Drawings and Specifications for specifics for the overall scope of work).
 - 1. The Contractors are strongly encouraged to verify all existing condition, dimensions and areas prior to submitting a responsive / responsible bid. Such site visit shall be for familiarizing the Contractor with the conditions as they exist and the character of the operations to be carried on under the Contract Documents, including all existing site conditions, access to the site, physical characteristics of the site and surrounding areas. Site visits can be arranged through the Construction Manager, Jim Lauria of GREYHAWK, cell phone number is (609) 273-4579, email jlauria@greyhawk.com.
 - 2. Renovate the existing EOF and CAP offices as shown on drawings including all general construction, demolition, fire sprinkler modifications, HVAC Ductwork modifications and electrical work.
 - 3. The electrical work includes:
 - a. Provide receptacles, lights, switches, occupancy sensors, circuiting, electrical panel and new breakers. Reference the Electrical Drawings.
 - b. Provide removals and relocations as shown on the Electrical Drawings.
 - 4. Data Systems -Work by the Contractor
 - a. Provide all data outlets, jacks, wiring, cover plates, cables, and testing for all new outlets shown on the plans. Punch down and test all data lines at the Owner-provided punch down block in the second floor IT room.
 - b. In the CAP center, trace and label all of the existing data cabling in addition to providing new data outlets.
 - 5. Data Systems - Work by Owner's Contractor
 - a. Provide Fiber infrastructure between the first floor Main Computer Room and the Second Floor IT Closet.
 - b. Provide a new data rack in the second floor IT Room with fiber trays and punch down blocks.
 - c. Provide all testing and certifications
 - d. Reference the Electrical drawings at the IT riser diagram on the electrical drawings

SECTION 01010 - SUMMARY OF WORK

6. The existing carpet, ceiling tile and grid are relatively new and are to be protected during construction and remain.
 7. At the completion of work, the Contractor shall hire a professional cleaning crew to professionally steam clean the carpets, clean and sanitize all areas inside the suites.
 8. The Contractor shall set up loading and work areas so as not to block or hinder egress from or access to the building.
- D. Schedule of work sequence:
1. No work can be started until all permits are received. The existing building will be partially occupied. The project must be completed on or before **July 30, 2022**. **The onsite Construction Period shall commence on May 16, 2022.**
- E. The Work will be constructed under one lump sum prime contract.
- F. Use of the Site: Limit use of premises to areas indicated inside of the construction limit fence. Do not disturb portions of the site beyond the areas indicated. Areas which will be disturbed shall also be fenced in during construction. All times during the day, the construction traffic will operate with extra precaution to avoid conflict with the building's operations and public traffic.
1. Allow for Owner occupancy and use by the public. Provide safety barriers for the Owner and the public.
 2. Keep driveways and entrances clear. Do not use these areas for parking or material storage. Schedule deliveries to minimize on-site storage of materials and equipment.
 3. All construction vehicles should park inside the construction fence.
 4. Contractor's personnel are not permitted to wear on-site any clothing with wording or graphics that may be construed as offensive, profane or obscene; with wording, graphics or advertising for tobacco or alcoholic products, or attire that appears provocative. The Owner or Construction Manager will be the sole judge of what is appropriate or inappropriate.
 5. Verbal and visual comments will not be tolerated and will be cause for removal from the site.
 6. The use of drugs (including cannabis), tobacco or alcohol anywhere on the grounds or in the building will not be permitted and will be cause for removal from the site.
 7. The use of radios without earphones will not be permitted at any time
- G. Fees, Permits and Taxes: The Contractor is advised that a Building Permit is required for this project. Upon contract award, it shall be the responsibility of the **Contractor** to secure all required permits. It shall be the **Owner's** responsibility to pay for the permit review fee. It shall be the **Contractor's** responsibility to pay for all fees and permit costs for the jobsite trailer if required.

SECTION 01010 - SUMMARY OF WORK

- H. **SAFETY:** The Contractor is responsible to provide and enforce all safety onsite and conform with all OSHA regulations, codes and standards. The Owner, Construction Manager, Clerk of the Works and Architect have no responsibility to provide for the safety or protection of the trades. The Contractor shall submit a site specific Emergency Action Safety Plan and review this with all onsite personnel. The Contractor shall conduct periodic (as needed at least one a month) site safety inspections and issue a report on the conditions. The Contractor shall maintain a first aid kit onsite. For further contractor responsibilities with respect to safety, refer to article 10 of the General Conditions of the Contract for Construction.
- I. **The Contractor shall not use any product containing asbestos and all plumbing is lead free.** The Contractor shall provide a notarized Letter stating: "No Asbestos containing materials were provided on the project and the plumbing is lead free".
- J. **The Contractor is required to have all long lead items in fabrication and provide proof from the manufacturer within (45) days of the award of the contract. The Owner will pay for stored material in accordance with the General Conditions. Delays caused by the failure of the Contractor to adhere to this requirement will not be cause for a time extension. NO TIME EXTENSIONS WILL BE GRANTED!**

END OF SECTION 01010

SECTION 01040 – COORDINATION

1.1 GENERAL

- A. This Section includes requirements for coordinating construction operations including, but not necessarily limited to, the following:
 - 1. Coordination drawings and Specifications with all subcontractors.
 - 2. Administrative and supervisory personnel.
 - 3. Cleaning and protection is the responsibility of the Contractor.

1.2 COORDINATION

- A. Coordinate construction to assure efficient and orderly installation of each part of the Work. Coordinate operations that depend on each subcontractor for proper installation, connection, and operation. The Contractor shall be responsible for the following:
 - 1. Schedule operations in the sequence required to obtain the best results where installation of one part depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to assure maximum accessibility for maintenance, service, and repair.
 - 3. Make provisions to accommodate items scheduled for later installation.
 - 4. Coordination with the school for furniture and equipment which shall be relocated to new facilities.
- B. Where necessary, prepare memoranda for distribution to each party involved, outlining procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
 - 1. Prepare similar memoranda for the Owner and his contractors where coordination of their work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required procedures with other activities to avoid conflicts and assure orderly progress. Such activities include, but are not limited to, the following:
 - 1. Preparation of schedules.
 - 2. Delivery and processing of submittals.
 - 3. Progress meetings.
 - 4. Project closeout activities.
- D. Conservation: Coordinate construction to assure that operations are carried out with consideration for conservation of energy, water, and materials.
 - 1. Salvage materials and equipment involved in performance of, but not incorporated in, the Work.
- E. Coordination Drawings: Prepare coordination drawings for installation of products and materials fabricated by separate entities. Prepare coordination drawings where limited space necessitates maximum utilization of space for efficient installation of different components.

SECTION 01040 – COORDINATION

1. Show the relationship of components shown on separate shop drawings.
2. Indicate required installation sequences.
3. Comply with requirements contained in Section "Submittals."

F. Staff Names: **The Contractor shall** Within 7 days of commencement of construction, submit a list of the Contractor's staff assignments, including the superintendent and other personnel at each Project Site. Identify individuals and their responsibilities. List their addresses and telephone numbers.

1. Post copies in the Project meeting room, the temporary field office, and each temporary telephone.

1.3 PRODUCTS (Not Applicable)

1.4 EXECUTION

- A. Inspection of Conditions: Require Installers of major components to inspect substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
- B. Coordinate temporary enclosures with inspections and tests to minimize the need to uncover completed construction.
- C. Clean and protect construction in progress and adjoining materials, during handling and installation. Apply protective covering to assure protection from damage.
- D. Clean and maintain completed construction as necessary through the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- E. Limiting Exposures: Supervise construction to assure that no part is subject to harmful, dangerous, or damaging exposure. Such exposures include, but are not limited to, the following:
1. Excessive static or dynamic loading.
 2. Excessive internal or external pressures.
 3. Excessively high or low temperatures.
 4. Water or ice.
 5. Solvents and chemicals.
 6. Abrasion.
 7. Soiling, staining, and corrosion.
 8. Combustion.
 9. Excessive dust.

END OF SECTION 01040

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

1.1 GENERAL

- A. Definitions: Basic Contract definitions are included in the Conditions of the Contract.
- B. Indicated refers to graphic representations, notes, or schedules on the Drawings, paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference. Location is not limited.
- C. Directed, requested, authorized, selected, approved, required, and permitted mean directed by the Architect, requested by the Architect, and similar phrases.
- D. Approved, when used in conjunction with the Architect's action on submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.
- E. Regulations include 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 means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. Install describes operations at the Project Site including unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. Provide means to furnish and install, complete and ready for the intended use.
- I. Installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform 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 special requirements indicated, and having complied with requirements of the authorities having jurisdiction.
- J. Project Site is the space available for performing construction activities, either exclusively or in conjunction, with others performing 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 on which the Project is to be built.
- K. Testing Agency 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.
- L. Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTERFORMAT numbering system.

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

1. Abbreviated Language: Language used in Specifications is abbreviated. Implied words and meanings shall be interpreted as appropriate. Singular words shall be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative and streamlined language is used. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
 - a. The words "shall be" are implied where a colon (:) is used within a sentence or phrase.
- M. Abbreviations and Names: Where acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities 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.
- | | |
|------|---|
| AA | Aluminum Association
900 19th St., NW, Suite 300
Washington, DC 20006
(202) 862-5156 |
| AAMA | American Architectural Manufacturers Assoc.
1540 E. Dundee Road, Suite 310
Palatine, IL 60067
(708) 202-1350 |
| ACI | American Concrete Institute
P.O. Box 19150
Detroit, MI 48219-0150
(313) 532-2600 |
| ACIL | American Council of Independent Laboratories
1725 K St., NW, Suite 412
Washington, DC 20006
(202) 887-5872 |
| ADC | Air Diffusion Council
One Illinois Center, Suite 200
111 East Wacker Drive
Chicago, IL 60601
(312) 616-0800 |
| AGA | American Gas Assoc.
1515 Wilson Blvd.
Arlington, VA 22209
(703) 841-8400 |

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

AIA	American Institute of Architects 1735 New York Ave., NW Washington, DC 20006 (202) 626-7300
A.I.A.	American Insurance Assoc. 1130 Connecticut Ave., NW, Suite 1000 Washington, DC 20036 (202) 828-7100
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601-2001 (312) 670-2400
AISI	American Iron and Steel Institute 1101 17th Street, NW, Suite 1300 Washington, DC 20036 (202) 452-7100
AMCA	Air Movement and Control Assoc. 30 W. University Drive Arlington Heights, IL 60004 (708) 394-0150
ANSI	American National Standards Institute 11 West 42nd Street, 13th Floor New York, NY 10036 (212) 642-3300
APA	American Plywood Assoc. P.O. Box 11700 Tacoma, WA 98411 (206) 565-6600
ARI	Air Conditioning and Refrigeration Institute 1501 Wilson Blvd., 6th Floor Arlington, VA 22209 (703) 524-8800
ASC	Adhesive and Sealant Council 1627 K Street, NW, Suite 1000 Washington, DC 20006 (202) 452-1500
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329 (404) 636-8400

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

ASME	American Society of Mechanical Engineers 345 East 47th St. New York, NY 10017 (212) 705-7722
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake, CA 91362 (805) 495-7120
ASSE	American Society of Sanitary Engineering P.O. Box 40362 Bay Village, OH 44140 (216) 835-3040
ASTM	American Society for Testing and Materials 1916 Race St. Philadelphia, PA 19103 (215) 299-5400
AWI	Architectural Woodwork Institute P.O. Box 1550 13924 Braddock Rd., Suite 100 Centreville, VA 22020 (703) 222-1100
AWPA	American Wood Preservers' Assoc. P.O. Box 849 Stevensville, MD 21666 (301) 643-4163
AWPB	American Wood Preservers Bureau P.O. Box 5283 Springfield, VA 22150 (703) 339-6660
AWS	American Welding Society 550 LeJeune Road, NW P.O. Box 351040 Miami, FL 33135 (305) 443-9353
AWWA	American Water Works Assoc. 6666 W. Quincy Ave. Denver, CO 80235 (303) 794-7711
BHMA	Builders' Hardware Manufacturers Assoc. 355 Lexington Ave., 17th Floor New York, NY 10017 (212) 661-4261

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

BIA	Brick Institute of America 11490 Commerce Park Drive, Suite 300 Reston, VA 22091 (703) 620-0010
BOCA	Building Officials and Code Administrators International 4051 West Flossmoor Road Country Club Hills, IL 60478 (708) 799-2300
CDA	Copper Development Assoc. Box 1840, Greenwich Office Park 2 Greenwich, CT 06836 (203) 625-8210
CFR	Code of Federal Regulations Available from Government Printing Office; Washington, DC 20402 (usually first published in Federal Register)
CISPI	Cast Iron Soil Pipe Institute 5959 Shallowford Road, Suite 419 Chattanooga, TN 37421 (615) 892-0137
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Rd. Schaumburg, IL 60173-4758 (708) 517-1200
CS	Commercial Standard of NBS (U.S. Department of Commerce) Governmental Printing Office; Washington, DC 20402
DHI	Door and Hardware Institute 14170 New Brook Drive Chantilly, VA 22021-2223 (703) 222-2010
EIA	Electronic Industries Assoc. 2001 Pennsylvania Ave., NW, Suite 1100 Washington, DC 20006 (202) 457-4900
FCC	Federal Communications Commission 1919 M Street, NW Washington DC 20006 (202) 632-7000
FCI	Fluid Controls Institute P.O. Box 9036 Morristown, NJ 07960 (201) 829-0990

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

FGMA	Flat Glass Marketing Assoc. White Lakes Professional Bldg. 3310 S.W. Harrison Topeka, KS 66611-2279 (913) 266-7013
FM	Factory Mutual Research Organization 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062 (617) 762-4300
FS	Federal Specification (General Services Admin.) Obtain from your Regional GSA Office, or purchase from GSA Specification Unit (WFSIS); 7th and D Streets, SW, Washington, SC 20406 (202) 472-2205 or 2140
FTI	Facing Tile Institute P.O. Box 8880 Canton, OH 44711 (216) 488-1211
GA	Gypsum Association 810 First Street, NE, Suite 510 Washington, DC 20002 (202) 289-5440
HPMA	Hardwood Plywood Manufacturers Assoc. 1825 Michael Farraday Drive P.O. Box 2789 Reston, VA 22090-2789 (703) 435-2900
ICC	International Code Council, Inc. 5203 Leesburg Pike, Suite 708 Falls Church, VA 22041 (703) 931-4533
IEEE	Institute of Electrical and Electronic Engineers 345 E. 47th St. New York, NY 10017 (212) 705-7900
IESNA	Illuminating Engineering Society of North America 345 E. 47th St. New York, NY 10017 (212) 705-7926

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

ILI	Indiana Limestone Institute of America Stone City Bank Building, Suite 400 Bedford, IN 47421 (812) 275-4426
IRI	Industrial Risk Insurers 85 Woodland St. Hartford, CT 06102 (203) 520-7300
ISA	Instrument Society of America P.O. Box 12277 67 Alexander Drive Research Triangle Park, NC 27709 (919) 549-8411
MCAA	Mechanical Contractors Association of America 1385 Piccard Dr. Rockville, MD 20832 (301) 869-5800
MIA	Marble Institute of America 33505 State St. Farmington, MI 48024 (313) 476-5558
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry 127 Park St., NE Vienna, VA 22180 (703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers 200 S. Federal St., Suite 400 Chicago, IL 60605 (312) 922-6222
NAPF	National Association of Plastic Fabricators (Now DLPA)
NBGQA	National Building Granite Quarries Assoc. c/o Rock of Ages Corp. P.O. Box 482 Barre, VT 05641 (802) 476-3115
NBS	National Bureau of Standards (U.S. Dept. of Commerce) Gaithersburg, MD 20234 (301) 921-1000

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

NCMA	National Concrete Masonry Assoc. 2302 Horse Pen Road Herndon, VA 22071 (703) 713-1900
NEC	National Electric Code (from NFPA)
NECA	National Electrical Contractors Assoc. 7315 Wisconsin Ave., Suite 1300 W Bethesda, MD 20814 (301) 657-3110
NEII	National Elevator Industry, Inc. 185 Bridge Plaza, North Fort Lee, NJ 07024 (201) 944-3211
NEMA	National Electrical Manufacturers Assoc. 101 L St., NW, Suite 300 Washington, DC 20037 (202) 457-8400
NFPA	National Fire Protection Assoc. One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 (617) 770-3000
N.F.P.A.	National Forest Products Assoc. 1250 Connecticut Ave., NW, Suite 200 Washington, DC 20036 (202) 463-2700
NHLA	National Hardwood Lumber Assoc. P.O. Box 34518 Memphis, TN 38184-1818 (901) 377-1818
NPA	National Particleboard Assoc. 18928 Premiere Court Gaithersburg, MD 20879 (301) 670-0604
NRCA	National Roofing Contractors Assoc. One O'Hare International Center 10255 W. Higgins Rd., Suite 600 Rosemont, IL 60018-5607 (708) 299-9070

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

NSF	National Sanitation Foundation 3475 Plymouth Rd. P.O. Box 130140 Ann Arbor, MI 48105 (313) 769-8010
NTMA	National Terrazzo and Mosaic Assoc. 3166 Des Plaines Ave., Suite 132 Des Plaines, IL 60018 (708) 635-7744
NWMA	National Woodwork Manufacturers Assoc. (Now NWWDA)
NWWDA	National Wood Window and Door Assoc. 1400 E. Touhy Ave., #G54 Des Plaines, IL 60018 (708) 299-5200 (800) 223-2301
OSHA	Occupational Safety Health Administration (U.S. Dept. of Labor) Government Printing Office; Washington, DC 20402
PDI	Plumbing and Drainage Institute c/o Sol Baker 1106 W. 77th St., South Dr. Indianapolis, IN 46260-3318 (317) 251-6970
PS	Product Standard of NBS (U.S. Department of Commerce) Government Printing Office; Washington, DC 20402
RFCI	Resilient Floor Covering Institute 966 Hungerford Drive, Suite 12-B Rockville, MD 20805 (301) 340-8580
SDI	Steel Deck Institute P.O. Box 9506 Canton, OH 44711-9506 (216) 493-7886
S.D.I.	Steel Door Institute c/o A. P. Wherry & Assoc. 30200 Detroit Road Cleveland, OH 44145 (216) 889-0010

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

SHLMA Southern Hardwood Lumber Manufacturers Assoc.
(Now HMA)

SIGMA Sealed Insulating Glass Manufacturers Assoc.
401 N. Michigan
Chicago, IL 60611-4206
(312) 644-6610

SJI Steel Joist Institute
1205 48th Avenue North, Suite A
Myrtle Beach, SC 29577
(803) 449-0487

SMACNA Sheet Metal and Air Conditioning
Contractors National Association
P.O. 221230
Chantilly, VA 22022-1230
(703) 803-2980

SSPC Steel Structures Painting Council
4400 Fifth Ave.
Pittsburgh, PA 15213-2683
(412) 268-3327

TCA Tile Council of America
P.O. Box 326
Princeton, NJ 08542
(609) 921-7050

TIMA Thermal Insulation Manufacturers Assoc.
29 Bank Street
Stamford, CT 06901
(203) 324-7533
(Standards now issued by NAIMA)

UL Underwriters Laboratories, Inc.
333 Pfingsten Rd.
Northbrook, IL 60062
(708) 272-8800

- N. 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, correspondence, records, and similar documents, established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

2.1 PRODUCTS (Not Applicable)

3.1 EXECUTION (Not Applicable)

END OF SECTION 01095

SECTION 01200 - PROJECT MEETINGS

1.1 GENERAL

- A. It is the responsibility of the Construction Manager (CM) to set up, run and record the minutes for the meetings.
- B. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
 - 1. Preconstruction conferences.
 - 2. Preinstallation conferences.
 - 3. Progress meetings.
- C. Preconstruction Conference: A preconstruction conference shall be scheduled before starting any construction to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of the Owner, CM, Architect, and their consultants; the Contractor and his superintendent; major subcontractors; and other concerned parties shall attend.
 - a. Participants shall be familiar with the Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Critical work sequencing.
 - c. Submittal of Shop Drawings, Product Data, and Samples.
 - d. Use of the premises.
 - e. Product delivery dates.
 - f. Job site safety.
- D. Preinstallation Conferences: The CM shall conduct a conference before each activity that requires coordination with other operations.
 - 1. Attendees: The Installer, CM, the Contractor, the Subcontractors related to the work, and representatives of manufacturers and fabricators involved in or affected by the installation shall attend.
 - a. Review the progress of other operations and preparations for the activity under consideration at each preinstallation conference, including requirements for the following:
 - 1) Compatibility problems and acceptability of substrates.
 - 2) Time schedules and deliveries.
 - 3) Manufacturer's recommendations.
 - 4) Warranty requirements.
 - 5) Inspecting and testing requirements.
 - b. The CM shall record significant discussions and agreements and disagreements, and the approved schedule. Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.

SECTION 01200 - PROJECT MEETINGS

- c. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate actions necessary to resolve problems and reconvene the conference.
 - E. Progress Meetings: The CM shall conduct progress meetings at the construction site every two weeks. The Contractor will notify the GC, Owner, the Architect and all subcontractors of scheduled dates. Coordinate meeting dates with preparation of the payment request. It is the Owner/CM /Architect's option to require weekly job site coordination meetings at each job site in addition to the bi-weekly progress meeting.
 - 1. Attendees: The Owner, CM, Architect, Contractor, and other entities concerned with current progress or involved in planning, coordination, or future activities shall be represented. Participants shall be authorized to conclude matters relating to the Work.
 - F. Agenda: Review and correct or approve minutes of the previous meeting. Review items of significance that could affect progress. Include topics for discussion appropriate to Project status.
 - 1. Contractor's Construction Schedule: The Contractor shall review the progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule. Determine how to expedite construction behind schedule; secure commitments from parties involved to do so. Discuss revisions required to insure subsequent activities will be completed within the Contract Time.
 - 2. Review the present and future needs of each entity present, including the following:
 - a. Time.
 - b. Sequences.
 - c. Status of submittals.
 - d. Deliveries and off-site fabrication problems.
 - e. Temporary facilities and services.
 - f. Quality and work standards.
 - g. Change Orders.
 - h. Coordinate with school schedule and programs.
 - 3. Reporting: Distribute meeting minutes to each party present and to parties who should have been present. Include a summary of progress since the previous meeting and report.
 - 4. Schedule Updating: Revise the Contractor's Construction Schedule after each meeting where revisions have been made. Issue the revised schedule concurrently with the report of each meeting.
- 1.2 PRODUCTS (Not Applicable)
- 1.3 EXECUTION (Not Applicable)

END OF SECTION 01200

SECTION 01210 - ALLOWANCES

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. A Lump Sum Amount is specified in this Section of the Contract Documents. This amount shall be included as a separate line item in the Schedule of Values for the Project.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, the contractor shall advise the Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At the Architect's request, the contractor shall provide a Change Order proposal for additional work to be deducted from the allowance. Include recommendations that are relevant to performing the Work. The Change Order Proposal shall include all material and labor with sufficient breakdown for review.
- C. Purchase products and systems selected by Architect from the designated supplier, "or equal" substitutions are not applicable.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in the Cash Allowance, in the form specified for Change Order Requests.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

SECTION 01210 - ALLOWANCES

- 1.6 CASH ALLOWANCES (Overhead and profit are permitted totaling a maximum of 15% per the AIA Contract. Supervision, bond and insurance are not permitted)
- A. Cash Allowance shall be used only as directed and approved by the Architect for the Owner's purposes.
 - B. The Change Order Request format shall be used to request authorization for use of funds from the Cash Allowance. The Contractor's overhead and profit margins are fixed to a maximum of 15% per the AIA Contract. The contractor is not permitted to charge for additional supervision, bond and insurance as these costs are included in the Base Contract Sum.
 - C. At Project closeout, the contractor shall provide a full credit for unused amounts remaining in the Cash Allowance to the Owner by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. \$5,000.00 cash allowance.

END OF SECTION 01210

SECTION 01300 – SUBMITTALS

1.1 GENERAL

- A. The Contractor shall use the enclosed Cover Page form for **every copy** of every shop drawings submitted with the exception of full size drawings that have a title block for custom or project specific materials or systems. The Contractor's Cover Page form shall be signed by the Project Manager with an original signature indicating that the information has been reviewed and coordinate.
- B. Submittal Procedures: Coordinate submittal and preparation with construction, fabrication, other submittals, and activities that require sequential operations with all Sub-Contractors. Transmit in advance of construction operations to avoid delay.
 - 1. Coordinate submittals for related operations to avoid delay because of the need to review submittals concurrently for coordination. The Architect reserves the right to withhold action on a submittal requiring coordination until related submittals are received.
 - 2. Processing: Allow 2 weeks for initial review. Allow more time if the Architect must delay processing to permit coordination with other trades or Owner's contractors. Allow 2 weeks for reprocessing.
 - a. No extension of Contract Time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.
 - b. **All Shop Drawings, product data and samples shall be submitted within forty-five (45) days of Notice of Award. No Payments will be approved if the Shop Drawings process is not completed within this time schedule.**
 - c. **Substitution submittals shall be made no later than 30 days after Notice to Proceed in order to provide time for comparison review. All submittals after 30 days shall be in strict accordance with the basis of design / specified products. No Substitutions will be considered after 30 days.**
- C. Contractor's Construction Schedule: Prepare a horizontal bar-chart-type, contractor's construction schedule. Provide a separate time bar for each activity and a vertical line to identify the first working day of each week. Use the same breakdown of Work indicated in the "Schedule of Values." Indicate estimated completion in 10 percent increments. As Work progresses, mark each bar to indicate actual completion.
 - 1. Submit within 14 days of the date established for "Commencement of the Work."
 - 2. Prepare the schedule on stable transparency, or other reproducible media, of width to show data for the entire construction period.
 - 3. Secure performance commitments from parties involved. Coordinate each element with other activities; include minor elements involved in the Work. Show each activity in proper sequence. Indicate sequences necessary for completion of related Work.
 - 4. Coordinate with the Schedule of Values, list of subcontracts, Submittal Schedule, payment requests, and other schedules.

SECTION 01300 – SUBMITTALS

5. Indicate completion in advance of Substantial Completion. Indicate Substantial Completion to allow time for the Architect's procedures necessary for certification of Substantial Completion.
 6. Phasing: Show how phased completion affects the Work.
 7. Work Stages: Indicate important stages for each portion of the Work.
 8. Area Separations: Provide a separate time bar to identify each construction area for each portion of the Work. Indicate where each element must be sequenced with other activities.
- D. The Contractor shall receive the schedule from each Sub-Contractor. The Contractor shall coordinate with all Sub-Contractors and prepare an overall construction schedule in five (5) days to submit to the Owner / Architect for approval.
- E. Submittal Schedule: After developing the Contractor's Construction Schedule, prepare a schedule of submittals. Submit the Submittal Schedule to indicate compliance with Item A, Paragraph 2b, on page one of this section.
1. Coordinate with list of subcontracts, Schedule of Values, list of products, and the Contractor's Construction Schedule.
 2. Prepare the schedule in chronological order. Provide the following information:
 - a. Date for first submittal.
 - b. Related details on drawings.
 - c. Related Section number in the Specifications.
 - d. Submittal category (Shop Drawings, Product Data, or Samples).
 - e. Name of the subcontractor.
 - f. Description of the Work covered.
 - g. Date for the Architect's final approval.
 3. Schedule Distribution: Distribute copies of the Contractor's Construction Schedule and the Submittal Schedule to the Architect, Owner, subcontractors, and parties required to comply with submittal dates. Post copies in the field office.
 - a. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their Work and are no longer involved in construction activities.
 - b. Updating: Revise the schedule after each meeting or activity where revisions have been made. Issue the updated schedule concurrently with the report of each meeting.
- F. Daily Construction Reports: The Contractor shall prepare a daily report recording events at the site and submit copies to the Owner, Construction (if applicable) and Architect on a monthly basis or upon request. Include the following information:
1. List of subcontractors at the site.
 2. High and low temperatures, general weather conditions.

SECTION 01300 – SUBMITTALS

3. Accidents and unusual events.
4. Stoppages, delays, shortages, and losses.
5. Meter readings and similar recordings.
6. Emergency procedures.
7. Orders and requests of governing authorities.
8. Services connected, disconnected.
9. Equipment or system tests and startups.
10. Substantial Completions authorized.
11. A list of all visitors indicating the nature of their visit, the company they represent and the person with whom they spoke.

G. Color Selection Schedule: The Contractor shall submit a color selection schedule providing a listing of every product that requires color selections and categorized by exterior colors, interior colors and by room. The Contractor is responsible to coordinate meeting times with the Owner and Construction Manager (if applicable) to select colors so as not to affect the overall construction schedule or material procurement. All color samples shall be delivered to the job site trailer. **Do not submit color samples with shop drawings to the Architect.** Provide actual material color samples. **Reproduced paper or web-based email color charts are not acceptable.**

H. Shop Drawings: The Contractor shall submit newly prepared information drawn to scale. Indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information. The Contractor shall email electronic Shop Drawings to shopdrawings@garrisonarch.com Each separate Shop Drawing shall be submitted in a separate email as one PDF file with the "Shop Drawing Cover Page" completely filled out as the first page. The Shop Drawings shall be numbered sequentially. Include the following information:

1. Dimensions.
2. Identification of products and materials included by sheet and detail number.
3. Compliance with standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Sheet Size: At least 8-1/2 by 11 inches **but no larger than 30 by 42 inches.**
The Contractor shall then copy if required and forward the reviewed prints to all of the Sub-Contractors.
 - a. Do not use Shop Drawings without an appropriate final stamp indicating action taken.
7. **The Contractor shall be responsible to provide the Owner and Construction Manager (if applicable) with a completed printed set of all final Shop Drawings. Promptly provide each shop drawing paper copy as approved. Do not hold or delay the paper copy from the field.**

I. Product Data: Collect Product Data into a single submittal for each element of construction. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, mark copies to indicate applicable information.

1. Include the following information:

SECTION 01300 – SUBMITTALS

- a. Manufacturer's printed recommendations.
 - b. Compliance with 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.
2. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.
3. Submittals: Submit a PDF via email to shopdrawings@garrisonarch.com with the completed "Shop Drawing Cover Page" as the first page of the PDF. The Architect will return the PDF via email marked with action taken. Please note that the Contractor shall be required to submit a paper copy of all finalized Shop Drawings to the Owner and Construction Manager (if applicable).
 - a. Unless noncompliance with Contract Documents is observed, the submittal serves as the final submittal.
4. Distribution: Furnish copies to installers, subcontractors, suppliers, and others required for performance of construction activities. Show distribution on Cover Page forms. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
 - a. Do not use unmarked Product Data for construction.
- J. Samples: Submit full-size Samples cured and finished as specified and identical with the material proposed. Mount Samples to facilitate review of qualities. Provide samples to the Owner or Construction Manager's on-site office. **Do not deliver to the Architect.**
 1. Include the following:
 - a. Specification Section number and reference.
 - b. Generic description of the Sample.
 - c. Sample source.
 - d. Product name or name of the manufacturer.
 - e. Compliance with recognized standards.
 - f. Availability and delivery time.
 2. Submit Samples for review of size, kind, color, pattern, and texture, for a check of these characteristics, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed. Where variations are inherent in the material, submit at least 3 units that show limits of the variations.
 - a. Refer to other Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar characteristics.

SECTION 01300 – SUBMITTALS

- b. Refer to other Sections for Samples to be incorporated in the Work. Samples must be undamaged at time of use. On the Cover Page, indicate special requests regarding disposition of Sample submittals.
 - c. Samples not incorporated into the Work, or designated as the Owner's property, are the Contractor's property and shall be removed from the site.
 - 3. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. One set will be returned marked with the action taken. Maintain sets of Samples, at the Project Site, for quality comparison.
 - a. Unless noncompliance with Contract Documents is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
 - 4. Distribution of Samples: Distribute additional sets to subcontractors, manufacturers, and others as required for performance of the Work. Show distribution on Cover Page forms.
- K. Quality Assurance Submittals: Submit quality-control submittals, including design data, certifications, manufacturer's instructions, and manufacturer's field reports required under other Sections of the Specifications.
 - 1. Certifications: Where certification that a product or installation complies with specified requirements is required, submit a notarized certification from the manufacturer certifying compliance.
 - a. Signature: Certification shall be signed by an officer authorized to sign documents on behalf of the company.
- L. Architect's Action: Except for submittals for the record or information, where action and return are required, the Architect will review each submittal, mark to indicate action taken, and return. Compliance with specified characteristics is the Contractor's responsibility.
 - 1. Action Stamp: The Architect will stamp each submittal with an action stamp. The Architect will mark the stamp appropriately to indicate the action taken.
 - 2. Unless requested and paid by the submission contractor, all submittals will be returned by email. All review times start when the Architect receives the submission in his office.

SECTION 01300 – SUBMITTALS

3. “Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with requirements of the drawings and specifications. This check is only for the review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for verifying quantities, dimensions, field conditions and coordinating all work, information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the work of all trades; and for performing work in a safe and satisfactory manner. Review does not authorize changes to contracts sum, or project completion date unless stated on separate letter or change order. Refer to the A201 Contract, including but not limited to sections 3.2, 3.3, 3.5, 3.12 and 4.2.7.”
- M. **The Contractor shall be responsible to note in the Cover Page of the shop drawings any changes or deviations from the contract documents. This is to include but is not limited to manufacturers, electrical, plumbing, mechanical and structural requirements. The Contractor shall be responsible to distribute to all effected contractors and subcontractors all shop drawings which may affect their work.**
- N. Deviations from the construction documents must be noted by the General Contractor at the time of shop drawing submission. Failure to do so will result in the implication of Section 3.2 of the General Conditions and Paragraphs 3.2.1, 3.2.2 and 3.2.2.1.
- O. Approval of shop drawings is conditional upon the contractor fully and completely complying with all review comments by the Owner, Architect, and Engineer. Where the contractor fails to or is unable to fully and completely comply with every review comment, then the shop drawings are *disapproved* (whether or not they are stamped or noted as "approved" in any manner in any review comment) and must be resubmitted as within seven (7) days. Immediately upon receipt of shop drawing review comments, the contractor is responsible for carefully reviewing all comments in detail and for complying with comments. Where unable to fully satisfy any comment or where the contractor takes exception to any comment, revise and resubmit acceptable shop drawings (or, where taking exception, notify the Architect / Engineer in writing) within seven (7) days. Where the contractor fails to comply with these requirements (including resubmitting/notifying within the seven (7) day period specified), the contractor shall provide acceptable equipment meeting all specified requirements and all review comments (including removing unacceptable equipment [if installed] and replacing with acceptable equipment) at no cost to the Owner.
- P. **No extra claims, time or compensation shall be granted under any circumstance associated with any party's failure or delay in properly submitting, transmitting, obtaining, reviewing, and/or coordinating shop drawings.**

2.1 SUBSTITUTIONS

- A. Substitution submittals shall be made **no later than 30 days after Notice to Proceed** in order to provide time for comparison review. All submittals after 30 days shall be in strict accordance with the basis of design / specified products. **No Substitutions will be considered after 30 days.**

SECTION 01300 – SUBMITTALS

- B. Materials and equipment manufacturers and catalog numbers specified constitute the type and quality of design, material, workmanship, ruggedness of construction, resistance to vandalism, exact operating and performance characteristics, features, configuration, dimensions, etc. The Architect / Engineer will consider substitutions of similar equipment superior to specified equipment (meeting or exceeding all characteristics of the specified equipment).
- C. Submit shop drawings associated with substitutions complete with **comparison documentation** necessary to establish compliance with the basis of design. Submit samples of substitutions where requested. If comparison documentation and/or samples are not submitted when required, the request for substitution will be denied.
- D. Determination of compliance with specifications rests with the Architect/ Engineer. When a request for substitution is denied, furnish the equipment specified. The Architect's / Engineer's decisions in cases of substitutions are final and binding upon the contractor, provide equipment accordingly. No claims for time delay, contract extensions or cost will be considered.
- E. Pay all costs associated with a substitution where granted. For the provisions of this section, "substitutions" includes equipment where characteristics or operation vary significantly from equipment specified (including equipment of the specified manufacturer). This includes costs incurred by any party (Contractor, Sub-contractors, Owner, Architect, Engineers, etc.), costs resulting from differences of details, configuration, ratings, operation, characteristics, and dimensions between the specified and substituted equipment, costs to provide features of the specified equipment which may be manufacturer's options of the substituted equipment, and costs to remove and replace work already installed and any other remedial work as a result of substitutions. Approval of substitutions is conditional upon there being no cost change to the contract, unless specifically indicated on the shop drawings submittal and corresponding approval. The Contractor is fully responsible for coordinating with the Owner, Architect, and other trades to identify all possible cost impacts associated with any substitution before releasing equipment and before any party proceeds with work effected by the substitution.
- F. Submit bid based on the items as specified. Substitutions will be considered only after a contract has been awarded.
- G. "Or Equal" substitutions are permitted so long as they are equal to or superior to the basis of design and the Contractor takes full responsibility for all coordination and costs associated with collateral issues related to the substitution. No Substitutions will be reviewed during the bidding process. The Contractor takes full responsibility for all substitutions.

END OF SECTION 01300

Contractor's Letterhead
Contractor's Letterhead to Include Name, Physical Address,
Telephone Number and Fax Number
SHOP DRAWING COVER PAGE

Project Name
Date

Garrison Architects
Architect's Name
713 Creek Road
Bellmawr, NJ 08031

Sub Contractor's Name, Physical Address, Telephone Number and Fax Number
Supplier's Name, Physical Address, Telephone Number and Fax Number
Manufacturer's Name, Physical Address, Telephone Number and Fax Number
Specification Number and Specification Title and Section
Construction Document Plan Drawing Number and Detail Reference
Contractor's Quality Assurance Signature

Check one of the following:

- ☐ The signature above certifies that the enclosed submittal is in conformance with the construction documents and in fact is the **exact** product and manufacturer specified. The signature confirms that the Contractor is responsible for dimensions and quantities that have been field verified and that the Shop Drawing will be distributed to all affected Contractors whose work may be affected by the material or equipment enclosed.
- ☐ The signature above certifies that the enclosed submittal is in conformance with the construction documents and in fact a **substitution** of the product and manufacturer specified. The Contractor shall provide all Substitutions no later than thirty (30) days from Notice to Proceed and fully comply with page 01300, paragraph 2.1. A complete comparison document must be provided. The signature confirms that the Contractor is responsible for dimensions and quantities that have been field verified and that the Shop Drawing will be distributed to all affected Contractors whose work may be affected by the material or equipment enclosed.

The Contractor assumes responsibility to fully comply with Specification Section 01300, Submittals," and note below any changes or deviations that have resulted from the proposed product substitution. The Contractor also is solely responsible to communicate these changes to all other Prime Contractor and Sub Contractors following review by the Architect / Engineer.

SHOP DRAWING NO	Date	Reviewed By	
RECEIVED FROM GC		Reviewed	
SENT TO ENGINEER		Provide as Corrected	
RETURN FROM ENG		Revise and Resubmit	
RETURN TO GC		Rejected	

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. The contractor is responsible for all corrections indicated. This check is only for the review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for verifying quantities, dimensions, field conditions and coordinating all work; including all electric for all HVAC and all other equipment; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the work of all trades; and for performing work in a safe and satisfactory manner. Review does not authorize changes to contracts sum, or project completion date. Refer to the A201 contract, including but not limited to sections 3.2, 3.3, 3.5, 3.12, and 4.27. The contractor shall provide all portions of the work per the manufacture's installation recommendations and instructions.

REQUEST FOR SUBSTITUTION:

Submit this form for each requested substitution. Fill in all blanks, check all boxes that apply and attach all necessary supporting data.

SUBSTITUTION NO.: _____

Specified Item: _____

Specification Section(s)/Paragraph(s): _____

Drawing Number(s): _____

Proposed Substitute: _____

(Include, as applicable, manufacturer's name and address, trade name and model number of product, and name of fabricator or supplier.)

Reason for Proposed Substitution: _____

Net Change to Contract Sum: _____ ☐ No Change; ☐ Deduct \$ _____

Change to Contract Time: _____ ☐ No Change;

The following required supporting documents are attached (Check all that apply) Items with a * are mandatory requirements for consideration.:

- ☐ *Complete Product Data
- ☐ *Itemized comparison of properties of proposed product to specified product.
- ☐ *List of other projects on which proposed has been used, with project name, design professional's name and phone number, as well as owner contact name and phone number.
- ☐ List of maintenance services and replacement materials available.
- ☐ *Statement of effect of substitution on construction schedule.
- ☐ *Description of change that will be required in other work or products if substitute product is approved.

ADDITIONAL INFORMATION:

REQUEST FOR SUBSTITUTION:

The undersigned testifies that he/she:

- Is submitting this substitution request within the limits set forth in the Contract Documents.
- Has investigated the proposed product and determined that it is equal or better than the specified product.
- Will provide the same warranty for the proposed product as for the specified product.
- Will coordinate installation and make other changes as required for the work to be complete in all respects, including: (a) redesign and (b) additional components and capacity required by other work affected by the change.
- Waives all claims for additional costs for evaluation of the substitution request, redesign if required, and reapproval by authorities having jurisdiction, if required.
- Waives reimburse the Owner for additional costs for evaluation of the substitution request, redesign if required, and reapproval by authorities having jurisdiction, if required.

Contractor's Signature: _____

Typed or Printed Name: _____

Title: _____

Company: _____

Address: _____

Phone Number: _____

Owner Approval: _____ Date: _____

Construction Manager Approval (If Applicable): _____ Date: _____

Garrison Architects Approval: _____ Date: _____

Consulting Engineer Approval: _____ Date: _____

SECTION 01310 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 00 and 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Preliminary Construction Schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Submittals Schedule.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Field condition reports.
 - 7. Special reports.

1.3 SUBMITTALS

- A. Submittals Schedule: Email the schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's and Construction Manager's final release or approval.
- B. Contractor's Construction Schedule: Email the baseline schedule. Provide updates on a bi-weekly basis at the progress meetings.
- C. Daily Construction Reports: Email daily.
- D. Material Location Reports: Email at weekly intervals.
- E. Field Condition Reports: Email at time of discovery of differing conditions via RFI with photos and location plan.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate subcontractors.

SECTION 01310 - CONSTRUCTION PROGRESS DOCUMENTATION

- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Initial Submittal: Submit prior to initial application for payment. Submit concurrently with preliminary bar-chart schedule or network diagram. Include all submittals in the schedule. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.
 - 4. Shop drawing log and schedule is to be updated and submitted at each job meeting along with job meeting report form.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Prepare baseline Gantt Chart schedule. Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion
- C. Update schedule on a bi-weekly basis (for each project meeting). Updates shall show percent complete for each activity.

2.3 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

SECTION 01310 - CONSTRUCTION PROGRESS DOCUMENTATION

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial Completions and occupancies.
19. Substantial Completions authorized.

- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation (RFI). Include a detailed description of the differing conditions, photos and location plan together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

SECTION 01310 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At bi-weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at each regularly scheduled progress meeting.
- B. Distribution: Email the approved schedule to Architect, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules 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 performance of construction activities.

END OF SECTION 01310

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1.1 GENERAL

- A. Summary: This Section specifies construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection facilities.
- B. 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. Local traffic requirement.
 - 5. Environmental protection regulations.
 - 6. New Jersey Department of Education.
 - 7. ADA requirements.
 - 8. OSHA.
 - 9. PEOSH Indoor Air Quality Standard.
 - 10. PEOSH Policy on Building Renovation.

The Contractor may be required to pay for and obtain building permits, temporary construction trailer permits, etc. as required by the local construction code office.

- C. 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."
- D. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- E. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. Submit reports and tests, inspections, meter readings, and procedures performed on temporary utilities. At the earliest time, change over from use of temporary service to use of permanent service.

1.2 PRODUCTS

- A. Materials: Provide new materials. If acceptable to the Architect, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
 - 1. Lumber and Plywood: Comply with Division 6 Section "Rough Carpentry." Provide UL-labeled, fire-treated lumber and plywood for temporary offices and sheds. Provide exterior, Grade B-B high density concrete form overlay plywood for signs. Provide 5/8" (16 mm) thick exterior plywood for other uses.

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

2. 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.
 3. Paint: Comply with requirements of Division 9 Section "Painting."
 - a. For exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.
 - b. For sign panels and applying graphics, provide exterior-grade alkyd gloss enamel over exterior primer.
 - c. For interior walls of temporary offices, provide 2 coats interior latex-flat wall paint.
 4. Tarpaulins: 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.
 5. Water: Provide potable water approved by local health authorities.
 6. Open-Mesh Fencing: Provide 0.120-inch- (3-mm-) thick, galvanized 2-inch (50-mm) chainlink fabric fencing 6 feet (2 m) high with galvanized steel pipe posts, 1-1/2 inches (38 mm) I.D. for line posts and 2-1/2 inches (64 mm) I.D. for corner posts.
- B. Equipment: Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
1. Water Hoses: Provide 3/4-inch (19-mm), heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet (30 m) long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
 2. 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.
 3. Electrical Power Cords: Grounded extension cords. Use hard-service cords where exposed to abrasion and traffic.
 4. 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.
 5. 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.
 6. 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.
 - a. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1.3 EXECUTION

- A. Installation, General: 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.
1. **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.
 2. Conditions of Use: Keep temporary facilities clean and neat in appearance,. Operate safely and efficiently. Relocated as the Work progress. 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.
- B. Temporary Utility Installation: The Contractor shall Engage the 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 or Architect. The Contractor shall pay for all temporary or permanent utilities until Substantial Completion.** If the Owner's utilities are used, the Contractor shall be responsible for metering and reimbursing the Owner for usage. Neither the Owner nor Architect will accept cost or use charges as a basis of claims for Change Orders.
 5. Temporary Water Service Install temporary water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use. If temporary water is connected to the Owner's line, the Contractor shall compensate to the Owner for water usage.
 6. 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.
 - a. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage.
 - b. Temporary Lighting: Provide temporary lighting with local switching to fulfill security requirements and illumination for construction operations and traffic conditions.
 - c. If temporary power/lighting connect to the Owner's panel, the Contractor shall compensate the Owner for the electrical usage.
 - d. Under no circumstances will the temporary electric be turned off due to labor disputes, work hours, etc.

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- C. Temporary Heat: (installed and paid of usage by the Contractor). 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. Temporary heat must be on to dry out masonry walls at least two weeks prior to painting. 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. All temporary heat must be on by November 11th. Anywhere in the building, the minimum temperature is to be 60 degrees Fahrenheit.
 - 1. Heating Facilities: **The use of the building's permanent HVAC systems is prohibited and shall not be used. The building must be 100% white glove clean and dust free prior to starting the HVAC system.** Provide vented, self-contained, LP-gas or fuel-oil heaters with individual space thermostatic control. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.
 - 2. Safety Requirements: provide a fire extinguisher for each heating unit,. Comply with all local, governmental and manufacturer's requirements for safe operation.
- D. Temporary Telephones: The Contractor shall be responsible for their own telephone service.
- E. Sanitary Facilities: (installed and paid for maintenance by the Contractor). 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. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
 - 1. Toilets: Install 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 steel or similar nonabsorbent material. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted. The construction team are not permitted to use the Owner's facilities at any time. Provide separate facilities for male and female personnel.
- F. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
 - 1. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
- F. Support Facilities Installation: Locate field offices, storage sheds, and other temporary construction and support facilities for easy access. Maintain facilities until near Substantial Completion. Remove prior to Substantial Completion.

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1. Contractor's Field Office: Provide services and conditions as required to complete construction **WITHOUT THE USE OF THE OWNER'S TELEPHONE, COPY, FAX, ETC. NO EXCEPTIONS.**
 - a. Owner's Field Office: **(NOT REQUIRED)**
 2. Provide incombustible construction for offices, shops, and sheds located within the construction area or within 30 feet (9 m) of building lines. Comply with requirements of NFPA 241.
 3. 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 within the building or elsewhere on-site.
 4. Dewatering Facilities and Drains: (by Contractor). For temporary drainage and dewatering facilities and operations, comply with dewatering requirements of applicable Division 2 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations, and construction free of water.
 5. Temporary Enclosures: (by Contractor). Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 - a. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 sq. ft. (2.3 sq. m) or less with plywood or similar materials.
 - b. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
 6. Temporary Lifts and Hoists: The Contractor shall provide facilities for hoisting their own materials.
 7. Collection and Disposal of Waste: The Contractor shall collect their own waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly.
 - a. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C).
- G. Security and protection facilities installation: (by Contractor). Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect.
1. Temporary Fire Protection: (by the Contractor). 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."

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- a. 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.
 - b. Store combustible materials in containers in fire-safe locations.
 - c. Prohibit smoking in hazardous fire-exposure areas.
 - d. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
 2. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
 3. 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.
 4. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
 5. 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.
- H. Operation: The Contractor shall be responsible to enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- I. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements. Maintain temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- J. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- K. Termination and Removal: Unless the Architect 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. 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.

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

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 of existing HV/AC equipment.
 - b) Replace significantly worn parts and parts subject to unusual operating conditions.
 - c) Replace lamps burned out or noticeably dimmed by hours of use.
3. Prior to Final Completion, restore site damages resulting from construction activities. This includes, but is not limited to: removal of temporary fencing; restoring site disturbance resulting from contractor parking, trailers, sanitary facilities, dumpsters, construction equipment, etc. Site restoration to include fine grading with approved topsoil and reseeding with approved seed.

END OF SECTION 01500

SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous construction waste.
 - 2. Recycling nonhazardous construction waste.
 - 3. Disposing of nonhazardous construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- C. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- D. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- E. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE GOALS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 50 percent by weight of total waste generated by the Work.
- B. Salvage/Recycle Goals: Owner's goal is to salvage and recycle as much nonhazardous construction waste as possible including the following materials:
 - 1. Construction Waste:
 - a. Site-clearing waste.
 - b. Masonry and CMU.
 - c. Lumber.

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- d. Wood sheet materials.
- e. Wood trim.
- f. Metals.
- g. Roofing.
- h. Insulation.
- i. Carpet.
- j. Gypsum board.
- k. Piping.
- l. Electrical conduit.
- m. Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Plastic pails.

1.5 SUBMITTALS

- A. Waste Management Plan: Submit 3 copies of plan within 30 days of date established for the Notice to Proceed.
- B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT

1.7 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.
- D. Forms: Prepare waste management plan on forms included at end of Part 3.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Architect. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with Division 1 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT

- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Division 1 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.
 - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.
- C. Salvaged Items for Owner's Use:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area on-site.
 - 5. Protect items from damage during transport and storage.
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

3.3 RECYCLING CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT

- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from the weather.
 - 5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
- B. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
 - 1. Pulverize masonry to maximum 4-inch (100-mm) size.
 - a. Crush masonry and screen to comply with requirements in Division 2 Section "Earthwork" for use as general fill.
 - 2. Clean and stack undamaged, whole masonry units on wood pallets.
- C. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- D. Metals: Separate metals by type.
 - 1. Structural Steel: Stack members according to size, type of member, and length.
 - 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- E. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- F. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
 - 1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.
- G. Carpet: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT

1. Store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- H. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- I. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.
 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees on-site.
- C. Wood Materials:
 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

SECTION 01524 - CONSTRUCTION WASTE MANAGEMENT

END OF SECTION 01524

SECTION 01600 - MATERIALS AND EQUIPMENT

1.1 GENERAL

- A. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock.
 - 1. "Named Products" are items identified by the manufacturer's product name, including make or model number or designation, shown or listed in the manufacturer's published product literature.
- B. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
- C. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.
- D. Product List: Products required are included in all sections of these specifications. Provide the manufacturer's name and proprietary product names for each item. Coordinate product list with the Contractor's Construction Schedule and Submittal Schedule.
 - 1. Form: Prepare product list with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 - 2. Within 30 days after date of commencement of the Work, submit 3 copies of the product list. Provide a written explanation for omissions of data and variations from Contract requirements.
 - 3. The Architect will respond within 2 weeks of receipt of the list. No response within this period constitutes no objection to listed manufacturers or products but does not waive the requirement that products comply with Contract Documents. The Architect's response will include a list of unacceptable products.
- E. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
 - 1. When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected.
- F. Nameplates: Except for required labels and operating data, do not attach manufacturer's nameplates or trademarks on surfaces exposed to view in occupied spaces or on the exterior.

SECTION 01600 - MATERIALS AND EQUIPMENT

1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
- G. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
1. Schedule delivery as early as possible. Coordinate with installation to assure safety for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 2. Deliver products in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 3. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 4. Store products to facilitate inspection and measurement of quantity or counting of units. Store heavy materials away from the structure in a manner that will not endanger the supporting construction.
 5. Store products subject to damage by the elements aboveground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

1.2 PRODUCTS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and 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: Procedures governing product selection include the following:

SECTION 01600 - MATERIALS AND EQUIPMENT

- a. Proprietary Specification Requirements: Where products are specified by name, accompanied by the term "or equal" or "or approved equal" comply with specified product standards and data to obtain approval for use of an unnamed product. See Specification Section 01300, "Submittals," page 01300-6 and 01300-7, Paragraph 2.1 for specific Substitution requirements.
2. Nonproprietary Specifications: When 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 submissions to obtain approval for use of an unnamed product.
3. Descriptive Specification Requirements: Where Specifications describe a product, listing characteristics required, with or without use of a brand name, provide a product that provides the characteristics and otherwise complies with requirements.
4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply and are recommended for the application. Manufacturer's recommendations may be contained in product literature or by the manufacturer's certification of performance.
5. Compliance with Standards, Codes, and Regulations: Where 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 a Sample or existing building items, the Architect's decision on whether a product matches will be final.
7. Visual Selection: Where requirements include the phrase "... as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, select a product that complies with other requirements. The Architect / Owner will select the color, pattern, and texture from the product line selected.

1.3 EXECUTION

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

END OF SECTION 01600

SECTION 01700 - CONTRACT CLOSEOUT

1.1 GENERAL

- A. Please refer to the **“PROJECT CLOSEOUT CHECKLIST”** at the end of this section for the summary of materials required to complete the contract obligation. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.
- B. Substantial Completion: The Contractor shall request the Owner, Construction Manager (if applicable) and Architect to inspect the job and perform a punch list to certify Substantial Completion. Refer to Specification Section AIA 201 General Conditions of the Contract for Construction, paragraph 9.8, for the definition of Substantial Completion. Before requesting inspection for certification of Substantial Completion, the Contractor shall complete the following:
 - 1. **“PUNCH LIST”**: Before the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list (PUNCH LIST) of items to be completed or corrected. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
 - 2. The Contractor shall perform a Quality Control / Quality Assurance QC/QA Punchlist of all work prior to requesting Substantial Completion and a punch list from the Owners Team. The Contractor’s Project Manger shall take the lead and conduct an onsite review with the Contractor’s superintendent and representation from every major sub prime contractor. Notification of this onsite walk thru shall be provided in writing to all members of the Owners Team who may or may not choose to attend. The Contractor’s Project Manager shall record and distribute this QC/QA Punchlist in a matrix that provides an additional column for the Contractor to document the completion of the work and the date. After successful completion of the Contractor’s QC/QA Punchlist and all work, the Contractor shall request the Owners Team perform a Punchlist. Substantial Completion shall be requested in accordance with paragraph 9.8.1 of Specification Section AIA 201 General Conditions of the Contract for Construction,
 - 3. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the Work claimed as substantially complete.
 - a. Include supporting documentation for completion and an accounting of changes to the Contract Sum.
 - 4. Advise the Owner of pending insurance changeover requirements.
 - 5. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 6. Submit record drawings, maintenance manuals, and, if specified elsewhere, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
 - 7. Deliver tools, spare parts, extra stock, and similar items.

SECTION 01700 - CONTRACT CLOSEOUT

8. Changeover locks and transmit keys to the Owner.
 9. Changeover temporary construction utilities to Owner including electric, water, gas, sewer, storm, fire protection, etc.
 10. Complete startup testing of systems and instruction of operation and maintenance personnel. Remove temporary facilities, mockups, construction tools, and similar elements.
 11. Complete final cleanup requirements, including touchup painting.
 12. Touch up and repair and restore marred, exposed finishes.
 13. Submit Certificate of Occupancy/Approval
 12. Remove temporary covered walkway, fence, and complete all curbs, paving, concrete walks, etc.
- C. Inspection Procedures: On receipt of a request for inspection, the Construction Manager will proceed or advise the Contractor of unfilled requirements. The Architect 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 Construction Manager (if applicable) or Architect will repeat inspection when requested and assured that the Work is substantially complete.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.
- D. Final Acceptance: Please refer to the **“FINAL PAYMENT CHECKLIST”** at the end of this section for the summary of materials required to complete the contract obligation. All **“PROJECT CLOSEOUT CHECKLIST”** items shall be completed before requesting Final Acceptance or Final Payment.
- E. Reinspection Procedure: The Construction Manager will reinspect the Work upon receipt of notice that the Work has been completed, except for items whose completion is delayed under circumstances acceptable to the Owner, Construction Manager and Architect.
1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance. If the Work is incomplete, the Architect will advise the Contractor of Work that is incomplete or obligations that have not been fulfilled but are required.
 2. If necessary, one (1) reinspection will be provided free of cost to the Contractor. If the Contractor fails to complete the work and a third or subsequent inspections are required, then the Contractor agrees to have the Liquidated Damages Daily Amount deducted from his Contract to pay for all extra inspections.
- F. Record Document Submittals: Do not use record documents for construction. Protect from loss in a secure location. Provide access to record documents for the Construction Manager's (if applicable) / Architect's reference.

SECTION 01700 - CONTRACT CLOSEOUT

- G. Record Drawings: Maintain a set of Original Signed and Sealed Prints of Contract Documents and Shop Drawings in the job trailer accessible to the Local Authority having jurisdiction, Owner, Construction Manager and/or Architect. The drawings shall be updated daily and subject to the penalty of non-payment if they are not up to date. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the drawing most capable of showing conditions fully and accurately. Give attention to concealed elements.
1. Mark sets with red pencil. Use other colors to distinguish between variations in separate categories of the Work.
 2. Organize record drawing sheets into manageable sets. Bind with durable-paper cover sheets; print titles, dates, and other identification on the cover of each set.
- H. Maintenance Manuals: Organize operation and maintenance documents into two (2) sets of manageable size. Bind in individual, heavy-duty, 2-inch (51-mm), 3-ring, binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include all the information required in the **“PROJECT CLOSEOUT CHECKLIST.” Project Closeout Checklist Documents including these Maintenance Manuals shall be delivered to the OWNER OR CONSTRUCTION MANAGER (if applicable).**
- I. Record RFIs (Request for Information): The Contractor shall maintain a complete record of all RFIs in the job trailer accessible to the Local Authority having jurisdiction, Owner, Construction Manager and/or Architect. The RFI Logbook shall be updated daily and subject to the penalty of non-payment if it is not up to date.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION

- A. Operation and Maintenance Instructions: The Contractor shall coordinate and arrange for each Installer/Manufacturer to provide instruction in proper operation and maintenance to the Owner's Staff. Refer to the applicable Specification Section for the requirements of Owner Instruction. The Owner, Construction Manager (if applicable), and Architect shall be notified of this instructional meeting 3 days in advance. The instructional meeting shall include a detailed review, but not be limited to, the following items:
1. Maintenance manuals.
 2. Spare parts, tools, and materials.
 3. Lubricants and fuels.
 4. Identification systems.
 5. Control sequences.
 6. Hazards.
 7. Warranties and bonds.
 8. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following:

SECTION 01700 - CONTRACT CLOSEOUT

1. Startup and shutdown.
 2. Emergency operations and safety procedures.
 3. Noise and vibration adjustments.
- C. Final Cleaning: Employ experienced cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Complete the following operations before requesting inspection for certification of Substantial Completion.
1. Remove labels that are not permanent labels.
 2. Clean transparent materials, including mirrors and glass. Remove glazing compounds. Replace chipped or broken glass.
 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. The Contractor shall clean vinyl composite tile, ceramic tile, terrazzo, sealed concrete, etc. "mop clean." Strip all VCT flooring and apply three coats of wax. Vacuum carpeted surfaces.
 4. Wipe surfaces of mechanical and electrical equipment to a dust free condition. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures and lamps.
 5. Clean the site of rubbish, litter, and foreign substances. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.
- D. Removal of Protection: Remove temporary protection and facilities.
- E. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials and dispose of lawfully.
- F. Contractor shall provide an as-built survey of all installed utilities, as well as existing utility features to remain that are uncovered during construction, including locations and elevations. The as-built survey shall be provided as a hard copy plan sheet and in electronic format (AutoCAD or similar file type) on a CD, flash drive or similar acceptable electronic media.

END OF SECTION 01700

PROJECT CLOSEOUT CHECKLIST

CONTRACTOR MUST COMPLETE AND SUBMIT (1) ONE SET OF AS-BUILT DOCUMENTS, TWO (2) SETS OF CLOSEOUT BINDERS AND ONE (1) TRAINING VIDEO TO THE OWNER OR CONSTRUCTION MANAGER WITH AN ELECTRONIC COPY OF THE AS-BUILT DOCUMENTS EMAILED TO THE OWNER, CONSTRUCTION MANAGER (if applicable) AND ARCHITECT

Complete,
Incomplete or
N/A

AS-BUILT DOCUMENTS - ONE SET per Building Location

* All As-Built Documents must be clearly labeled "AS-BUILT" with a date and Contractor's signature. If the Owner has contracted with a Construction Manager, the Contractor must review all As-Built notations with the C.M. prior to delivering to Owner.

1. Record "as-built" contract drawings. (1 paper copy & PDF files emailed to the Owner, Construction Manager (if applicable) and Architect. In lieu of emailing the file, the Contractor can provide a flash drive of the PDF.)
2. Record "as built" shop drawings. (1 paper copy & PDF files emailed to the Owner, Construction Manager (if applicable) and Architect. In lieu of emailing the file, the Contractor can provide a flash drive of the PDF.)

CLOSE-OUT BINDERS - TWO SETS per Building Location

* All items shall be in a 3-ring loose leaf binder, clearly labeled (minimum: building, discipline/trade & year) on Front and Side Spine. Include a helpful table of contents and index tabs. Also provide this information in a PDF File emailed to the Owner and Construction Manager (if applicable.)

1. Maintenance manuals/operating and maintenance instruction. See Specification Section 01700.
2. Warranties and bond manual. See Specification Section 01740.
 - * WARRANTY CLARIFICATION: Contractor shall separately identify any warranty that requires execution by Owner or otherwise. "Copies" of warranties should be included in the close-out "binder". "Original" warranties requiring execution should be sent under a separate cover. The separate cover should clearly identify the action required to execute the warranty.
3. List of contact persons for the Contractor and all sub-contractors. Include contract responsibility, name of company, name of person, street address, mailing address (if different), telephone and email address.
4. Copy of final inspection reports / permit closeout document.
5. Attic Stock, Special tools, spare parts, extra stock materials, etc. shall be turned over to Owner. Include a list in the closeout binder.

OWNER TRAINING VIDEO – ONE COPY per Building Location
FINAL PAYMENT CHECKLIST

Complete,
Incomplete or
N/A

*** DO NOT submit Final Payment until all items can be included.**

CONTRACTOR MUST COMPLETE AND SUBMIT (3) THREE SETS OF
COLLATED, NOTARIZED ORIGINALS & (1) ONE COMPLETE
ELECTRONIC COPY VIA EMAIL TO THE ARCHITECT WITH FINAL
PAYMENT APPLICATION:

1. An Index of Documents Included on the Contractor's Letterhead.
2. Owner Payment Voucher (if required by Owner).
3. AIA Payment Application.
4. AIA Document G706 – 1994 Contractor's Affidavit of Payment of Debts and Claims
5. AIA Document G706A – 1994 Contractor's Affidavit of Release of Liens
6. Contractor's Certification of Completion
7. AIA Document G707 – 1994 Consent of Surety to Final Payment
8. Maintenance Bond for 100% of the Project Cost for a warranty period of two (2) years from the Date of Final Acceptance.
9. The Contractor shall not use any product containing asbestos and all plumbing is lead free. The Contractor shall provide a notarized Letter stating: "No Asbestos containing materials were provided on the project and the plumbing is lead free".
10. Contractor shall furnish a letter agreeing to provide complete parts and labor service and maintenance of all HVAC systems, equipment, devices, controls, etc., for 2 years from date of substantial completion as determined by architect. The letter shall also affirm that the Contractor will provide scheduled maintenance service quarterly (3-month interval) as the maximum time period between scheduled service.
11. Certificate of Occupancy or Acceptance by the Local Construction Official.
12. Provide a Fire Alarm System NFPA Record of Inspection and Testing Certification Form.

ADDITIONAL REQUIREMENTS TO BE SATISFIED PRIOR TO
CERTIFICATION OF FINAL PAYMENT:

1. Project Closeout Documents (submit separately as indicated on the Project Closeout Checklist).

SECTION 01740 - WARRANTIES AND BONDS

1.1 GENERAL

- 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. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
 - 2. Requirements for Warranties and Bonds for products and installations that are specified are included in the individual sections of these specifications.
- C. 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. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
- D. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- E. 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.
- F. 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 the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefitted from use of the Work through a portion of its anticipated useful service life.
- G. Owner's Recourse: Expressed 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. Expressed warranty periods shall not be interpreted as limitations on the 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 selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 2. Where the Contract Documents require a special warranty, or similar commitment, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

SECTION 01740 - WARRANTIES AND BONDS

- H. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties upon request of the Architect.
 - 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 Architect within 15 days of completion of that designated portion of the Work.
- I. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
 - 1. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- J. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) 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 spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
 - 3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

1.2 PRODUCTS (Not Applicable)

1.3 EXECUTION (Not Applicable)

END OF SECTION 01740

SECTION 01770 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1. Related Documents

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

1.2 Summary

- A. This Section requires the selective removal, salvage to Owner and/or subsequent offsite disposal of the following:
 - 1. Relocation of pipes, conduits, ducts and/or other mechanical and electrical work is specified in other Divisions.
 - 2. Cutting nonstructural concrete floors and masonry walls for piping, ducts and/or conduits as required to perform the work specified in other Divisions. Refer to the respective mechanical and electrical specification sections for additional demolition requirements.

1.3 Submittals

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Section: SUBMITTALS.
- B. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
 - 1. Provide a detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 2. Coordinate with Owner's continuing occupation of portions of existing building and with Owner's partial occupancy of completed new addition.
- C. Photographs of existing conditions of structures, site equipment and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative prior to start of work.

1.4 Job Conditions

- A. Condition of Structures: Owner assumes no responsibility for actual condition of structures to be demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner insofar as practicable. However, variations within structure may occur by Owner's removal and salvage operations prior to start of demolition work.

SECTION 01770 - SELECTIVE DEMOLITION

- B. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
 - 1. Storage or sale of removed items will not be permitted on site.
- C. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.
 - 1. Erect temporary covered passageways as required by authorities having jurisdiction.
 - 2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structures to be demolished and adjacent facilities to remain.
 - 3. Protect from damage existing finish work that is to remain in place that becomes exposed during selective demolition operations.
 - 4. Protect floors with suitable coverings when necessary.
 - 5. Construct temporary insulated dust-proof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dust-proof doors and security locks.
 - 6. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
 - 7. Remove protections at completion of work.
 - 8. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.
- D. Damages: Promptly repair damages caused to adjacent facilities by selective demolition operations.
- E. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close, block or otherwise obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- F. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.

SECTION 01770 - SELECTIVE DEMOLITION

- G. Utility Services: Maintain existing utilities indicated to stay in service and protect against damage during selective demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities. **WATER SERVICE MUST REMAIN UNINTERRUPTED TO ALL PORTIONS OF THE BUILDING(S) AND SITE.**
 - 2. Maintain fire protection services during selective demolition operations.
- H. Environmental Controls: Use water sprinkling, temporary enclosures and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
 - 1. Do not use water when it may cause damage or create hazardous or objectionable conditions such as ice, flooding and pollution.
- I. Occupancy: Owner will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advanced notice to Owner of demolition activities that will affect Owner's normal operations.

PART 2 - ITEMS TO BE SALVAGED AND RETAINED AS PROPERTY OF THE OWNER

- A. Items to be relocated/reset shall be safely stored by the Contractor until relocation is possible.

PART 3 – EXECUTION

3.1 Preparation

- A. General: Provide interior and exterior shoring, bracing or support to prevent movement, settlement or collapse of areas to be demolished and adjacent facilities to remain.
 - 1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
 - 2. Cover and protect furniture, equipment and fixtures from spoilage or damage when demolition work is performed in areas where such items have not been removed.
 - 3. Erect and maintain dust-proof partition and closures as required to prevent spread of dust or fumes to occupied portions of the building.

SECTION 01770 - SELECTIVE DEMOLITION

- a. Provide weatherproof closures for exterior openings resulting from demolition work.
 - b. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 4-inch studs, 5/8-inch drywall (joints taped) on occupied side, 1/2-inch fire retardant plywood on demolition side. Fill partition cavity with sound deadening insulation.
4. Locate, identify, stub off and disconnect utility services that are not indicated to remain.
 - a. Provide bypass connections as necessary to maintain continuity of service to occupied area of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

3.2 Demolition

- A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
 1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
 3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
- B. If unanticipated mechanical, electrical or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written accurate detail. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.3 Salvaged Materials

- A. General: Salvaged Items are those so indicated on Drawings or Schedules, or as listed in this Section. Carefully remove salvaged items; clean and protect until disposition.
 1. Items to be incorporated into new work: Store until required for installation or for required modification or restoration.
 2. Other salvage items: Turn over to Owner and obtain receipt.

SECTION 01770 - SELECTIVE DEMOLITION

- B. Historic artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques and other articles of historic significance, remain property of Owner. Notify Owner's Representative if such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.
- C. Salvage items damaged during demolition shall be replaced by the Contractor with equivalent new items at no cost to the Owner.

3.4 Disposal of Demolished Materials

- A. General: Remove from building site debris, rubbish and other materials resulting from demolition operations. Transport and legally dispose off-site.
 - 1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws and ordinances concerning removal, handling and protection against exposure or environmental pollution.
 - 2. Burning of removed materials is not permitted on project site.

3.5 Cleanup and Repair

- A. General: Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.
 - 1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start of operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 01770

SECTION 07210-BUILDING INSULATION

1.1 GENERAL

- A. Submittals: Product Data for each type of insulation product specified.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated as determined by testing identical products per NFPA 285, ASTM E 84, ASTM E 119, or ASTM E 136 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1.2 PRODUCTS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
 - 1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thickness, widths and lengths.
- B. For below slab insulation: Extruded-Polystyrene Board Insulation: ASTM C 578 for type indicated below:
 - 1. Under Slab Type IV, 1.60-lb/cu. ft. (26-kg/cu. m) minimum density.
- C. For masonry cavity insulation: Board Insulation: Polyisocyanurate Foam – Board Insulation: ASTM C 1289, foil faced, Type I, Class 1 or 2. Do not tape the Board joints. Leave joints open for vapor permeability.
 - 1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- D. For all interior walls: Unfaced Mineral-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing) of type described below:
 - 1. Mineral-Fiber Type: Fibers manufactured from glass. (3 5/8" R=13, 6" R=19).
 - 2. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
- E. For all Exterior Stud Walls or Attic Spaces: Unfaced Mineral-Fiber Blanket Insulation: ASTM C 665, Type III, Class A.
 - 1. Mineral-Fiber Type: Fibers manufactured from glass. (6" R=19)
- F. For use as fire stop at openings between edge of slab and exterior wall panels: Provide a fire tested assembly where required. Slag-Wool-Fiber Board Safing Insulation: Semirigid boards designed and produced by combining slag-wool fibers with thermosetting resin binders to comply with ASTM C 612, Type IA and IB; nominal density of 4 lb/cu. ft. (64kg/cu. m); passing ASTM E 136 for combustion characteristics; thermal resistivity of 4 deg. F x h x sq. ft./Btu x in. at 75 deg F (27.7 K x m/W at 24 deg C).

SECTION 07210-BUILDING INSULATION

1. Calking Compound: Material approved by manufacturer of safing insulation for sealing joint between foil backing of safing insulation and edge of concrete floor slab against penetration of smoke.
 2. Safing Clips: Galvanized steel safing clips approved by manufacturer of safing insulation for holding safing insulation in place.
- G. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of hooding insulation, of thickness indicated, securely in position indicated with self-locking washer in place; and complying with the following requirements:
1. Plate: Perforated galvanized carbon-steel sheet, 0.030 inch (0.762 mm) thick by 2 inches (50 mm) square.
 2. Spindle: Copper-coated low carbon steel, fully annealed, 0.105 inches (2.67 mm) in diameter, length to suit depth of insulation indicated.

1.3 EXECUTION

- A. Installation, General: Comply with insulation manufacturer's written instructions applicable to products and application indicated.
1. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice and snow.
 2. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
 3. Apply single layer of insulation to produce thickness indicated.
 4. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.
 5. Seal joints between closed-cell (nonbreathing) insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant.
 6. Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:
 - a. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 - b. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 7. Install insulation in curtain-wall construction where indicated on Drawings according to curtain-wall manufacturer's written instructions.
 8. Retain insulation in place by metal clips and straps or integral pockets within window frames, spaced at intervals recommended in writing by insulation manufacturer to hold insulation securely in place without touching spandrel glass. Maintain cavity width of dimension indicated between insulation and glass.
 9. Install insulation where it contacts perimeter fire-containment system to prevent insulation from bowing under pressure from perimeter fire-containment system.

SECTION 07210-BUILDING INSULATION

10. Stuff glass-fiber, loose-fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).
 11. Attic insulation board should be a tight fit at the bottom of the rafters. Apply thermo-ply sheathing under insulation board to act as vapor barrier and insulation board support.
 12. In between bathroom walls and cavity walls where there is no gypsum wall board sheathing on the inside face, provide horizontal metal straps between studs at 48" on center to hold insulation in place.
- B. Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection board. Set in adhesive according to written instructions of insulation manufacturer.
- C. Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors.
- D. Place loose-fill insulation into spaces and onto surfaces as shown, either by pouring or by machine blowing to comply with ASTM C 1015.
- E. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics, by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

END OF SECTION

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section:
 - 1. Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 2. Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1.2 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Preconstruction field test reports.
- D. Compatibility and adhesion test reports.
- E. Product test reports.

1.4 QUALITY ASSURANCE

- A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates according to the method in ASTM C 1193 that is appropriate for the types of Project joints.

SECTION 07920 - JOINT SEALANTS

- C. Mockups: Build mockups incorporating sealant joints, as follows, to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution:
 - 1. Joints in mockups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants, which are specified by reference to this Section.
 - 2. All test samples shall be approved and accepted by the Owner, Architect, Construction Manager and Manufacturer's field inspection personnel. Coordinate work and testing schedule with Manufacturer's field inspection personnel.

1.5 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Installers five (5) year workmanship warranty from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Twenty (20) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles or approved equal.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide interior sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.

SECTION 07920 - JOINT SEALANTS

- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Suitability for Immersion in Liquids. Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- E. Single-Component **Neutral-Curing** Silicone Sealant for all exterior and interior joints application except as listed for other applications:
 - 1. Products:
 - a. Dow Corning Corporation; 790.
 - b. GE Silicones; SilPruf LM SCS2700.
 - c. Tremco; Spectrem 1 (Basic).
 - d. Or approved equal.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 100/50.
 - 4. Use Related to Exposure: NT (nontraffic).
 - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.
 - 6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.
 - 7. Paintable surface.
- F. Single-Component Neutral-Curing Silicone Sealant for structural glazing and aluminum framing:
 - 1. Products:
 - a. Dow Corning Corporation; 795.
 - b. GE Silicones; UltraGlaze SSG4000.
 - c. Polymeric Systems Inc.; PSI-631.
 - d. Schnee-Morehead, Inc.; SM5731 Poly-Glaze Plus.
 - e. Tremco; Proglaze SG.
 - f. Tremco; Tremsil 600.
 - g. Or approved equal.

SECTION 07920 - JOINT SEALANTS

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.
6. Paintable surface.

G. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant for all interior wet areas including all ceramic tiles:

1. Products:
 - a. Pecora Corporation; 898.
 - b. Tremco; Tremsil 600 White.
 - c. Or approved equal.
2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Use Related to Exposure: NT (nontraffic).
5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.

2.4 ACOUSTICAL JOINT SEALANTS – For all interior paintable gypsum / wood joints.

A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products:
 - a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
 - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
 - c. or approved equal.

B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission for concealed gypsum / wood joints.

1. Products:
 - a. Pecora Corporation; BA-98.
 - b. Tremco; Tremco Acoustical Sealant.
 - c. or approved equal.

2.5 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

SECTION 07920 - JOINT SEALANTS

- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), O (open-cell material), B (bicellular material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.
 - a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
 - 2. Remove laitance and form-release agents from concrete.

SECTION 07920 - JOINT SEALANTS

- a. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
 - 4. Complete sealant all the way of the full joint length, everywhere.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

SECTION 07920 - JOINT SEALANTS

1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- G. Installation of Preformed Silicone-Sealant System: Comply with manufacturer's written instructions.
- H. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
- I. Conditions that should be avoided when working with Silicone Building Sealant:
1. **DO NOT** "wet tool" with solvents or soaps as this can inhibit the surface of this sealant, the rest of the sealant bulk may cure normally but the surface will remain tacky and gummy indefinitely.
 2. **DO NOT** apply this sealant to a backer rod that is contaminated with solvent or primer.
 3. **DO NOT** apply this sealant to a surface that has been cleaned with a solvent or primer.
 4. **DO NOT** apply this sealant to EPOXY containing surfaces (unless they have been tested by The Americas Construction Test Lab) since they can inhibit the cure.
- J. Do not use silicone sealant for:
1. Below-grade applications.
 2. Surfaces to be immersed in water for prolonged time.
 3. Brass and copper surfaces.
 4. Materials bleeding oils, plasticizers, and solvents.
 5. Structural glazing and adhesive.
 6. Surfaces to be painted.
 7. Surfaces in direct contact with food.
 8. Medical and pharmaceutical applications.
- K. Do not apply in totally confined spaces without ventilation for curing.

END OF SECTION 07920

SECTION 08105- STEEL FRAMES

1.1 GENERAL

- A. Submit Product Data for each type of frame specified.
- B. Quality Assurance: Comply with ANSI/SDI 100.
- C. Fire-Rated Door Assemblies: NFPA 80, identical to assemblies tested per ASTM E 152, and labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1.2 PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 - 1. Amweld Building Products, Inc.
 - 2. Benchmark Commercial Doors.
 - 3. Ceco Door Products.
 - 4. Copco Door Co.
 - 5. Curries Co.
 - 6. Deansteel Manufacturing Co.
 - 7. Fenestra Corp.
 - 8. Kewanee Corp.
 - 9. Mesker Door, Inc.
 - 10. Pioneer Industries.
 - 11. Republic Builders Products.
 - 12. Steelcraft.
 - 13. Or approved equal.
- B. Cold-Rolled Steel Sheets: ASTM A 366 (ASTM A 366M), commercial quality, or ASTM A 620 (ASTM A 620M), drawing quality.
- C. Galvanized Steel Sheets: ASTM A 526 (ASTM A 526M), commercial quality, or ASTM A 642 (ASTM A 642M), drawing quality, with A 60 or G 60 (Z 180 or ZF 180) coating designation, mill phosphatized.
- D. Frames: Provide frames for doors, sidelights, borrowed lights, and other openings that comply with ANSI/SDI 100; fabricate to be rigid, neat in appearance, and free from defects, warp, or buckle.
 - 1. For interior frames provide units with mitered or coped and continuously welded corners, formed from 16 gage thick cold-rolled steel.
 - 2. For exterior frames provide units with mitered or coped and continuously welded corners, formed from 16 gage thick galvanized steel sheet.
 - 3. Door Silencers: 3 on strike jambs of single-door frames and 2 on heads of double-door frames.
 - 4. Plaster Guards: Provide where mortar might obstruct hardware operation and to close off interior of openings.
 - 5. For new frame install in existing opening. Knock down frame is allowed to secure to existing opening.

SECTION 08105- STEEL FRAMES

- E. Tolerances: Comply with SDI 117.
- F. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to SDI 107 and the hardware specification.
- G. Finishes, General: Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
 - 1. Apply primers to frames after fabrication.
- H. Galvanized Steel Sheet Finishes: Comply with SDI 112 and the following:
 - 1. Surface Preparation: Clean surfaces with nonpetroleum solvent so that surfaces are free of oil or other contaminants. After cleaning, apply a conversion coating of the type suited to the organic coating applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified to comply with ASTM A 780.
 - 2. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint with dry film containing not less than 94 percent zinc dust by weight.
 - 3. Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply air-dried primer specified below immediately after cleaning and pretreatment.
 - a. Shop Primer: Zinc-dust, zinc-oxide primer paint complying with performance requirements of FS TT-P-641, Type II.
 - 4. Field Painted Finish: Immediately after cleaning and pretreating, apply 2-coat finish consisting of prime coat and finish coat. See Section 09900, "Painting."
 - a. Color and Gloss: Match Architect's sample.
- I. Steel Sheet Finishes: Comply with SSPC-PA 1, "Paint Application Specification No. 1."
 - 1. Surface Preparation: Solvent-clean surfaces according to SSPC-SP 1. Remove mill scale and rust to comply with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).
 - 2. Pretreatment: Immediately after surface preparation, apply a conversion coating suited to organic coating applied over it.
 - 3. Factory Priming for Field-Painted Finish: Apply shop primer that complies with ANSI A224.1 acceptance criteria, is compatible with finish paint systems indicated, and has capability to provide a sound foundation for field-applied topcoats. Apply primer immediately after surface preparation and pretreatment.
 - a. Color and Gloss: Match Architect's sample.

1.3 EXECUTION

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.

SECTION 08105- STEEL FRAMES

- B. Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set.
 - 1. Except for frames located in existing concrete, masonry, or gypsum board assembly construction, place frames before constructing enclosing walls and ceilings.
 - 2. Install at least 3 anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.
 - 3. In-place gypsum board partitions, install knock-down, slip-on, drywall frames.
 - 4. Install fire-rated frames according to NFPA 80.
 - 5. Coordinate installation of all required wiring/conduit prior to frame installation.
- C. Door Installation: Fit new wood doors accurately in new hollow-metal frames, within clearances specified in ANSI/SDI 100, including new door in existing frame.
 - 1. Fire-Rated Doors: Install with clearances specified in NFPA 80.
- D. Prime Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
- E. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08105

SECTION 08211 - FLUSH WOOD DOORS

1.1 GENERAL

- A. Submittals: In addition to product data, submit the following:
 - 1. Shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for veneer matching and factory finishing and other pertinent data. For factory-machined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.
 - 2. Samples of actual materials in small sections for each face material and finish.
- B. Quality Standard: Comply with the following standard:
 - 1. NWWDA Quality Standard: I.S.1-A, "Architectural Wood Flush Doors," of the National Wood Window and Door Association.
 - 2. AWI Quality Standard: "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute.
- C. Fire-Rated Wood Doors: Provide wood doors labeled and listed by UL, Warnock Hersey, or another testing and inspection agency acceptable to authorities having jurisdiction. Provide certification for fire rating required acceptable to authorized agencies having jurisdiction for oversize fire rated doors over 4'-0" wide
- D. Warranty
 - 1. Provide manufacturer's warranty to the following term:
 - a. Interior Solid Core Doors: "Full Life of Original Installation" including rehang and refinish if door(s) do not comply with Warranty tolerance standards.

1.2 PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide doors by one of the following or approved equal:
 - 1. Marshfield Door Systems, Inc., quality as defined in this section.
 - 2. Algoma Wood Doors Inc., quality as defined in this section.
 - 3. Eggers Wood Doors Inc., quality as defined in this section.
 - 4. Mohawk Wood Doors Inc., quality as defined in this section.
 - 5. V-T Industries Inc., quality as defined in this section.
 - 6. Buell Door Company, quality as defined in this section.
 - 7. Or approved equal.
- B. Interior Solid Core Doors for Transparent Finish: As follows:
NOTE: ALL WOOD VENEER MUST APPEAR UNIFORM AND LIGHT IN APPEARANCE
 - 1. Faces: Select White Birch, plain sliced.
 - 2. Grade: "A" Select White ONLY

SECTION 08211 - FLUSH WOOD DOORS

3. Construction: 5 plies.
 4. Core: Structural composite lumber (engineered composite core)
 5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.
- C. Interior Fire-Rated Solid Core Doors: As follows:
1. Faces and Grade: Provide faces and grade to match non-fire-rated doors in same area of building, unless otherwise indicated.
 2. Edge Construction: Provide manufacturer's standard laminated-edge construction for improved screw-holding capability and split resistance.
 3. Pairs: Furnish formed-steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
 4. Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.
- D. Pairs and Sets: Provide pair matching and set matching.
- E. Fabricate flush wood doors to comply with following requirements:
1. In sizes indicated for job-site fitting.
 2. Factory fit doors to comply with clearance requirements of referenced quality standard. Comply with requirements of NFPA 80 for fire-resistance-rated doors.
 3. Factory machine doors for hardware that is not surface applied.
 - a. Metal Removable Mullions: Pre-machine locks and formed-steel edges for hardware for pairs of doors requiring removable mullions. See the Hardware Schedule.
 4. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
 - a. Light Openings: Trim openings with moldings of material and profile indicated. * To be selected from manufacturer's standard profiles and colors unless noted otherwise. At existing buildings, metal trim shall be required to match adjacent existing to remain.
 - b. Louvers: Factory install louvers in prepared openings.
 5. Provide metal flashing at top of out swinging units.
- F. Finish wood doors at factory as factory finished.
1. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.
 - a. Grade: Custom.
 - b. Finish: Manufacturer's standard finish with performance requirements comparable to either AWI System TR-2 catalyzed lacquer or AWI System TR-4 conversion varnish.

SECTION 08211 - FLUSH WOOD DOORS

- c. Staining: Match Architect's sample or existing buildings' wood doors.
- d. Effect: Filled finish.
- e. Sheen: Semigloss.

- G. Provide soundproof seal as noted in the Hardware Schedule. Adjust Hardware and frame to align properly to have the best acoustical effect.

1.3 EXECUTION

A. Examination

- 1. Verify substrate-openings conditions.
- 2. Verify that opening sizes and tolerances are acceptable and ready to receive this work.
- 3. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

B. Installation

- 1. Install fire-rated and non-rated doors in accordance with NFPA 80, manufacturers' instructions and fire rated labeling requirements.
- 2. Trim non-rated door width by cutting equally on both jamb edges.
- 3. Trim door height by cutting bottom edges to a maximum 3/4 inch (19mm).
- 4. Trim fire door height at bottom edge only, in accordance with fire rating requirements.
- 5. Pilot drill screw and bolt holes using templates provided by hardware manufacturer. (Use threaded through bolts for half surface hinges.)
- 6. Coordinate installation of doors with installation of frames and hardware.
- 7. Coordinate installation of glass and glazing.
- 8. Install door louvers and light kits plumb and level.
- 9. Reseal or refinish any doors that required site alteration.

C. Warranty Tolerances

- 1. Conform to WDMA standards and testing methods for warp, cup, bow and telegraphing.

D. Adjusting

- 1. Adjust work under provisions Division 1.
- 2. Adjust doors for smooth and balanced door movement.

E. Door and Frame Components Schedules

- 1. Refer to door and frame schedule.

END OF SECTION 08211

SECTION 08710 – FINISH HARDWARE

Part 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Door Hardware.

1.2 REFERENCES:

- A. Use date of standard in effect as of Bid date.
- B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
- C. ANSI A117.1 – Specifications for making buildings and facilities usable by physically handicapped people.
- D. ADA – Americans with Disabilities Act of 1990
- E. BHMA – Builders Hardware Manufacturers Association
- F. DHI – Door and Hardware Institute
- G. NFPA – National Fire Protection Association
 - 1. NFPA 80 – Fire Doors and Windows
 - 2. NFPA 101 – Life Safety Code
 - 3. NFPA 105 – Smoke and Draft Control Door Assemblies
 - 4. NFPA 252 – Fire Tests of Door Assemblies
- H. UL – Underwriters Laboratories
 - 1. UL10C – Fire Tests of Door Assemblies (Positive Pressure)
 - 2. UL 305 – Panic Hardware
- I. WHI – Warnock Hersey Incorporated
- J. SDI – Steel Door Institute
- K. WDI – Wood Door Institute
- L. AWI – Architectural Woodwork Institute
- M. NAAM – National Association of Architectural Metal Manufacturers

1.3 SUBMITTALS & SUBSTITUTIONS

- A. SUBMITTALS: Submit copies of the schedule per Division 1. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
 - 1. Type, style, function, size, quantity and finish of hardware items. Use BHMA Finish codes per ANSI A156.18.
 - 2. Name, part number and manufacturer of each item.
 - 3. Fastenings and other pertinent information.
 - 4. Location of hardware set coordinated with floor plans and door schedule.
 - 5. Explanation of abbreviations, symbols, and codes contained in schedule.
 - 6. Mounting locations for hardware.
 - 7. Door and frame sizes, materials and degrees of swing.

SECTION 08710 – FINISH HARDWARE

8. List of manufacturers used and their nearest representative with address and phone number.
 9. Catalog cuts.
 10. Manufacturer's technical data and installation instructions for electronic hardware.
 11. Date of jobsite visit.
- B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.
- C. Make substitution requests in accordance with Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.
1. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.
- D. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring/riser diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE:

- A. Qualifications:
1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course Work for project hardware consultation to Owner, Architect and Contractor.
 - (1) Responsible for detailing, scheduling and ordering of finish hardware.
- B. Hardware: New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer. Inspect hardware to be reused to ensure proper appearance and functionality.
- C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- D. Fire-Rated Openings: In compliance with NFPA 80. Hardware UL10C/UBC-7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, plus resilient and required intumescent seals. Furnish openings complete.
1. Note: scheduled seals may exceed selected door manufacturer's requirements. See 2.6.E for clarification.
- E. Pre-Installation Meetings: Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation. Convene at least one week prior to commencement of related work.

1.5 DELIVERY, STORAGE AND HANDLING:

SECTION 08710 -- FINISH HARDWARE

- A. Delivery: coordinate delivery to appropriate locations (shop or field).
 - 1. Permanent keys and cores: are being provided by Rowan College, POC Mr. Paul Grasso, Manager of Maintenance and New Construction. 609-868-3967; e-mail pgrasso@rcsj.edu
- B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.
- C. Storage: Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.

1.6 PROJECT CONDITIONS:

- A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.
- B. Where electronic hardware and its related components are required: It shall be the responsibility of the Electrical Contractor to provide all necessary components, conduits, electrical boxes, wire, relays, modules and power supplies as required for a complete and functioning system/component.

1.7 SEQUENCING AND COORDINATION:

- A. Coordinate with concrete.
- B. Reinforce walls.
- C. Coordinate finish floor materials and floor-mounted hardware.
- D. Conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
- E. Furnish manufacturer templates to door and frame fabricators.
- F. Use hardware consultant to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.
 - 1. Confirm that door manufacturers furnish necessary UBC-7-2 compliant seal packages.

1.8 WARRANTY:

- A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' warranties:
 - 1. Hinges: Life of Building.

SECTION 08710 – FINISH HARDWARE

2. Other Hardware: Two years.

1.9 COMMISSIONING:

- A. Test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
- B. Test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation. To be completed after, not part of the job/work, will be done by owner.
- C. Test hardware interfaced with fire/life-safety system for proper operation and release.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Listed acceptable alternate manufacturers: submit for review products with equivalent function and features of scheduled products.

<u>ITEM:</u>	<u>MANUFACTURER:</u>	<u>ACCEPTABLE SUB:</u>
Hinges	(IVE) Ives	Bommer, Stanley
Continuous Hinges	(IVE) Ives	Zero, Stanley
Key System	(MED) Medeco X4	None
Locks	(YAL) Yale	None
Overhead Stops	(GLY) Glynn-Johnson	None
Flush Bolts	(IVE) Ives	DCI, BBW
Silencers	(IVE) Ives	Rockwood, BBW
Kickplates	(IVE) Ives	Rockwood, BBW
Thresholds	(NGP) Nat'l Guard	Pemko, Reese
Seals & Bottoms	(NGP) Nat'l Guard	Pemko, Reese

- B. Provide hardware items required to complete the work in accordance with these specifications and manufacturers' instructions.
 - 1. Include items inadvertently omitted from this specification. Note these items in submittal for review.
 - 2. Where scheduled item is now obsolete, bid and furnish manufacturers updated item at no additional cost to the project.
 - 3. Where hardware items may require trim rings, cams, tailpieces, blocking rings, mounting plates, etc. it is required that all hardware be optimally installed for safety, durability, and that manufacturer's instructions are followed. In addition, all doors and frames regardless of material shall be confirmed to be able to properly accommodate door hardware installation, mounting, and operation.

2.2 HANGING MEANS:

- A. Conventional Hinges: Hinge open widths minimum, but, of sufficient throw to permit maximum door swing. Steel or stainless steel pins and concealed bearings.

SECTION 08710 – FINISH HARDWARE

1. Three hinges per leaf to 7 foot, 6 inch height. Add one for each additional 30 inches in height, or any fraction thereof.
2. Extra heavy weight hinges on doors over 3 foot, 5 inches in width.
3. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins.
4. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
5. Provide shims and shimming instructions for proper door adjustment.

B. Continuous Hinges: Ives Aluminum Geared Continuous

1. UL 10C listed (90 minutes)
2. ANSI Certified-ANSI 156.25 Grade 2
3. Supports weights up to 450 lbs. 4'0" max. dr. width
4. Material to be extruded aluminum 6063-T6
5. Lengths- 83", 85", 95", 120"- Custom Lengths available
6. Available Electric Modifications-EPT, TW, TWM, EC
7. All continuous geared hinges to be heavy duty-Amount of bearings varies by size 83", 85"-32 bearings, 95"-36 bearings, 120"-47 bearings
8. Finishes Clear (CL)

2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

A. Mortise Locksets and Latchsets:

1. Provide Yale Mortise Lockset PBSL 8800 series to match College's existing hardware. Coordinate any existing door or frame conditions.
2. Functions as listed in Hardware Sets.

2.4 OTHER HARDWARE

- A. Overhead Stops: Stainless steel (100 series). Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.
- B. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.
- C. Door Stops: Provide stops to protect walls, casework or other hardware.
 1. Unless otherwise noted in Hardware Sets, provide wall type with appropriate fasteners. Where wall type cannot be used, provide overhead type.
- D. Seals: Finished to match adjacent frame color. Resilient seal material: solid high-grade neoprene. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability. Proposed substitutions: submit for approval.

SECTION 08710 – FINISH HARDWARE

1. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
 2. Non-corroding fasteners at in-swinging exterior doors.
 3. Sound control openings: Use components tested as a system using nationally accepted standards by independent laboratories. Ensure that the door leafs have the necessary sealed-in-place STC ratings. Adhesive mounted components not acceptable. Fasten applies seals over bead of sealant.
 4. Fire-rated Doors, Resilient Seals: UL10C/UBC-7-2 compliant. Coordinate with selected door manufacturers and selected frame manufacturer's requirements. Where rigid housed resilient seals are scheduled in this section and the selected door manufacturer only requires an adhesive mounted resilient seal, furnish rigid housed seal at minimum, or both the rigid housed seal and the adhesive applied seal if necessary to fulfill door manufacturer's requirement. Adhesive applied seal alone is deemed insufficient for this project where rigid housed seals are scheduled.
 5. Fire-rated Doors, Intumescent Seals: Furnish fire-labeled opening assembly complete and in full compliance with UL10C/UBC-7-2. Furnished by selected door manufacturer, these seals vary in requirement by door type and door manufacture. Adhesive applied intumescent strips are not acceptable, use concealed-in-door-edge type or kerfed-in-frame type. Careful coordination required.
- E. Automatic door bottoms: low operating force units. Doors with automatic door bottoms plus head and jamb seals cannot require more than two pounds operating force to open when closer is disconnected.
- F. Thresholds: As scheduled and per details. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.
1. Exteriors: Set in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous ¼ inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
 2. Sound control openings: Set in bed of mastic sealant.
- G. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.
- H. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.
- I. Key Control Software: Same manufacturer as key cylinders, supply to Owner. N/A
- 2.5 FINISH:
- A. Generally BHMA 626 Satin Chromium

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1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Door closers: factory powder coated to match other hardware, (BHMA 689) unless otherwise noted.
- C. Aluminum items: match predominant adjacent material. Seals to coordinate with frame color.

2.6 KEYING REQUIREMENTS:

- A. Key System: Key to existing Medeco Keymark-X4 system
- B. All cylinders and cores to be full sized interchangeable core throughout
- C. Owner will furnish and install all final combined cylinders.
- D. Owner to be responsible for the installation of the permanent cores.
- E. All permanent masterkeys and change keys provided by Owner.

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS:

- A. Factory trained, certified, and carries a factory-issued card certifying that person as a "Certified Installer". Alternative: can demonstrate suitably equivalent competence and experience.
- B. All Electronic Hardware including Electric Exit Devices, Automatic Operators, Electric Strikes, Power Supplies, Electric Power Transfers shall be coordinated with the Electrical Sub-Contractor.

3.2 PREPARATION:

- A. Ensure that walls and frames are square and plumb before hardware installation.
- B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.
 1. Notify Architect of any code conflicts before ordering material.
 2. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.
- C. Existing frames and doors scheduled to receive new hardware: carefully remove existing hardware, tag and bag, and turn over to Owner.
 1. Patch and fill wood frames and doors with solid wood stock or dowel material before cutting for new hardware. Do not reuse existing screw holes - - fill and re-pilot.
 2. Metal doors/frames: Weld or fasten with screws: filler pieces in existing hardware cut-outs and mortises not scheduled for re-use by new hardware. Leave surfaces smooth - - no applied patches.

SECTION 08710 – FINISH HARDWARE

3.3 INSTALLATION

- A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation.
 - 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
 - 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
- B. Locate floor stops not more than 4 inches from the wall.
- C. Drill pilot holes for fasteners in wood doors and/or frames.
- D. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.4 ADJUSTING

- A. Initial Adjustment:
 - 1. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 2. Adjust door closer sweep period so that from an open position of 70 degrees door will take at least 3 seconds to move to a point 3" from latch measured to leading edge of door.
- B. Final Adjustment:
 - 1. Return to Project during week prior to Substantial Completion and make final check and adjustment of hardware items.
 - 2. Adjust hardware so doors operate in perfect order. Test and adjust hardware for quiet, smooth operation, free of sticking, binding, or rattling. Adjust closers for proper, smooth operation.
 - 3. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Six Month Adjustment:
 - 1. Approximately six months after Date of Substantial Completion, installer shall perform following:
 - a. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware.
 - b. Consult with, and instruct, Owner's personnel on recommended maintenance procedures.

SECTION 08710 – FINISH HARDWARE

- c. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation.
- D. Twelve Month Adjustment:
 - 1. Approximately six months after Date of Substantial Completion, installer shall perform following:
 - a. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware.
 - b. Consult with, and instruct, Owner's personnel on recommended maintenance procedures.
 - c. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation.

3.6 CLEANING

- A. Exposed hardware shall be carefully cleaned by methods not injurious to finish, immediately preceding occupancy. Replace defective, damaged, or missing hardware.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Clean operating items as needed to restore proper function and finish.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.8 PROTECTION

- A. Provide final protection and maintain conditions that ensure door hardware shall be without damage or deterioration at time of Substantial Completion.

Protect door hardware items from abuse, corrosion and other damage until Owner accepts Project as complete.

SECTION 08710 – FINISH HARDWARE

- 3.9 HARDWARE SCHEDULE TO FOLLOW: PLEASE NOTE THAT THE HARDWARE SCHEDULE HAS BASIS OF DESIGN MANUFACTURERS LISTED. APPROVED EQUAL MANUFACTURERS WILL BE CONSIDERED IN ACCORDANCE WITH SPECIFICATION SECTION 01300 – SUBMITTALS.

HARDWARE GROUP NO. 01

DOORS:

204A	204B	204C	204D	204E	204F
204G	204H	212A	212B	212C	

Each To Have:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	ENTRY LOCK	PBSL X 8807 X LC .	626	YAL
1	EA	LFIC MORT CYL	KEYMARK X4 CORE	626	MED
		HOUSING			
		W/BLOCKING RING			
		ADD			
1	EA	WALL STOP	WS407CCV	630	IVE
3	EA	SILENCER	SR64	GRY	IVE
1	EA	DUMMY TRIM-W/STK	PBSL X 8871	626	YAL
		COORDINATE STRIKE ALIGNMENT			
		WITH ACTIVE LOCKSET.			
1	EA	OH STOP & HOLDER	100H	630	GLY
		- RHR DOOR			
1	EA	WALL STOP	WS407CCV	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

1.1 GENERAL

- A. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- B. Fire Resistance: Where fire resistance rated gypsum board assemblies are indicated, provide gypsum board assemblies that are identical to assemblies tested for fire resistant according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

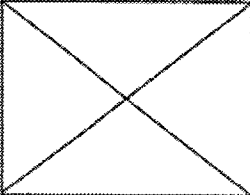
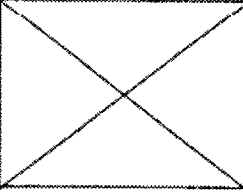
1.2 PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 - 1. Steel Framing and Furring:
 - a. Clark Steel Framing, Inc.
 - b. Consolidated Systems, Inc.
 - c. Dale Industries, Inc.
 - d. Dietrich Industries, Inc.
 - e. Marino/Ware (formerly Marino Industries Corp.).
 - f. National Gypsum Co.; Gold Bond Building Products Division.
 - g. Unimast, Inc.
 - h. Or approved equal.
 - 2. Grid Suspension Assemblies:
 - a. Armstrong World Industries, Inc.
 - b. Chicago Metallic Corp.
 - c. USG Interiors, Inc.
 - d. Worthington Steel Company (formerly National Rolling Mills).
 - e. Or approved equal.
 - 3. Gypsum Board and Related Products:
 - a. GP Gypsum, LLC
 - b. National Gypsum Co.; Gold Bond Building Products Division (NG).
 - c. United States Gypsum Co. (USG).
 - d. Or approval equal.
- B. Steel Framing Components for Suspended and Furred Ceilings: Provide components complying with ASTM C 754 for conditions indicated.
 - 1. Powder-Actuated Fasteners in Concrete: Corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190.
 - 2. Wire Ties: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.062 inch (1.6 mm) thick.

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

3. Wire Hangers: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.162-inch (4.1-mm) diameter.
 4. Hanger Rods: Mild steel and zinc coated or protected with rust-inhibitive paint.
 5. Flat Hangers: Mild steel and zinc coated or protected with rust-inhibitive paint.
 6. Channels: Cold-rolled steel, 16 ga minimum thickness of base metal and 7/16-inch- (11.1-mm-) wide flanges, and as follows:
 - a. Carrying Channels: 2 inches (50.8 mm) deep, 590 lb/1000 feet (88 kg/100 m), unless otherwise indicated.
 - b. Finish: ASTM A 653, G 60 (ASTM A 653M, Z 180) hot-dip galvanized coating for framing for exterior soffits and where indicated.
- C. Steel Studs for Furring Channels: ASTM C 645, in depth indicated and with 0.0179 inch (0.45 mm) minimum base metal thickness, unless otherwise indicated.
1. Protective Coating: ASTM A 653, G 40 (ASTM A 653M, Z 90) hot-dip galvanized coating for framing for exterior soffits and ceiling suspension members in areas within 10 feet (3 m) of exterior walls.
- D. Steel Resilient Furring Channels: Standard product fabricated from steel sheet complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M) to form 1/2-inch- (12.7-mm-) deep channel of the following configuration unless otherwise indicated:
1. Double-Leg Configuration: Hat-shaped channel with 1-1/2-inch- (38.1-mm-) wide face connected to flanges by double-slotted or expanded-metal legs (webs).
- E. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung system.
- F. Steel Framing for Walls and Partitions: Provide a minimum of 20 gauge interior non-bearing steel framing members complying with the following requirements: (for all bearing walls refer to structural drawings)
1. Protective Coating: ASTM A 653, G 40 (ASTM A 653M, Z 90) hot-dip galvanized coating for framing members attached to and within 10 feet (3 m) of exterior walls.
 2. Steel Studs and Runners: ASTM C 645 in depth indicated 20 gauge minimum base metal thickness, unless otherwise indicated.

INTERIOR NON-BEARING GYPSUM STUD PARTITION HEIGHT LIMITATION & GAUGE TABLE

INTERIOR NON-BEARING GYPSUM STUD PARTITION			
1 $\frac{5}{8}$ " STUD 16" O.C.	2 $\frac{1}{2}$ " STUD 16" O.C.	3 $\frac{5}{8}$ " STUD 16" O.C.	6" STUD 16" O.C.
	18 GA. UP TO 12'-6"	18 GA. UP TO 16'-6"	16 GA. UP TO 22'-0"
20 GA. UP TO 8'-10"	20 GA. UP TO 11'-6"	20 GA. UP TO 15'-0"	
SEE STRUCTURAL DRAWINGS FOR OTHER FRAMING GAUGE & SIZE			

- G. Steel Rigid Furring Channels: ASTM C 645, hat shaped, in depth indicated and with 20 gauge, minimum base metal thickness unless otherwise indicated.
- H. Fasteners for Metal Framing: Type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.
- I. Gypsum Board Products: Types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.
 - 1. Gypsum Wallboard: ASTM C 1396, C 1178, C 1658, in thickness indicated.
 - a. Type: Regular for vertical surfaces. (ToughRock® Mold-Guard™ by GP Gypsum or approved equal), unless otherwise indicated.
 - b. Type: Foil backed where indicated.
 - c. Type: Type X where required for fire-resistance-rated assemblies.
 - d. Type: For ceiling surfaces (ToughRock® Mold-Guard™ by GP Gypsum or approved equal), unless otherwise indicated.

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

- e. Type: Moisture and mold resistant gypsum panel for wet locations without tile surfaces (ToughRock® Mold-Guard™, DensArmor Plus® interior panel by GP Gypsum, Gold Bond Brand XP Gypsum Board by NG, Fiberock Aqua-Tough Interior panel by USG, or approved equal).
 - f. Type: Water and mold resistant with tile surfaces. (DensShield® Tile Backer by GP Gypsum or approved equal)
 - g. Type: Proprietary type as required for specific fire-resistance-rated assemblies.
 - h. Type: Impact/Abuse Resistant. (Gold Bond High Impact XP by NG or approved equal)
 - i. Type: Sound Resistant. (Gold Bond Soundbreak XP by NG or approved equal)
- 2. Proprietary Gypsum Board Products: Subject to compliance with requirements, provide one of the following products or approved equal where proprietary gypsum wall board is indicated:
 - a. ToughRock® Fireguard® C, DensArmor Plus® Type C, by GP Gypsum or approved equal
 - b. Fire Shield G; National Gypsum Company; Gold Bond Building Products Division.
 - c. SHEETROCK Brand Gypsum Panels, FIRECODE C Core; United States Gypsum Company.
 - d. SHEETROCK Brand Gypsum Panels, ULTRACODE Core; United States Gypsum Company.
 - e. Or approved equal.
- J. Gypsum Board Base Layer(s) for Multilayer Applications: ASTM C 1396 in thickness indicated:
 - 1. Type: Type X where indicated or required for fire-resistance-rated assemblies.
 - 2. Type: Sag-resistant type for ceiling surfaces, unless otherwise indicated.
- K. Accessories for Interior Installations: Cornerbead, edge trim, and control joints complying with ASTM C 1047, formed metal or plastic, with metal complying with the following requirement:
 - 1. Steel sheet zinc added space coated by hot dip proceed or rolled zinc.
- L. Joint Treatment Materials: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
 - 1. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.
 - a. Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

2. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
 - a. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer.
 - b. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer.
 - c. For topping compound, use sandable formulation.
3. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
 - a. Ready-Mixed Formulation: Factory-mixed product.
 1. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 2. All-purpose compound formulated for both taping and topping compounds.
- M. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that is effective in reducing the airborne transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- N. Miscellaneous Materials: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
 1. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum panels.
 2. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot-grouting hollow metal door frames.
 3. Fastening Adhesive for Metal: Special adhesive recommended for laminating gypsum panels to steel framing.
 4. Steel drill screws complying with ASTM C 1002 for the following applications:
 - a. Fastening gypsum board to steel members less than 0.033 inch (0.84 mm) thick.
 - b. Fastening gypsum board to gypsum board.
 5. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
 6. Foam Gaskets: Closed-cell vinyl foam adhesive-backed strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit metal stud size indicated.
 7. Sound-Attenuation Blankets: Unfaced mineral-fiber blanket insulation to comply with ASTM C 665 for Type I.
 8. Polyethylene Vapor Retarder: ASTM D 4397, thickness and maximum permeance rating as follows:
 - a. 6 mils (0.15 mm), 0.13 perms (7.5 ng/Pa x s x sq. m).

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

9. Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

1.3 EXECUTION

- A. Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
 1. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
 2. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement.
 - a. Where building structure abuts ceiling perimeter or penetrates ceiling.
 - b. Where partition framing and wall furring abut structure, except at floor.
 3. Do not bridge building control and expansion joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.
- B. Installing Steel Framing for Suspended and Furred Ceilings: as follows:
 1. Sway-brace suspended steel framing with hangers used for support.
 2. Install suspended steel framing components in sizes and at spacings indicated, but not less than that required by the referenced steel framing installation standard.
 3. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- C. Installing Steel Framing for Walls and Partitions: Install steel studs and furring at spacings indicated.
 1. Where studs are installed directly against exterior walls, install asphalt felt strips or foam gaskets between studs and wall.
 2. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 3. Cut studs 1 inch short of full height to provide perimeter relief.
 4. For STC-rated and fire-resistance-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.
 5. Frame door openings to comply with GA-219, and with applicable published recommendations of gypsum board manufacturer, unless otherwise indicated.
 6. Frame openings other than door openings to comply with details indicated or, if none indicated, as required for door openings. Install framing below sills of openings to match framing required above door heads.

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

7. Install polyethylene vapor retarder where indicated to comply with the following requirements:
 - a. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with mechanical fasteners or adhesives. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose mineral-fiber insulation.
 - b. Seal vertical joints in vapor retarders over framing by lapping not less than 2 wall studs. Fasten vapor retarders to framing at top, end, and bottom edges, at perimeter of wall openings, and at lap joints; space fasteners 16 inches (400 mm) o.c.
 - c. Seal joints in vapor retarders caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor retarder tape.
 - d. Repair any tears or punctures in vapor retarder immediately before concealing it with the installation of gypsum board or other construction.
- D. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
 1. Install sound-attenuation blankets, where indicated, prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
 2. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
 3. Spot grout hollow metal door frames for solid-core wood doors, hollow metal doors, and doors over 32 inches (813 mm) wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.
 4. Form control and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
 5. Isolate perimeter of nonload-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
 6. Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
 7. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.
 - a. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications or as required by fire resistive design.
 8. Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.
 9. Install water-resistant gypsum backing board panels at sink and where indicated. Install with 1/4-inch (6.4-mm) open space where panels abut other construction or penetrations.

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10. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
 - a. Fasten with screws.
11. Multilayer Fastening Methods: Apply base layers of gypsum panels and face layer to base layers as follows:
 - a. Fasten both base layers and face layers separately to supports with screws.
- E. Installing Trim Accessories: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
 1. Install cornerbead at external corners.
 2. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
 - a. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
 - b. Install L-bead where edge trim can only be installed after gypsum panels are installed.
 - c. Install U-bead where indicated.
 - d. Install control joints according to ASTM C 840 and manufacturer's recommendations and in specific locations approved by Architect for visual effect.
- F. Finishing Gypsum Board Assemblies: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
 1. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
 2. Apply joint tape over gypsum board joints, except those with trim accessories having flanges not requiring tape.
 3. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214-15.
 - a. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
 - b. Level 4 for gypsum board surfaces, for all exposed areas unless otherwise indicated.

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4. Where Level 5 gypsum board finish is indicated, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories; and apply a thin, uniform skim coat of joint compound over entire surface. For skim coat, use joint compound specified for third coat, or a product specially formulated for this purpose and acceptable to gypsum board manufacturer. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects, tool marks, and ridges and ready for decoration.
5. For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.
6. Finish water-resistant gypsum backing board to comply with ASTM C 840 and gypsum board manufacturer's directions.

END OF SECTION 09255

SECTION 09653 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 GENERAL

- A. Submittals: As follows:
1. Product Data: For each type of product specified.
 2. Samples: In manufacturer's standard sizes of each product color and pattern specified.
- B. Extra Materials: Furnish not less than 10 linear feet (3 linear m) for each 500 linear feet (150 linear m) or fraction thereof, of each different type, color, pattern, and size of resilient product installed. Deliver extra materials to Owner.

PART 2 PRODUCTS

- A. Manufacturers
1. Basis-of-Design: Roppe Corporation, 1602 N Union St., Fostoria, OH 44830. P: (800) 537 – 9527
 2. Johnsonite
 3. or Approved Equal
- B. Rubber Cove Wall Base : Pinnacle – Rubber, Vulcanized Thermoset, Standard Toe, 6” high x 1/8” thick, Style B, Cove, Color shall be the manufacturer’s standard choices.
- C. Vented Cove Base: Products complying with ASTM F-1861, Type II, Style B-Coved, 4” high with a 3” toe by 1/8” thick. Color selected from manufacturer's standard package.
- D. Rubber Stair Treads: Provide low profile raised circular treads with rubber non-slip insert of a contrasting color strip to aid the visually impaired.
- E. Rubber Risers: Products of same manufacturer as stair treads and complying with requirements specified in the Resilient Wall Base and Accessory Schedule.
- F. Rubber Accessories: Products complying with requirements specified in the Resilient Wall Base and Accessory Schedule.
- G. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by resilient product manufacturer for applications indicated.
- H. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

SECTION 09653 - RESILIENT WALL BASE AND ACCESSORIES

PAT 3 EXECUTION

- A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements, including those for maximum moisture content. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Preparation: Comply with manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.
- C. Installation: Install resilient products according to manufacturer's written installation instructions.
 - 1. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
 - a. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
 - b. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
 - c. Do not stretch base during installation.
 - d. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
 - e. Form corners on job, from straight pieces of maximum lengths possible, without whitening at bends.
 - 2. Place resilient products so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.
 - 3. Apply resilient products to stairs as indicated.
- D. Clean and protect resilient products according to manufacturer's written recommendations. Clean resilient products after installation and not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project.

END OF SECTION 09653

SECTION 09900 – PAINTING

1.1 GENERAL

- A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
 - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. Block fill prime paint all CMU walls full height to the roof deck above ceiling and behind all built in casework, lockers, etc. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Submittals: For each paint system specified, provide the following:
 - 1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
- E. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish-coat material indicated. After color selection, the Architect will furnish color chips for surfaces to be coated.
- F. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
 - 1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 - 2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.
 - 3. Submit Samples on the following substrates for the Architect's review of color and texture only:
 - a. Concrete: Provide two 4-inch- (100-mm-) square samples for each color and finish.
 - b. Concrete Masonry: Provide two 4-by-8-inch (100-by-200-mm) samples of masonry for each finish and color.

SECTION 09900 – PAINTING

- c. Stained or Natural Wood: Provide two 4-by-8-inch (100-by-200-mm) samples of natural- or stained-wood finish on actual wood surfaces.
 - d. Ferrous Metal: Provide two 4-inch- (100-mm-) square samples of flat metal and two 8-inch- (200-mm-) long samples of solid metal for each color and finish.
- G. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.
- H. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.
 - 1. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted. After permanent lighting and other environmental services have been activated, apply coatings in this room or to each surface as specified.
 - a. After finishes are accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature.
- I. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.
- J. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers in clean condition, free of foreign materials and residue. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.
- K. Project Conditions: Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- L. Additional Material: Provide one gallon for each 200 gallons paint used in each color and type (minimum one gallon) to Owner.

1.2 PRODUCTS

- A. Material Compatibility: Provide block fillers, primers, undercoats, 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.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers.

SECTION 09900 – PAINTING

- C. Colors: Match colors indicated by reference to manufacturer's color designations.

1.3 EXECUTION

- A. Examine substrates, areas, and conditions under which painting will be performed for compliance with paint application requirements. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates.
- C. Preparation: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- D. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- E. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.
 - 1. Cementitious Materials: Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - a. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.
 - 2. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
 - c. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.

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3. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
 - a. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
 4. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- F. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 2. Use only thinners approved by paint manufacturer and only within recommended limits.
- G. Application: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors and finishes shall be selected during construction. Contractor shall allow for use of up to (4) four different wall colors and (2) two different trim colors throughout the building interior, including use of accent walls and use of different colors within the same room/space. Contractor shall allow for use of (2) two different exterior paint colors. Additionally, the contractor may have to color match and paint items to match immediately adjacent pre-finished items and existing items as necessary throughout construction.
 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.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in items are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 7. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 8. Sand lightly between each succeeding enamel or varnish coat.
- H. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a

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- smooth, even surface according to manufacturer's written instructions, sand between applications.
2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 3. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- I. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
- J. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- K. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- L. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- M. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- N. Field Quality Control: The Owner reserves the right to engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
1. The testing agency will perform appropriate tests as required by the Owner.
 2. If tests show material being used does not comply with specified requirements, the Contractor shall remove noncomplying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the 2 coatings are incompatible.
- O. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.
- P. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by

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Architect.

- Q. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

- R. Paint Schedules: Provide the following paint systems for the various substrates indicated by Sherwin Williams (SW), PPG Paints or approved equal products:

S. **Exterior Paint Systems:**

1. Ferrous Metal:

- a. Full gloss enamel finish - rust inhibitive primer with acrylic finish
- | | | |
|-----------|------|---|
| Primer: | SW: | ProIndustrial Pro-Cryl Primer |
| | PPG: | Paints MultiPrime Low VOC Universal Primer 4360 |
| 1st Coat: | SW: | DTM Acrylic Finish, semi-gloss |
| | PPG: | Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216 |
| 2nd Coat: | SW: | DTM Acrylic Finish, semi-gloss |
| | PPG: | Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216 |

2. Non-Ferrous Metal:

- a. Full gloss enamel finish - galvanized metal primer with acrylic finish (Lintels, Railings, Bollards, etc.)
- | | | |
|-----------|------|---|
| Primer: | SW: | ProIndustrial Pro-Cryl Primer |
| | PPG: | Paints Pitt Tech Plus DTM Acrylic Primer 4020 |
| 1st Coat: | SW: | DTM Acrylic Finish, semi-gloss |
| | PPG: | Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216 |
| 2nd Coat: | SW: | DTM Acrylic Finish, semi-gloss |
| | PPG: | Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216 |

T. **Interior Paint Systems:**

1. Concrete, Masonry (not including CMU):

- a. Acrylic epoxy
- | | | |
|-----------|------|--|
| Primer: | SW: | Loxon Concrete Masonry Primer |
| | PPG: | Paints Speedhide zero Interior Latex Primer 6-4900XI |
| 2nd Coat: | SW: | ProIndustrial Pre-Catalyzed Epoxy |
| | PPG: | Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-xxx |
| 3rd Coat: | SW: | ProIndustrial Pre-Catalyzed Epoxy |
| | PPG: | Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-xxx |

2. Concrete Masonry Units (CMU): Typical Walls (Block fill prime paint all CMU walls full height and behind all built in casework, lockers, etc.)

SECTION 09900 – PAINTING

- a. Acrylic epoxy – eggshell finish
 - Filler: SW: Loxon Block Surfacers
 - PPG: Paints Speedhide Latex Block Filler 6-15XI
 - 2nd coat: SW: ProIndustrial Pre-Catalyzed Epoxy, eggshell
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-310
 - 3rd Coat: SW: ProIndustrial Pre-Catalyzed Epoxy, eggshell
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-310
 - b. Acrylic epoxy – semi-gloss finish (Kitchen areas)
 - Filler: SW: Loxon Block Surfacers
 - PPG: Paints Speedhide Latex Block Filler 6-15XI
 - 2nd coat: SW: ProIndustrial Pre-Catalyzed Epoxy, semi-gloss
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-510
 - 3rd Coat: SW: ProIndustrial Pre-Catalyzed Epoxy, semi-gloss
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-510
3. Drywall and Plaster:
- a. Acrylic latex
 - Primer: SW: ProMar 200 zero VOC Primer
 - PPG: Paints Speedhide zero Interior Latex Primer 6-4900XI
 - 2nd Coat: SW: ProIndustrial Pre-Catalyzed Epoxy
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-xxx
 - 3rd Coat: SW: ProIndustrial Pre-Catalyzed Epoxy
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-xxx
4. Wood:
- a. Acrylic epoxy
 - Primer: SW: Multi-Purpose Primer
 - PPG: Paints Seal Grip Interior Primer/Finish 17-951
 - 2nd Coat: SW: ProIndustrial Pre-Catalyzed Epoxy
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-xxx
 - 3rd Coat: SW: ProIndustrial Pre-Catalyzed Epoxy
 - PPG: Paints Pitt Glaze WB1 Pre-Catalyzed Epoxy 16-xxx
 - b. Transparent Stain with urethane finish
 - 1st coat: SW: Minwax 250 Stain
 - PPG: Deft Interior Low VOC Oil Stain DFT400
 - 2nd Coat: SW: Wood Classic Water Based Urethane
 - PPG: Deft Waterbased Polyurethane DFT 15x
 - 3rd Coat: SW: Wood Classic Water Based Urethane
 - PPG: Deft Waterbased Polyurethane DFT 15x
5. Ferrous Metal:
- a. Gloss Finish - rust inhibitive primer with acrylic finish
 - Primer: SW: ProIndustrial Pro-Cryl Primer
 - PPG: Paints Pitt Tech Plus DTM Acrylic Primer 4020

SECTION 09900 – PAINTING

- 1st Coat: SW: DTM Acrylic Finish, semi-gloss
PPG: Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216
- 2nd Coat: SW: DTM Acrylic Finish, semi-gloss
PPG: Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216
6. Non-Ferrous Metal (New Galvanized and Aluminum):
- Primer: SW: ProIndustrial Pro-Cryl Primer
PPG: Paints Pitt Tech Plus DTM Acrylic Primer 4020
- 1st Coat: SW: DTM Acrylic Finish, semi-gloss
PPG: Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216
- 2nd Coat: SW: DTM Acrylic Finish, semi-gloss
PPG: Paints Pitt Tech Plus DTM Acrylic Semi-Gloss 4216
7. Concrete Floors – light traffic (janitor closets and utility spaces)
- Primer: SW: ArmorSeal Tread Plex Primer
PPG: Paints Breakthrough Satin Acrylic V51 Series
- 2nd coat: SW: ArmorSeal Tread Plex Finish
PPG: Paints Breakthrough Satin Acrylic V51 Series
8. Concrete Floors – High Traffic Epoxy
- Primer: SW: ArmorSeal 8100 Urethane Epoxy @ 3.0-5.0 mils dft
PPG: Paints High Gloss Epoxy 95-501 @ 3.0-5.0 mils dft
- 2nd coat: SW: ArmorSeal 8100 Urethane Epoxy @ 3.0-5.0 mils dft
PPG: Paints High Gloss Epoxy 95-501 @ 3.0-5.0 mils dft
9. Concrete Floors – Heavy Duty Vehicular Traffic Epoxy (Garages/Apparatus Bays)
- Primer: SW: ArmorSeal 33 Epoxy Primer @ 8.0 mils dft
PPG: TBD
- 2nd coat: SW: ArmorSeal 1000 HS 2-Part Polyamide Epoxy @ 3.0-5.0 mils dft
PPG: TBD
- 3rd coat: SW: ArmorSeal 1000 HS 2-Part Polyamide Epoxy @ 3.0-5.0 mils dft
PPG: TBD
- Additive: Include manufacturer recommended anti-slip additive. Provide samples for selection by Owner, (3) minimum, fine, medium-fine and medium.
10. Exposed Ceiling Deck – dryfall coating
- Primer – Ferrous Metal:
- SW: ProIndustrial Pro-Cryl Primer
PPG: Paints MultiPrime Low VOC Universal Primer 4360
- Primer – Non-Ferrous Metal:
- SW: ProIndustrial Pro-Cryl Primer
PPG: Paints Pitt Tech Plus DTM Acrylic Primer 4020
- Finish 1-2 coats:
- SW: Waterborne Acrylic Dryfall
PPG: Paints Speedhide Super Tech Flat Dryfall 6-725XI

END OF SECTION 09900

SECTION 15010 - GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SCOPE

1. The General, Supplementary, and Special Conditions, applicable portions of all divisions and the addenda thereto, are made a part of this Contract.
2. All work described in these specifications shall be the responsibility of the mechanical contractor unless otherwise indicated.
3. It is the intent of these specifications to include all material, service and labor necessary to form a complete and properly operating whole.
4. Where equipment is shown on plans for all schools and specified as a single unit in specifications, the equipment quantities shall be per plans and to provide a complete operating system.
5. Where reports and/or requirements are specified herein as a single report, it is the intent that each requirement and/or report be separate for each school, i.e. commissioning report, operation instructions, etc.
6. Specifications for certain equipment or performance may not be applicable for each area. Refer to the plans for where equipment and/or performance is required.

1.02 CONTRACT DRAWINGS

1. Examine all drawings and specifications and visit the site to become acquainted with the construction and the extent of the work.
2. In referring to drawings, figured dimensions take precedence over scale measurements. Discrepancies must be referred to the Engineer for decision. Each Contractor shall certify and verify all dimensions before ordering material or commencing work.
3. Any work called for in the specifications, but not mentioned or shown on the drawings, or called for on the drawings, but not mentioned in the specifications, shall be furnished as though called for in both. When there is a discrepancy between drawings and specifications, the most considerable shall apply.
4. When any device or part of equipment is herein referred to into singular number, such as "the pump" such reference shall be deemed to apply to as many such devices as required to complete the installation.
5. The term "provide" shall mean "furnish and install". Neither term will be used generally in these specifications but will be assumed. The term "furnish" shall mean to obtain and deliver on the job for installation by other trades.

1.03 CODES AND STANDARDS

1. All work shall comply with all regulations and latest edition of applicable codes and be subject to inspection and approval of authorities having jurisdiction.

SECTION 15010 - GENERAL REQUIREMENTS

2. All electrical work shall comply with latest edition of the NEC National Electrical Code.
3. Where items indicated on contract documents differ from code requirements, contractor shall inform engineer prior to installation. Any construction installed by contractor that is not in compliance with applicable codes, shall be removed, modified, and/or replaced at not additional cost.
4. All equipment shall be labeled by an applicable approved agency.
5. Contractor shall give all notices, obtain and pay for all permits, deposits, and fees necessary.
6. Manufacturer's published data is made a part of these specifications.
7. Wherever a recognized national organization has published standards these shall be complied with (such as ASA Z 21.30 for gas piping).

1.04 SCOPE OF WORK

1. It is the intent of these specifications to include all material, service and labor necessary to form a complete and properly operating whole system.

1.05 PROGRESS

1. See "General Conditions".

1.06 SHOP DRAWINGS AND SUBMITTALS

1. See "General Conditions".
2. Ductwork and piping shop drawings shall be prepared using Auto Cad 2000 or latest edition of Auto Cad @ 1/4" scale (minimum).

1.07 REJECTED MATERIALS

1. See "General Conditions".

1.08 WORKMANSHIP

1. See "General Conditions".

1.09 WARRANTY

1. See "General Conditions".
2. At the expiration of the Factory Warranty period, provide a Factory Warranty agreement, to include full coverage, parts and labor, plus emergency service for the new packaged rooftop air conditioning units, specified under Section 15652, for an additional three (3) year period for a total of five (5) years of Factory Warranty.

SECTION 15010 - GENERAL REQUIREMENTS

1.10 MAINTENANCE SERVICE

1. Contractor shall furnish complete parts and labor service and maintenance of all HVAC systems, equipment, devices, controls, etc., for two (2) years from Date of Substantial Completion as determined by Owner.
2. Provide maintenance service with three (3) month interval as maximum time period between calls or as indicated elsewhere.
3. Provide 24-hour emergency service on breakdowns and malfunctions.
4. Include maintenance items as outlined in manufacturer's operating and maintenance data.
5. Submit copy of service call work order or report and include description of work performed.
6. See Section 15930 for additional requirements for control system.

1.11 AS-BUILT DRAWINGS

1. See "General Conditions".

1.12 FIRE RATING

1. All materials used anywhere in the work must have N.F.P.A. rating and be in accordance with ASTM-E-84 as follows:
 - A. Flame Spread - Not Over 25
 - B. Smoke Developed - Not Over 50
 - C. Fuel Contributed - Not Over 25
2. All materials shall be "Self Extinguishing".

PART 2 PRODUCTS

2.01 ELECTRICAL EQUIPMENT

1. This Contractor shall furnish all his equipment complete with motor, controllers, capacitors and starting equipment.
2. Where apparatus is specified as "Packaged", all electrical equipment shall be furnished, set and wired to a single point of connection for apparatus as a unit.
3. This Contractor shall set all electrical equipment furnished by him unless same is to be mounted on an electrical panelboard, junction box or similar piece of electrical equipment and is to be wired by others.
4. Where electrical characteristics are not shown, all electrical characteristics shall be as indicated on electrical plans. Where there is a conflict between Model Numbers which indicate electrical characteristics and electrical drawings, the electrical drawings shall take precedent.

SECTION 15010 - GENERAL REQUIREMENTS

5. This Contractor shall verify all electrical characteristics of all equipment with the Electrical Contractor. This Contractor shall submit to Electrical Contractor location of all motors, starters, all other electrical equipment, voltage and phase required prior to submission of this Contractor's and/or Electrical Contractor's shop drawings or start of construction. This Contractor shall submit to the electrical contractor all equipment requiring electrical services and obtain the review of the shop drawings for correct electrical characteristics for the electrical contractor prior to submission for review.
6. Should this Contractor change type of equipment which results in change to electrical characteristics, then this Contractor will be responsible to coordinate these changes with all other trades and pay for all costs required as a result of changes.
7. Should this Contractor change electrical characteristics of equipment from that shown on electrical drawings or does not submit shop drawings to the electrical contractor for his review, he is responsible for all cost required, resulting from such change or failure to submit shop drawings.
8. Existing controllers, starting equipment and all existing equipment being used shall be modified and/or replaced where required to provide new DDC controls.

2.02 ELECTRICAL WIRING

1. This Contractor shall furnish and install all electric power wiring required for his contract, with the exception of certain wiring shown under Electrical Contract. This contractor shall furnish and install all control wiring required for his contract including power wiring to all ATC devices, panels, etc.

PART 3 EXECUTION

3.01 METHOD OF PROCEDURE

1. The drawings accompanying these specifications are diagrammatic and intended to cover the approximate and relative locations of the systems. Where FMCS plenum rated cable wiring is allowed it shall be run parallel to or at right angles to the structure, properly supported and installed in a neat and workmanlike manner.
2. Installation, connection and interconnection of all components of these systems shall be complete and made in accordance with the manufacturers instructions and best trade practices. This Contractor shall erect all parts of equipment to be furnished by him under his contract in such time and in such a manner as not to delay or interfere with other Contractors work.
3. This Contractor shall lay out his work and be responsible for the establishment of heights, grades, etc., for all interior and exterior piping, equipment, conduit, duct work etc., included in Contract Documents, in strict accordance with the intent expressed thereby. The establishment of the location of all work shall be performed in consideration of the finished work. In case of conflict, equipment and/or materials shall be relocated without additional cost to the Owner, as directed by the Architect, regardless of which equipment was installed first.
4. Each contractor shall cooperate with other Contractors for the proper securing and anchoring of all work included within these specifications. Extraordinary care shall be used in the erection and installation of all equipment and materials to avoid marring surfaces of the work of other Contractors, as each Contractor will be held financially responsible for all such damage caused

SECTION 15010 - GENERAL REQUIREMENTS

by the lack of precaution and due to negligence on the part of his workmen.

5. Do not run pipe or conduit for Mechanical Systems in any concrete slab three inches (3") or less in thickness. Do not place any pipe or conduit in any slab where the outside diameter of the pipe or conduit is more than one-quarter the thickness of the slab.
6. All piping, duct work, conduit and other mechanical materials and equipment shown to be mounted below ceilings are to be kept as close to ceiling areas as possible unless otherwise noted.
7. All items such as valves, dampers, equipment, controllers, starters, ATC panels, etc., that will be concealed in construction shall be installed and so arranged as to be fully accessible for adjustment, service and maintenance by use of access doors.
8. Where these devices are above suspended ceiling, colored indications mounted on ceiling, markings on suspended ceiling grid, shall be submitted for review and be used to indicate such devices. Color scheme and material used for this shall be coordinated and approved by Owner and reviewed by engineer.

3.03 CLEANING

1. Upon completion of the work, this Contractor shall remove all excess material, debris, tools and equipment from the site, and leave the premises in a broom clean condition.
2. Flush out all piping systems with proper solvents to insure removal of all foreign materials. Clean equipment, piping and other surfaces soiled by the work. Remove debris and rubbish on a daily basis.
3. Disposal of all materials shall be this Contractor's responsibility. All solvents and other chemicals, and materials used, shall be disposed of in strict accordance with all applicable environmental codes.

3.04 START-UP AND ADJUSTMENTS

1. Equipment Start-UP
 - A. This Contractor shall provide all start-up. Start-up shall be provided by the equipment supplier for all equipment.

3.05 OPERATING AND MAINTENANCE INSTRUCTIONS

1. Manuals shall include all equipment, equipment parts lists, complete oiling, recommend spare parts, complete coiling, cleaning and servicing data compiled in a clearly indexed and easily understood form. The data shall indicate the serial numbers of each piece of equipment and provide complete lists of replacement parts, motor parts, ratings and actual loads.
2. Provide list of any special emergency operating instructions and a list of service organizations (including addresses and telephone numbers) capable of rendering emergency service to the various parts of the system.

SECTION 15010 - GENERAL REQUIREMENTS

3. Provide a certified log of air quantities at all air supply, return and exhaust openings, ASME and State pressure vessel inspection forms, all motor data, including standard and actual operating in service data and copies of all manufacturer's equipment guarantees and warranties.
4. Provide all manufacturer's equipment guarantees and warranties.

3.06 TRAINING AND INSTRUCTION

1. Provide operating instructions shall include wiring and control diagrams showing complete lay out of each system. These instruction periods shall be a minimum of:

General System 6 Hours

In addition, contractor shall have each equipment supplier and start-up personnel for each type of equipment on site.

3.07 PAINTING AND FINISHING

1. All painting is to be done in accordance to Rust-Oleum Corporations printed instructions. All surfaces to receive two (2) coats of primer, exposed surfaces one (1) finished coat, color selected. Aluminum or galvanized metal surfaces are considered finished where concealed.
2. All surfaces to be carefully cleaned and/or pickled and filled as required to provide a proper uniform surface. Factory finished equipment shall be touched up or refinished where required.
3. Where equipment is provided as factory painted and is visible on roofs from grade (as determined by construction manager), exposed in space or otherwise not concealed behind finished surfaces, equipment shall be factory painted in accordance with manufacturers standard painting procedures. The color shall be selected by architect and a color chart shall be submitted for review.
4. All duct exposed and all other exposed equipment, pipe and appurtenances in all other areas unless specifically indicated to be painted by general contractor, to be painted by this Contractor color as selected. Submit for approval. All surfaces shall be prepared for painting and/or constructed of materials suitable to be painted.

3.08 CONSTRUCTION SAFETY

1. All work shall be done in accordance with the following Federal regulations:
 - A. Williams-Steiger Occupational Safety and Health Standards, Chapter XVII of Title 29, Codes of Federal Regulations.
2. Comply with local Health and Safety Regulations.

3.09 ENERGY CONSERVATION CODES

1. It is the intent of this specification that all equipment and materials furnished meet the latest enforced edition of the ASHRAE 90.1-2004 or such code as locally applicable, if more restrictive.

SECTION 15010 – GENERAL REQUIREMENTS.

3.10 EQUIPMENT LIST

Refer to general conditions. Exclusion of items on list does not relieve Contractor of the responsibility of providing equipment as specified, required to complete work or shown on drawings to be provided by this Contractor.

MANUFACTURERS

<u>EQUIPMENT</u>	<u>NUMBER 1</u>	<u>NUMBER 2</u>	<u>NUMBER 3</u>	<u>NUMBER 4</u>
Air Devices	Metal Aire	Tuttle Bailey	Anemostat	Or Approved Equal

3.11 SCHEDULE OF WORK AND COMPLETION DATES

1. The exact times and dates and schedules that the projects will be available for this Contractor to do work, shall be as indicated in General Conditions. Refer to general conditions for completion dates.

3.12 DELIVERY AND STORAGE OF EQUIPMENT

1. This Contractor shall store, take deliveries and install all equipment in accordance with manufacturers' requirements (see "General Conditions").

3.13 RELOCATION OF EXISTING EQUIPMENT

1. This Contractor shall be responsible for removal, storage, relocation and installation of all existing equipment shown or scheduled to be relocated or as may be required to remove existing equipment and/or install new equipment. This Contractor will be responsible for capping and reconnection of all existing services presently feeding existing equipment which must be relocated and/or modified and shall patch all adjacent surfaces to match existing.

3.14 PROTECTION OF SERVICES DURING CONSTRUCTION AND DEMOLITION

1. This Contractor shall repair, replace, and maintain in service any utilities, facilities or services (in existing areas where new work and/or demolition is to occur) which are damaged, broken, or otherwise rendered inoperative during the course of demolition and/or construction.
2. This Contractor shall effectively protect, at his own expense, his work, materials and/or equipment which may cause injury to building personnel during the construction period. All openings must be securely covered, or otherwise protected.
3. This Contractor shall be held responsible for all damage so done until his work is fully completed and finally accepted.
4. It shall be the responsibility of this Contractor to protect all existing construction and new motors, HVAC equipment, pumps, electrical equipment, plumbing fixtures and all construction during all phases of construction.

SECTION 15010 – GENERAL REQUIREMENTS.

3.15 CUTTING AND PATCHING

1. Unless otherwise specified and/or shown on architectural, HVAC and/or structural plans and specifications, to be done by general contractor, this Contractor shall cut and patch walls, floors, ceilings, roof surfaces and all existing construction for the removal of existing equipment, fixture, piping, controls and other construction for the completion of work under this Contract. All equipment, piping, ductwork, furniture and all construction or materials that are disturbed during construction shall be stored and protected from damage until replaced.
2. Cutting shall be done only after shop drawings have been prepared and with the Architect's approval. This Contractor shall exercise proper care and shall not endanger the structure by indiscriminate cutting and shall be responsible for and shall protect all existing construction to remain from damage. Provide and maintain all necessary temporary protective materials, coverings and barricades.
3. This Contractor may hire the other prime contractors to perform this work or hire a pre-qualified, independent contractor. This Contractor shall be familiar with and assume all responsibility for any conflicts with union policy and provide supervision in such a manner as not to impede the progress of other trades and be responsible for the adequacy and accuracy of same.
4. Wherever previously unfinished areas are exposed by the removal of existing equipment, these areas shall receive new finishes to blend into the adjoining work.
5. Wherever existing chases must be enlarged to encase new work, they shall be enlarged to match the existing construction.
6. Wherever fire rated material must be patched, it shall be patched in a manner not to affect its fire rating.
7. All patching work must be done by skilled mechanics in a manner to minimize the patch effect. Wherever new painting is required, it shall be done with at least two coats over new materials.
8. The painting must not only cover the area of the actual patch, but also to the nearest natural break of the newly painted surface. Wherever the surrounding surface to be painted is in poor condition, all loose paint shall be removed before new paint is applied.
9. Patching of existing floor must be done in a manner to assure smooth undersurface and all joints must line up with existing.
10. Wherever new vinyl or rubber bases are to be supplied, they shall match adjoining bases in height and color.
11. Whenever existing ceilings are disturbed, they shall be replaced with new ceiling tiles or patched to match existing and all services, lights, fixtures, etc. supported temporarily and permanently reinstalled.
12. This Contractor shall remove and replace all ceilings required for his work with the exception of ceilings shown to be removed by general contractor on architectural plans.

SECTION 15010 – GENERAL REQUIREMENTS.

3.16 REMOVAL

1. This Contractor shall remove existing systems as indicated on drawings.
2. All equipment, cabinets, ductwork, pipe controls, all pipe insulation (except any asbestos insulation), hangers, electric wiring and all construction and appurtenances shall be removed, to complete all work under this Contract. All work by this Contractor.
3. Equipment identified by Owner, prior to removal, that is to be retained by the Owner, which is not to be re-installed, and is to remain the property of the Owner shall be removed undamaged and stored in the building. Location shall be determined by the construction manager at no additional cost to Owner. This Contractor shall then load, transport and unload equipment from building to a site designated by Owner within 20-mile radius of site.
4. Removed ductwork, registers, equipment, automatic controls, pneumatic tubing, piping, pipe insulation and electric wiring and all debris shall be removed from the building and site in accordance with general conditions and shall be disposed of in accordance with all applicable environmental rules and regulations. Failure to properly dispose of materials in a proper manner that result in fines, penalties or additional cost are the responsibility of this Contractor.
5. All debris in areas occupied by the building personnel during periods of building operation shall be removed daily.
6. This Contractor shall patch all wall, floors and ceilings and roof surfaces to match existing adjacent surfaces where obsolete equipment, piping, ductwork, controls and wiring are removed.
7. Work shown on drawings may not indicate all equipment, pipe, etc., nor exact routes, sizes, locations, etc. The drawings are not to be used for estimating detailed take-off for amount of work required, drawings are for reference only. This Contractor shall visit site to determine extent of work and all conditions.
8. Where existing louvers are shown to be removed, the HVAC contractor shall remove and provide temporary closure and general contractor to provide permanent construction unless otherwise specifically indicated.

3.17 BUILDING ALTERATION WORK

1. This Contractor shall furnish all labor, equipment and materials required to complete alteration work in the building. Unless otherwise indicated on architectural drawings, this Contractor shall remove existing construction and replace, to remove existing equipment and/or install new equipment in conjunction with the work.
2. Cut, patch and paint walls, floors, ceilings, roof surfaces and all construction for the installation of equipment, piping and controls.
3. Cut and patch exterior walls for the installation of air intake and exhaust. Finish to match existing adjacent surfaces.

SECTION 15010 – GENERAL REQUIREMENTS.

4. Where existing electrical HVAC or plumbing work, due to removal of existing and/or installation of new equipment, is required to be removed. This Contractor shall disconnect existing equipment, cap services in a safe manner, remove equipment, store in a location to prevent damage, replace equipment, patch construction to match existing conditions and reconnect equipment to existing services.
5. This Contractor shall either retain qualified independent contractors or utilize the other on-site contractors. This Contractor shall assume all requirements for any conflicts with union policy and be responsible for same. This Contractor shall furnish necessary shop drawings and supervision, in such a manner as not to impede the progress of other trades and be responsible for the adequacy and accuracy of same.

END OF SECTION
15010.6119

SECTION 15110 - BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 MATERIALS AND EQUIPMENT

1. All material and equipment used for this contract shall be unused and of the latest model or design available. Equipment shall be installed in strict accordance with manufacturer's recommendations and details.
2. Materials not specifically described but indicated or incidentally required shall be acceptable to the Architect and/or Engineer. Submit shop drawings. Materials shall be delivered, stored and handled so as to preclude injury by weather, dirt or abrasion.

1.02 PROTECTION

1. All equipment shall be covered to protect it from damage; all damage is the responsibility of this Contractor.
2. Any pipe, equipment or construction in existing building shall be done in such a manner to prevent injury to building personnel. Particular care must be taken for any work which will be done during building's normal operation.

1.03 SLEEVES

1. All pipes passing through construction shall be fitted with flush sleeves of sufficient diameter to pass the insulation. Sleeves shall be 20 USG galvanized iron, except in masonry, where steel pipe sleeves shall be used. Sleeves in waterproof construction shall be steel pipe, waterproofed with modular mechanical synthetic rubber seals equal to "Link Seals" (Thunderline or approved equal). In floors, they shall extend an inch above the floor.
2. In fire divisions, sleeves shall be constructed of fire-retardant material and shall be installed to maintain the fire integrity of the fire division.
3. All materials and construction methods shall be installed in accordance with the manufacturer recommendations and the requirements of the IBC Code or any other applicable code.

PART 2 PRODUCTS

2.01 ACCESS PANELS

1. Furnish and install access panels not smaller than 18"x18", for access to all concealed valves, automatic dampers, equipment, accessories, etc.
2. Access panels shall be all steel construction with a 16-gauge wall or ceiling frame and a No. 16 gauge wall or ceiling frame and a 14-gauge panel door with not less than 1/8" insulation secured to inside of door.
3. Doors shall have concealed hinges and cylinder lock except doors for wall panels may be secured with suitable clips and countersunk screws.

SECTION 15110 - BASIC MATERIALS AND METHODS

4. Access panels shall be flush with finished wall or ceiling and shall be painted to match adjacent surfaces. Access panels behind finished surfaces shall have color coded marking on finished surface to indicate location of doors and type of equipment.
5. Access panels in fire rated construction shall be fire rated.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPING

1. All fittings, offsets, etc., may not be shown. This Contractor shall determine their necessity by investigating conditions at the site. This Contractor shall use shop drawings for exact locations.
2. All piping above ground shall be run parallel with the lines of the building in the most direct manner, concealed in furred spaces where possible.
3. Pipes shall be cut accurately and placed without springing or forcing all burrs removed.
4. All water piping inside the building shall be properly graded to drain equipped with a ½" hose outlet and angle drain valves.
5. All changes in size of piping shall be made by reducing fittings; no bushing will be permitted unless approved.
6. This Contractor shall determine, with approval, where expansion joints, loops or anchors will be required due to space restrictions prohibiting proper runout flexibility.
7. Valves, air vents, balancing cocks, etc., shall be placed in accessible positions, and flush metal access doors, (18"x18" minimum size), with necessary lintels, etc., provided where they are concealed.
8. All piping shall be located to prevent freezing. Where pipe is located in areas subject to freezing, provide freeze protection and insulation.
9. This Contractor to coordinate all pipe runs with other contractors. Where coordination of this contractors' work requires a modification of his equipment, layout, pipe runs, offsets in pipe, or additional pipe from what is diagrammatically shown on contractor documents, this shall be done at no additional cost to owner.
10. For all insulated pipe exposed in Gym and any exposed pipe below 8' +/- AFF in all other locations where pipe damage can occur, shall be provided with painted sheet metal jacket 22-gauge with concealed fasteners.

3.02 JOINING PIPE

1. Steel piping shall be of welded or flanged construction in sizes 2½" and larger; screwed or welded construction in sizes 2" and smaller. All screwed fittings to be cast iron unless otherwise specified. All threads shall be conformity with A.S.A. B-21.
2. All screwed pipe joints shall be made with Teflon Dry Thread Sealer (3M-#48) or approved equal; applied to male threads only.

SECTION 15110 - BASIC MATERIALS AND METHODS

3.03 JOINING DISSIMILAR METALS

1. Where copper is jointed to steel, joints shall be made by means of brass or bronze adapter in a cast iron fitting or by means of an electrochemically insulated union. Hangers supporting copper tubing shall be copper or copperized. Copper tubing lines shall not be, even temporarily supported or secured to ferrous metals.

3.04 FOUNDATIONS

1. Foundations shall be provided by this Contractor for all equipment mounted on concrete floors and shall be of concrete construction not less than 6" high unless otherwise shown. Details of all foundations shall be submitted for approval.
2. Foundations or footings for structural steel supports shall be carried to a point not less than 12" below the underside of the floor slab, except where rock is encountered at less depth, then foundation may set on the rock. All foundations shall be built to templates and reinforced as required by the load to be imposed upon them.

3.05 STRUCTURAL STEEL

1. This Contractor shall furnish and install all structural steel, supports, braces, hangers, etc., required for his contract unless shown as being furnished and/or supplied by others.
2. Structural steel shall conform to "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", of the American Institute of Steel Construction, and where applicable, "Code for Welding Building Construction", of the American Welding Society.
3. All structural steel design for support of HVAC system shall be the responsibilities of this Contractor. The design shall be prepared by a Registered Professional Engineer licensed in the state where work is being performed, whose seal should be affixed to plans.

3.06 PLENUM AREAS

1. Any duct plenum area, ceiling or room plenum shall not contain any combustible material, and all wiring and/or piping shall be suitable and approved by local authorities for plenum installation.

END OF SECTION
15110.6119

SECTION 15180 - INSULATION

PART 1 GENERAL

1.01 SCOPE

1. All surfaces throughout the work shall be insulated with fiberglass insulation as indicated in applicable section.
2. All insulation thickness and R Value shall be installed in accordance with ASRAE 90.1 latest edition.

1.02 SURFACE TEMPERATURE

1. Where surface temperature can exceed 350° F. substitute calcium silicate insulation.

PART 2 PRODUCTS

2.01 DUCT INSULATION

1. All supply ducts in unconditioned spaces and all fresh air ductwork shall be insulated with 1½" thick high-density fiberglass rigid board insulation UL labeled faced with aluminum foil covered, glass reinforced, flameproof, kraft paper.
 - A. Duct insulation R Values shall be in accordance with 2015 International Energy Conservation Code, Section C403.2.9.

Unconditioned Space – R=6.0
Outside Building – R=8.0
2. All supply, return and fresh air ductwork in boiler rooms and attic spaces shall be insulated as above in 3" thickness.
3. Duct insulation and linings shall not glow, flame or smolder when tested at their rated temperatures in accordance with ASTM-C-411, test temperature 250° F. or greater.
4. Duct coverings shall not penetrate fire resistance rated enclosures nor partitions required to be fire rated. Duct insulation at rated enclosure shall have insulating material in accordance with applicable code.

PART 3 EXECUTION

3.01 INSTALLATION OF DUCT INSULATION

1. Insulation shall be pasted to the duct using "3M" EC-321 with joints butted and taped with Scotch No. 47A flame-resistant vinyl baked tape and dry dust free surface using nylon sealing tool. Tape to be used to seal joints only, NOT TO HOLD INSULATION TO DUCT.
2. In lieu of pasting insulation to duct it may be impaled on 12-gauge mechanical fasteners welded or glued on 12" to 18" centers with minimum of two (2) rows, per side-Seal protruding pin with mastic and secure with metal cap.

SECTION 15180 - INSULATION

3. Duct coverings shall not penetrate fire resistance rated enclosures nor partitions required to be fire rated.
4. Insulation shall fit between seams and stiffeners. All joints tightly butted.
5. All duct insulation shall be installed per manufactures' requirements.

END OF SECTION
15180.6119

SECTION 15190 - TESTING AND BALANCING

PART I GENERAL

1.01 SCOPE

1. Provide all labor, materials and miscellaneous items as required to perform all the testing and balancing of ALL air system devices and/or systems indicated on plans and/or in the specifications as the mechanical contractor's scope of work.
2. Provide all labor, materials and miscellaneous items as required to perform the testing and balancing of ANY air system devices and/or system indicated on plans and/or in the specifications to be provided by TAB contractor.
3. The TAB contractor is to furnish and install all sheaves and pulleys for new HVAC equipment where indicated on plans and/or in the specifications.
4. The TAB contractor shall rebalance 10% of the air devices and/or systems after the final balancing report is completed and reviewed by the mechanical engineer. The rebalancing scope shall be as directed by the mechanical engineer's review comments of the final balancing report.

1.02 APPROVALS

1. All work to be done in accordance with the following:
 - A. American National Standards Institute (ANSI): Specification for Sound Level Meters
 - B. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE): ASHRAE Handbook of Fundamentals latest edition.
 - C. Associated Air Balance Council (AABC): 2002 AABC National Standard for Total System Balance
 - D. National Environmental Balancing Bureau (NEBB): 1998 Procedural Standards for Testing-Balancing Adjusting of Environmental System; 2nd Edition.

1.03 TESTING AND BALANCING

1. Upon completion of the installation and field testing, performance test and adjust all air, and/or steam system to provide the air volume and water flow quantities indicated and sound levels required. Accomplish all work in accordance with the agenda and procedures specified by AABC and standards of the NEBB. Correct air system performance deficiencies disclosed by the test before balancing the systems.

1.04 AGENCY QUALIFICATIONS

1. This Contractor shall obtain the services of a qualified testing organization to perform the testing and balancing work. Prior to commencing work the testing organization shall have been approved by the Architect/Engineer.

SECTION 15190 - TESTING AND BALANCING

2. The criteria for determining qualifications shall be membership in the AABC, or certification by the NEBB, or the testing organization shall have submitted proof to satisfy the Architect/Engineer that the organization meets the technical standards for membership of the AABC.

1.05 AGENDA

1. Review plans and specifications prior to installation of any of the affected system. Submit a written report to the architect indicating any deficiencies in the system.
2. An agenda shall be submitted and approved by the architect prior to start of testing and balancing work. Include the following:
 - A. General description of each system with its associated equipment, and operation cycles.
 - B. A complete listing of all flow and air terminal measurements to be performed.
 - C. Proposed selection points for sound measurements.
 - D. Specific test procedures and parameters for determining specified quantities; e.g. flow drafts, sound levels, etc.
 - E. Samples of forms showing applications of procedures and calculations.

1.06 PROCEDURES, GENERAL

1. Adjust systems and components thereof that perform as required by drawings and specifications.
2. Operating tests of heating and cooling coils, fans and other equipment shall be of not less than 4 hours duration after stabilized operating conditions have been established.
3. Method of application of instrumentation shall be in accordance with the approved agenda.
4. Instruments used for measurements shall be accurate. Calibrate each test instrument by an approved laboratory or by the manufacturer. The engineer has the right to request instrument recalibration, where accuracy of readings is questionable.
5. Comply with manufacturer's certified instructions.
6. Do not install permanently installed equipment for the tests, e.g. gauges, thermometers, etc., until just prior to the tests to avoid damage and changes in calibration.

1.07 BALANCE & BALANCE REPORT SCHEDULE

1. The HVAC contractor shall provide the balance report and submit to the Architect/Owner as a shop drawing, which shall be distributed and reviewed in accordance with the general conditions.

SECTION 15190 - TESTING AND BALANCING

2. Any and all work required for balancing of the system shall be done prior to the HVAC contractor submission of Billing for Substantial Completion.
3. Balancing shall include initial and final balancing. All adjustments to the system to provide the required flows, pressure temperatures, etc., shall be completed. Where adjustments to the system are required to provide proper specified performance, this work shall be done at no additional cost to owner.
4. Where any modifications, adjustments, replacement of equipment, removal and replacement is required to provide proper system performance, this work shall be done by the HVAC contractor at no additional cost to owner.
5. Where any of the above required modifications, etc., results in the removal, replacement, repair, modification, and/or other work of other prime contractors or subcontractors, the cost of this additional work shall be the responsibility of the HVAC contractor and shall be completed at no additional cost to owner.
6. The final approved balance report shall be provided to the inspecting authority having jurisdiction prior to substantial completion and is a condition to receive the Certificate of Occupancy or Temporary Certificate of Occupancy.
7. It is the HVAC contractors' responsibility to have the system completed and ready for balancing to meet the specified performance, construction and completion schedules per the General Conditions.
8. The requirements of this specification is applicable to all phased projects. For phasing, refer to General Conditions.

PART 2 EXECUTION

2.01 AIR SYSTEMS GENERAL REQUIREMENTS

1. All systems shall be balanced to provide air flow rates measured and adjusted to within 7.5% of the design rates. Provide a typed or computer-generated balance report using standard AABC forms and industry accepted practices for presentation. Where conditions do not allow for system to achieve the specified values, is to be clearly indicated prior to submission of balance report as a separate professionally prepared industry standard form.
2. Review of Documents - It shall be the responsibility of this Contractor and balancing contractor to thoroughly review the design drawings prior to submission of shop drawings and indicate where there may be possible problems with accessibility to equipment to allow for proper balancing or where system design will not allow for proper balancing and provide written description of possible problems. The balancing contractor shall review pipe and sheet metal shop drawings and shall provide written confirmation that this has been done. Coordinate with this Contractor for locations of all volume control devices. Where volume control devices are required for proper balancing of the system, they shall be provided by this Contractor at no additional cost to owner.
3. Air systems shall be balanced in a manner which shall first minimize throttling losses, then fan speed shall be adjusted to meet design flow conditions.

SECTION 15190 - TESTING AND BALANCING

4. After completion to tests, adjustments and balancing under minimum fresh air conditions, set the system for 100% fresh air. Repeat the total CFM tests as specified above to check field versus design conditions. The results under 100% fresh air cycle shall agree with conditions found under "minimum fresh air operation" before the system is considered to be in balance. Adjustments of the proper dampers shall be made to achieve balance.
5. This Contractor shall include as part of his bid, cost to rebalance system after initial and final adjustments based on field conditions, owners' request or problem areas. For purposes of the bid, the contractor shall assume a maximum of 10% of all air devices to be rebalanced, to include rebalancing of the fans associated with the air devices.
6. This Contractor shall be certified by N.E.B.B. or A.A.B.C.
7. This Contractor shall notify Owner or his representative in a timely manner prior to balancing system so that if they elect, they may accompany balancing contractor.
8. The system shall be commissioned as specified and all balancing shall be done accordance with time schedule as specified above and in General Conditions.

2.02 AIR SYSTEM PROCEDURES

1. Adjust all air handling systems to provide the required design air quantity to, or through, each component.
2. Adjust equalizing devices to provide uniform velocity across the inlets.
3. Use flow adjusting (volume control) devices to balance air quantities only.
4. Balancing between runs (submains, branch mains, and branches): Use flow regulating devices at, or in, the divided - flow fitting.
5. Final Measurement of Air Quantity: Make final measurements of air quantity, after the air terminal has been adjusted to provide the optimum air patterns of diffusion.
6. Fan Adjustment: Total air system quantities, generally, shall be varied by adjustment of fan speeds.
7. Except as specifically indicated herein, make pitot tube traverses of each duct to measure air flow therein.
8. Pitot tube traverse may be omitted if the duct serves only a single room or space and its design volume is less than 2,000 cfm.
9. Where ducts' design velocity and air quantity are both less than 1000 (fpm/cfm), air quantity may be determined by measurements at terminals served.
10. Test holes shall be in a straight duct, as far as possible downstream from elbows, bends, take-offs, and other turbulence generating devices.

SECTION 15190 - TESTING AND BALANCING

11. Air Terminal balancing: Measurement of flow rates by means of velocity meters applied to individual terminals shall be used only for balancing. Measurement of air quantities at each type of air terminal (inlet and outlet) shall be determined by the method approved for balancing agenda.
12. The volume dampers, splitters and deflectors shall be adjusted so that the air velocities and volume will be as specified.
13. A further balance shall be made on temperature basis to maintain uniformity throughout, if so directed.
14. With the fan supply set to handle normal minimum outdoor air, the balancing firm shall perform the following tests and compile the following information.
 - A. Individual Outlets (diffusers, registers and/or grilles):
 1. Identify each outlet or inlet as to location area and fan system, outlet, manufacturer, and type, outlet size, free area, core area, or neck area, required FPM and test velocity and CFM and test results.

2.03 AIR DELIVERY AND NOISE

1. This Contractor shall guarantee that all equipment shall operate without objectionable noise or vibration; that all ductwork shall be free from pulsation or objectionable noises; that the volume of air specified will be delivered to all points of supply and exhaust.
2. After this system is in operation, should the ductwork be found to vibrate or chatter, this Contractor will be required to eliminate same.

2.04 AIR TIGHTNESS

1. All ductwork shall be airtight per SMACNA leakage standards. All transverse, joints longitudinal seams and duct wall penetrations shall be sealed in accordance with ASHRAE 90.1 1999 and have adhesive (3M EL-750). Pressure sensitive tape shall only be allowed for supply air duct with design pressures less than 2" W.C. in return air plenums.

END OF SECTION
15190.6119

SECTION 15560 - FIRE PROTECTION SYSTEMS (INTERIOR)

PART 1 GENERAL

1.01 SCOPE

1. The work under this heading shall include the furnishing and installation of:
 - A. All piping, equipment and materials necessary, including connections to all equipment required for the proper functioning of the work.
 - B. Connection to, modification, extension, replacement, and/or removal of existing system and equipment as required for new work.

1.02 CODES AND REGULATIONS

1. All work done, all equipment and materials used, and all tests shall be done to meet the approval of the insurer as well as local authorities having jurisdiction.

1.03 INSPECTION

1. All work shall be inspected by the Insurer and any local authorities having jurisdiction; certified copies of these approvals shall be delivered to the Owner before final payment.

1.04 SHOP DRAWINGS

1. This Contractor shall prepare shop drawings showing all runs of piping and necessary details and elevations.
2. Shop drawings shall be prepared and sealed by a registered Professional Engineer and shall be submitted and approved by the inspecting authorities before submission to the Architect and/or Engineer for record only. Architect/Engineer will not review shop drawings.
3. This Contractor shall submit along with shop drawing the calculations required for engineering of the system.
4. Shop drawings shall be submitted to all contractors, sub-contractors and/or any other entity which require drawings for coordination of their work with the fire protection. The drawings shall be submitted in a timely manner so as to impede the progress of any other trades.
5. If shop drawings are submitted for coordination prior to approvals and there is a change to the system required due to the approvals; this Contractor shall pay for all cost incurred by other contractors, sub-contractors and/or suppliers incurred due to changes.

1.05 QUALIFICATIONS

1. This Contractor shall be licensed to install sprinkler systems and be experienced in installation of sprinkler systems.

SECTION 15560 - FIRE PROTECTION SYSTEMS (INTERIOR)

1.06 APPROVALS

1. This Contractor shall prepare and be responsible for all drawings, documents and work required, etc., to obtain State and Local approvals. Copies of the above shall be submitted to the Architect and/or Engineer after approvals are obtained.

PART 2 PRODUCTS

2.01 PIPING MATERIALS

1. All piping above ground to be black steel, all dry sprinkler pipe, Schedule 40, with screwed or flanged joints; all fittings to be cast iron - 175 psi WWP, approved type. Victaulic or similar grooved piping may be used, provide separate price and submit for approval, if locally acceptable (except for in exposed pipe in finished areas).
2. All valves, checks, etc., shall be of the approved type, designed for not less than 175 psi W.W.P.
4. Use of unions is prohibited unless specifically approved by the Owner, the Architect and/or the Engineer, and the inspecting authority all in writing.

2.02 SPRINKLER HEADS

1. All sprinkler heads shall be of the approved type of sidewall, upright or pendant installation with temperature rating required. Sprinkler heads in the pendant or sidewall position shall be chrome plated and provided with chrome plated escutcheon. Provide upright heads with guards under equipment, ducts over 48 inches etc., as required.
2. Sprinkler heads in suspended finished ceilings shall be fully recessed and concealed with coverplate painted color selected.

PART 3 EXECUTION

3.01 APPURTENANCES

1. Contractor shall furnish all appurtenances as required for the proper operation of the system in accordance with NFPA local codes and insuring agency requirements including, but not limited to field tests, painting disinfections identification signs.

3.02 INTERRUPTION OF EXISTING SERVICE

1. The work required for modification, connection to, extension, replacement, and/or removal of existing systems shall not interrupt fire service to the existing building, except as indicated in Section 15010. Prior to any required shut down, drainage or interruption of fire protection system, the local Fire Department must be notified with sufficient time to prepare for any preventative action.

END OF SECTION
15560.6119

SECTION 15860 - DUCT SYSTEMS

PART 1 GENERAL

1.01 SCOPE

1. The work under this heading shall include the furnishing and installation of:
 - A. All sheet metal work required for the various systems, including installation of control devices and connections to equipment and all materials and specialties required for the proper functioning of the work.
 - B. All acoustical treatment required for the work as hereinafter specified.
 - C. Connection to, modification of, removal and/or extension of existing systems as required for new work.

1.02 CONSTRUCTION

1. All ducts shall be constructed of prime quality, re-squared, galvanized steel sheets in accordance with "Duct Manual and Sheet Metal Construction for Ventilating and Air Conditioning Systems" of the "Sheet Metal and Air Conditioning Contractors National Association", (SMACNA) Sections 1 and 2.
2. Gauges shall be as recommended for the use intended in the applicable SMACNA Manuals. All ductwork and other sheet metal shall be properly stiffened and supported as per the applicable recommendations of SMACNA Manuals. Only first quality, smooth, cold rolled sheets of the best grade steel shall be used and shall be guaranteed to double seam without showing fracture.

1.03 FLEXIBLE DUCTS

1. Use corrugated solid metal flexible duct for inlet connection to air control devices as V.A.V. boxes. Use Fabric covered duct for connections on outlet-side of air control devices and low velocity runouts.
2. Ducts must be suitable for the service of acceptable fire rating and shall be insulated as specified for ductwork.
3. Flexible ducts shall be run in the most direct manner and shall be hung so that no bend has a centerline radius less than three times its diameter, maximum 12' +/- . Duct found not in compliance shall be removed and installed to comply with this Section at no additional cost.
4. Substitution of flexible ducts for run outs shown as sheet metal or vice versa is acceptable but must be submitted for approval.
5. Flexible duct shall not pass through any wall, floor, ceiling or fire resistance rated assembly. Where flexible duct is shown thru these, provide sheet metal collar thru wall and minimum 6" either side.
6. Flexible ducts shall be tested in accordance with UL181 and shall be tested and labeled as Class 0 or Class 1 FLEXIBLE AIR DUCT and installed in accordance with the International Mechanical Code Table 603.6. Flexible duct connectors shall not be allowed.

SECTION 15860 - DUCT SYSTEMS

1.04 DIMENSIONS

1. Duct dimensions are INSIDE CLEAR DIMENSIONS: Increase metal duct size to allow for thickness of inside insulation.

1.05 BALANCING AND TESTING

1. See Section 15190.

1.06 DUCTWORK CLEANLINESS AND STORAGE

1. Comply with SMACNA, "Duct Cleanliness for New Construction Guidelines," and follow the requirements for the "Advanced Level." After fabrication, seal ductwork and maintain the sealed conditions during transportation, storage and after installation until final cleaning is complete. All ductwork shall be sealed either by blanketing or capping the duct ends, bagging small fittings, surface wrapping or shrink wrapping. Store in a clean, dry environment. Do not install ductwork until the building is clean and dried and maintain the integrity of the sealed ends until final "white glove cleaning" is complete and dust free.

PART 2 PRODUCTS

2.01 FITTINGS

1. Round elbows shall be formed or stamped type; use five- piece construction where stamped fittings are available, centerline radius equal to 1.5 times the duct diameter minimum.
2. All round take offs to be expanded to 90-degree conical type of 45-degree branches.
3. Obstructions: Where possible, avoid locating any pipe, wire or structural member in a duct. Where such obstructions cannot be avoided, duct shall be eased, split or transformed as the Engineer may direct.
4. Transformation: Where changes result in an increase of area slope shall not exceed one in seven; where areas remain constant or decrease, slope shall not exceed one in four, but one in seven is preferable.
5. Changes in direction: Changes in direction shall be made with elbows or tees as conditions necessitate in the following order or preference:
 - A. Unvaned elbow, centerline radius equal to 1.5 times duct width.
 - B. 6" throat radius with full radius vanes and heel radius.
 - C. 3" throat radius with full radius vanes and heel radius.
 - D. 3" throat radius with 3" heel radius, double thickness vanes.
 - E. No square elbows without turning vanes allowed.
6. Branch Takeoffs: Made, in order of preference, with radius elbow, radius tap-in or suitable vanes in a square takeoff.

SECTION 15860 - DUCT SYSTEMS

2.02 DUCT SUPPORTS

1. Duct shall be supported in strict accordance with SMACNA requirements. Duct to be supported only from building structure.
2. For insulated duct, no support or fastener shall penetrate insulation. For insulated duct, all supports shall be trapeze type.
3. For stacked ducts, do not support duct from bottom duct. Provide separate angle and/or hanger. Maximum hanger spacing shall not exceed SMACNA requirements.
4. Vertical duct supports shall have no break in thermal insulation blanket. Where required, insulate angled supports.

2.03 JOINTS

1. All connections of duct shall be installed in strict accordance with SMACNA standards, except that all exposed non-spiral duct with design pressure less than 2" W.C. or 2,500 fpm velocity in finished areas shall use streamline joints.
2. Mechanical joint fasteners, such as "Ductmate", will be allowed and shall be installed in strict accordance with manufacturers' requirements. Where mechanical fasteners are used, contractor shall coordinate joint locations with all other trades for clearances. Where use of mechanical fasteners result in an increased requirement for space and clearance, and results in modification, removal, replacement, or new work for this Contractor or other contractors work; the work shall be done at this Contractors expense and with no additional cost to Owner.
3. Where any joint is installed in any duct below 7'0", installation shall have protection as specified under ductwork installation.
4. All joints shall be sealed as specified for air tightness.

2.04 DAMPERS

1. Furnish and install all dampers. Dampers for automatic operation shall be minimum leakage, multi-opposed type with neoprene balloon edge and snap steel side.

2.05 VOLUME DAMPERS, SPLITTERS AND ADJUSTABLE DEFLECTORS

1. Volume dampers in ducts shall be opposed blade type, slide rod operated. Adjusting quadrants shall be as manufactured by Ventfabrics or Parker and Young.
2. Volume dampers shall be installed in all of the trunk and branch ducts, no exceptions. The balancing trade shall not depend upon register shutters or dampers for balancing. The sheet metal contractor shall submit shop drawings to the balancing contractor for his review of location, type, size, and quantity of balancing dampers. Where additional control devices or alternate methods of duct installation are suggested and/or required, these shall be provided, and all modifications made at no additional cost to Owner.

SECTION 15860 - DUCT SYSTEMS

3. Splitter dampers shall be installed where shown on drawings. Splitters shall be made of 18-gauge galvanized steel or heavier and shall be cross broken and flanged or hemmed for rigidity. Splitters shall be made easily adjustable and readily accessible for adjustment.
4. Adjustable deflectors and adjustable turning-vane devices for diverting air flow from a duct main into a branch duct shall be multi-blade assembly hinged at one end and so constructed that, as it is closed, the air passage between the blades narrows until no air passage remains when the assembly is in the fully-closed position.

2.06 DOORS

1. Access doors of suitable sizes minimum 18"x18" shall be provided for access to all coils, dampers, controls, etc.; in insulated duct, door shall be double panel, insulated type.

2.07 FLEXIBLE CONNECTIONS

1. Flexible connections shall be provided to motorized equipment, made with at least 3" of neoprene coated fiberglass cloth with 1" slack material (except kitchen hood exhaust).

2.08 DUCT HANGERS

1. All horizontal ducts and connections shall be securely hung in position by solid galvanized steel bands not lighter than #12 gauge or carried on suitable angle iron, or unistrut type cradles as best suited to the location. All hangers for ducts shall be securely fastened to the basic building structure and not the ceiling construction or metal roof decking.
2. Duct hangers and supports will normally not be shown on the drawings, however, must be installed at the proper intervals according to the appropriate SMACNA Manuals by this trade.
3. Where ducts and hangers are to be installed in building areas with exposed steel structural members, they shall be securely clamped to structural members using C clamps which have a locknut and retaining strap.
4. Where ducts and hangers are to be installed in building areas with concrete decks, they shall be securely attached to the concrete structure by means of concrete inserts cast in the original pours of the slabs. Where required, inserts are omitted or where hangers are to be installed in existing concrete decks, this trade may use drill-in type expansion bolts with rods of the proper diameter.

2.09 LOCKING TYPE MANUAL VOLUME DAMPERS

1. Provide manual Everlock locking dampers as manufactured by Rossi HVAC Hardware (www.RossiHardware.com – infor@rossihardware.com – (818) 252-3811) or approved equal.
2. Bracket – Cold rolled Steel (ASTM A-1008), 18-gauge nominal thickness of 0.0478 with tolerance range of 0.0438 to 0.0518, single cut and formed bracket for use with 1.5" or 2.0" insulation wrapping or any other such stand-off applications, finished with a white Chromate plating.
3. Handle and Thumb Trigger – Polyamide 66 (PA66), flame retardant, glass reinforced, "Zytel".

SECTION 15860 - DUCT SYSTEMS

4. Retaining Spring – Ext. self-lock TX-75ST-ZF carbon steel SAE 1074 with zinc bright plating. C-scale Rockwell hardness 47 to 51.
5. Blades
 - A. 4" to 14" dia. single blade (or disc). ASTM-A527 LFO G90, 20-gauge reinforced to equal strength of 18-gauge material.
 - B. 3/8" full length bar fits through formed channel in center of damper blade.
6. Bars – 3/8" square aluminum bar.
7. Bearings
 - A. Snap-in bearings for medium and low-pressure systems. Polyamide 66 (PA66), flame retardant, glass reinforced, "Zytel".
 - B. B-lined bearings for lined duct. Polyamide 66 (PA66), flame retardant, glass reinforced, "Zytel".

2.10 DUCT IDENTIFICATION

1. Provide for all concealed insulated and non-insulated duct and duct exposed in non-finished areas; self-adhesive color-coded labels for identification of air flow and equipment.
2. Markers shall be installed at every turn in direction and minimum every 25'.
3. Markers shall have color coding per the manufacturer. In addition to marking, the duct shall have flow directions located next to duct markers.
4. Flow directional tape shall be completely around all visible portions of duct and termination shall be 1' +/- past visible corner. Flow directional tape shall be ASME A13.1 color coding. Color to match duct markers. Arrows shall be white on green, red or blue and black on yellow, green or orange.
5. The duct shall have flow direction located next to flow direction. Indication shall be MS900 flow directional tape; 2" wide for duct up to 12' +/- AFF and 4" wide for duct above 12' +/- AFF.
6. Markers shall have color coding and lettering per the manufacturer and meet ASME A13.1 Standards.
7. Duct markers shall be; duct up to 12' +/- AFF – 2-1/4" x 13" and duct above 12' +/- AFF – 4" x 24".
8. Duct markers shall be MSI MS-900 or approved equal.

SECTION 15860 - DUCT SYSTEMS

PART 3 EXECUTION

3.01 AIR DELIVERY AND NOISE

1. This Contractor shall guarantee that all equipment shall operate without objectionable noise or vibration; that all ductwork shall be free from pulsation or objectionable noises; that the volume of air specified will be delivered to all points of supply and exhaust.
2. After this system is in operation, should the ductwork be found to vibrate or chatter, Contractor will be required to eliminate same.

3.02 DUCTWORK INSTALLATION

1. All ductwork shall generally be installed in the location and manner shown and detailed on the drawings with all fittings and connections made in accordance with the applicable SMACNA Manuals. Duct shown on drawings are diagrammatic. Contractor to determine in field exact routing, size and configuration. All modifications or deviations required by job conditions must be approved prior to any fabrication.
2. Prepare all ductwork and set it in place before furring begins. Extend all damper operators and serviceable or adjustable devices to accessible locations.
3. All connections from sheet metal assemblies such as ductwork, plenums, etc., to operating machines and/or mechanisms such as fans, air conditioners, etc., shall have flexible connections.
4. Where any ductwork is mounted lower than 7'-0" above a finished floor line, all seams in ducts shall be flattened and filed so that no standing seams or angle bracing protrudes from the duct in any manner which could cause injury to personnel. Covering of standing seams with an approved flexible bumper material, like split Armaflex pipe insulation, is acceptable.
5. Contractor is cautioned that the ducts shall be located directly above ceiling and shall be supported for structure which is approximately 15' +/- above finished floor.

3.03 FAN DUCT CONNECTION

1. All duct connections to fans and/or equipment with fans shall be installed in strict accordance with fan manufacturer's requirements. Ducts shall be installed to eliminate any system effects pressure losses. Where ducts are shown or are required to be installed that are not in compliance with manufacturers requirement, the additional pressure losses due to the system effect shall be added to the fans specified static pressure and fan size increased accordingly. All work shall be done at no additional cost.
2. Where elbows are required at discharge, they shall be full radius elbow $R/W = 1.5$ or greater.
3. All discharge dampers shall be arranged and installed in accordance with manufacturer's requirements and to avoid any system effects.

END OF SECTION
15860.6119

SECTION 15870 - TEMPERED AIR TERMINAL UNITS

PART 1 GENERAL

1.01 SCOPE

1. Furnish and install all air terminal devices in sizes, types and capacities shown on the drawings.
2. Removal, addition and/or modification of existing systems as indicated on plans.
3. Removal of existing air devices and replacement with new air devices as indicated on plans.

1.02 RATINGS

1. Manufacturer shall rate all terminals in accordance with Air Diffusion Council (where applicable).

PART 2 PRODUCTS

2.01 REGISTERS AND GRILLES

1. All supply air registers shall be METAL*AIRE Model V4004D-1 or approved equal consisting of two (2) banks of fins, front bank vertical, second bank horizontal, with one (1) bank of multi-opposed damper blades operated by a concealed screwdriver operator.
2. All return and exhaust air registers shall be consisting of one (1) bank of horizontal fins fixed at a 45-degree angle with one (1) bank of multi-opposed damper blades operated by a removable key.
3. Where grilles are shown, omit the damper.
4. All registers and grilles shall be of aluminum construction with baked white enamel finish.

2.02 DIFFUSERS

1. All ceiling diffusers shall distribute air in a horizontal pattern parallel to the ceiling.
2. All diffusers shall be equipped with opposed blade dampers, operated from diffuser face by an unobtrusive screw operator.
3. All diffusers shall be perforated style METAL*AIR Model 7500-6 AF or approved equal for lay-in ceilings. Face size shall be 24"x24". All diffusers shall be steel construction with aluminum face plates. The finish shall be white baked enamel with black back pan and interiors.
4. Variable Air Volume Square Diffusers (CD-1 thru CD-4) - Install, where shown on plans, METAL*AIR Model 5750-6 as Unit-Flow plaque ceiling diffusers or approved equal. The diffuser sizes shall be nominal 24"x24" as scheduled, with minimum 18" square flat appearance panels. The diffusers shall be either aluminized steel or aluminum construction and shall be designed to integrate with the specified ceiling system type (refer to architectural reflected ceiling plan). The diffuser shall consist of a back pan and a removable heavy gauge appearance panel attached to the back pan via four (4) latch tabs. The appearance panel shall have aerodynamic, rigid, hemmed edges around the perimeter and shall be a single piece construction. The panel shall be flat and smooth and shall be free of any welding or forming blemishes. The horizontal air discharge pattern shall be 360-degree type. Baffles shall be provided for directional control as scheduled on shown on the drawings. Diffusers that meet the performance requirements are acceptable. Diffuser finish shall be #01 white. Provide published performance data determined in accordance with the latest ANSI-ASHRAE standard for throw, pressure and sound.

SECTION 15870 - TEMPERED AIR TERMINAL UNITS

PART 3 EXECUTION

3.01 INSTALLATION

1. All devices shall be mounted true and square, pulled up tightly without distortion.
2. Provide equalizing deflectors and/or air extractors where required to achieve proper air distribution.

3.02 FIRE RATED CONSTRUCTION

1. All devices in fire rated construction shall be provided with approved fire dampers, "tents", or other devices as required to conform to applicable regulations.

3.03 VISIBILITY

1. Where registers and grilles are at floor level and inside duct is visible, provide acoustic insulation (black) or where insulation is not specified or required, paint all visible inside surfaces of duct flat black.

END OF SECTION
15870.6119

SECTION 16100 - GENERAL ELECTRICAL

1. GENERAL PROVISIONS

- 1.1 The applicable provisions of the Division 1 General Conditions, Supplemental Conditions, Special Contract Requirements, Amendments and Additions to the General Conditions, and all project addenda are hereby made an integral part of this section.
- 1.2 These specifications apply to all electrical work performed.
- 1.3 When apparent conflict exists between these specifications and the contract drawings, within the specifications, or within the drawings, the engineer will determine the intent.
- 1.4 The term "provide" means "furnish and install". The terms "contractor" and "E.C." mean "electrical contractor", unless otherwise noted. All work indicated in specifications division 16000 and on the electrical drawings is by the electrical contractor, unless otherwise noted.
- 1.5 The terms "unless otherwise noted" or "unless otherwise indicated" in any form of wording mean "unless specifically indicated otherwise on the electrical drawings, in the electrical specifications, or in the General Conditions and Requirements to the specifications and/or contract". These terms do not mean "unless indicated otherwise on the general construction, mechanical construction, or other disciplines' drawings or specifications", except where specifically so worded on the electrical drawings or electrical specifications.
- 1.6 Materials and equipment manufacturers and catalog numbers specified constitute the type and quality of design, material, workmanship, ruggedness of construction, resistance to vandalism, exact operating and performance characteristics, features, configuration, dimensions, etc.. Where multiple manufacturers are shown in the drawings and/or specifications, not all manufacturers shown may be capable of providing materials and equipment meeting the specifications, field conditions, etc.. Manufacturers not specifically shown on the drawings or specifications shall be considered, provided the products equal or exceed the requirements of the drawings and specifications (including equaling or exceeding products and/or manufacturers specifically shown on drawings and specifications). Manufacturers, whether shown on the drawings or specifications or not, are acceptable only if they can meet the specifications, conditions, and requirements specific to this project. Provide materials and equipment as required (include all costs in bid).
- 1.7 For any equipment indicated on the drawings or specifications as furnished by the owner (or furnished by any other party, including other contractors, subcontractors, or third parties), contact the furnishing party prior to submitting bid to obtain all requirements of such equipment as necessary to provide a complete installation. Provide all ancillary equipment as necessary which is not furnished but which is required for a complete installation of owner furnished equipment.

2. SCOPE OF WORK

- 2.1 The work governed by these specifications consists of providing all labor, materials, equipment, services, and related items/work necessary to complete all the electrical work as indicated and described in the drawings and specifications.

SECTION 16100 - GENERAL ELECTRICAL

2.2 Electrical work includes but is not limited to:

- A. Electric service and service equipment
- B. Power distribution and wiring
- C. Interior lighting
- D. Emergency power and lighting
- E. Utilization equipment connections
- F. Fire alarm system
- G. Data/Telephone/Security raceway/pathway system
- H. Temporary power and lighting
- I. Wiring for low voltage systems

3. CONTRACT DRAWINGS AND SPECIFICATIONS

- 3.1 Drawings are diagrammatic and indicate the general arrangement of the various systems and approximate and relative locations of the materials and equipment defined by the specifications. Coordinate with and obtain the approval of the owner, architect, and engineer for the exact locations of all materials and equipment. Check the drawings, specifications, and all fabrication and shop drawings (including fabrication and shop drawings of other trades) to verify space conditions, headroom requirements, characteristics, and for coordination. Where space conditions and headroom requirements appear inadequate, notify the engineer before submitting a bid. No consideration or allowance will be granted for failure to notify the engineer, or for any alleged misunderstanding of the requirements above. Completely furnish, install, connect, and interconnect all components of all systems in accordance with contract requirements, manufacturer's instructions, applicable codes and standards, and best practices of the trade.
- 3.2 Minor deviations, variations, changes, and corrections from layouts shown on the drawings (based on coordination, conditions, manufacturer's instructions, codes and standards, shop drawings, and verification of measurements and conditions) are permitted to facilitate construction provided the changes do not represent potential changes in scope of work (see the section of these specifications "Changes to the Scope of Work") and provided the changes are acceptable to the owner, architect, and engineer.
- 3.3 Before submitting bid, examine and check all drawings and specifications relating to all work, including electrical, mechanical, plumbing, general construction, fire protection, and any other trades' drawings and specifications (as well as Division 1 General Conditions) and become fully informed as to the extent and character of work required and its relation to the work of other trades. No consideration, claims, charges, or compensation will be granted for any alleged misunderstanding of the work to be performed, or the force and intent of these specifications.
- 3.4 Fully coordinate (prior to releasing doors and hardware) with the general contractor to ensure that all doors to rooms housing new large electrical equipment swing open in the direction of egress and are equipped with proper "panic" hardware (as per NEC Articles 110.26(C)(3) and 110.33(A)(3), where applicable).

SECTION 16100 - GENERAL ELECTRICAL

4. VISIT TO SITE

- 4.1 Before estimating work, visit the project site and verify all measurements and field conditions affecting the work. The contractor is fully responsible for the correctness of all measurements and for any connections to existing work. Submission of bid is considered evidence that this contractor has visited and examined the site. No consideration, claims, charges, or compensation will be granted for extra work as a result of the contractor's failure to visit the site or verify conditions and measurements.

5. VERIFICATION OF MEASUREMENTS AND CONDITIONS

- 5.1 The electrical contractor is solely responsible for verifying field measurements, conditions, and drawing and specifications information (for all trades) before ordering materials and equipment and before commencing work. The electrical contractor is solely responsible for verifying shop drawings (including shop drawings of other trades) before releasing related materials and equipment and before rough in. No consideration, claims, charges, or compensation will be granted due to any differences between the actual dimensions and any dimensions indicated on the drawings.
- 5.2 Report any apparent discrepancies or conflicts found at once to the engineer for consideration and wait for a decision before proceeding with any work in the affected area.
- 5.3 The engineer's decisions in cases of discrepancies, conflicts, and related to verification of measurements and conditions are final and binding upon the contractor, make all installation accordingly.

6. EXISTING CONDITIONS AND UTILITIES

- 6.1 Information and data indicated on the drawings regarding existing conditions (including underground utilities) is from the best available sources. However, no assurance is made as to completeness and/or accuracy.
- 6.2 Contact all utility companies operating in the project vicinity (water, gas, sewage, electric, telephone, cable television, etc.) and the owner's maintenance department (where applicable) and verify all existing underground systems before any excavation commences. Utilize applicable "one-call" or "before you dig" utilities marking services, including paying all associated fees.
- 6.3 Relocate any existing underground electrical feeders and wiring in areas of construction and around proposed foundations as required. Include all costs in bid. If any third-party owned wiring or equipment interferes with construction, notify the engineer.

7. ITEMS NOT SHOWN OR SPECIFIED

- 7.1 Provide any items of material not indicated on the drawings and/or not specified, but which are required for the complete and proper installation and/or operation of any part of the work, as if indicated and specified.

SECTION 16100 - GENERAL ELECTRICAL

- 7.2 Provide any work not indicated on the drawings and/or not specified, but which is required for compliance with applicable codes and regulations, as if indicated and specified.
- 7.3 No consideration, claims, charges, or compensation will be granted for performing work required for complete and proper installation/operation or required for compliance with applicable codes and regulations.

8. REGULATIONS AND CODES

- 8.1 Perform work in accordance with all respective requirements of the latest adopted editions (as of the date of electrical construction permit approval) of all applicable federal, state, and local codes, standards, regulations, ordinances, laws, etc. and industry standards. This includes applicable requirements of the National Electrical Code (NEC), National Fire Protection Association (NFPA), American National Standards Institute (ANSI), Americans with Disabilities Act (ADA) (as well as all related state disabled access and/or barrier free codes and standards and ANSI A117.1), International Building Code (IBC), International Energy Conservation Code (IECC), International Residential Code (IRC), Factory Mutual (FM), Illuminating Engineering Society of North America (IES, IESNA), Institute of Electrical and Electronic Engineers (IEEE), Insulated Power Cable Engineer's Association, National Electrical Contractors' Association (NECA) "Standard of Installation", National Electrical Manufacturer's Association (NEMA), National Electrical Safety Code (N.E.S.C.), Underwriter's Laboratories (UL), United States Department of Labor Occupational Safety and Health Administration (OSHA), utility companies requirements, etc..
- 8.2 Where listing or labeling (in any form, i.e. UL, CSA, ETL, etc.) is indicated in the drawings or specifications or is otherwise required by the NEC or other applicable code, provide equipment and materials as either listed or labeled by a qualified product evaluating organization (UL, CSA, ETL, or approved equal) acceptable to the local authority having jurisdiction. Include all costs in bid. No extra claims or compensation shall be granted under any circumstance associated with providing listed equipment.
 - A. The electrical contractor is fully responsible for verifying (before submitting bid) the applicability and extent of code required listing with the local authority. Specifically verify if the municipality has any requirements that "listable" (capable of being listed) products must be "listed". Provide accordingly where applicable.
 - B. Submission and/or approval of shop drawings (which may or may not show listing) do not relieve the contractor of the responsibility to meet listing requirements.
 - C. Where products required (by specifications/code) as listed are installed without listing or as non-listed (without prior written approval), the contractor shall remove the products and install listed products at no cost to the owner. Written approval will only be considered if all of the following are satisfied:

SECTION 16100 - GENERAL ELECTRICAL

- 1) The contractor is fully responsible for (including all costs) and must prepare and submit any and all information necessary for review and evaluation of products (by the authority having jurisdiction, engineer, architect, and owner). This includes all processing costs for all parties involved and costs for any special or independent third party inspections, investigations, evaluations, engineering services (including sealing by a registered professional engineer), etc. which may be required or requested in conjunction with approval. In the absence of listing, the contractor is fully responsible for proving that products are acceptable.
- 2) The contractor must show one (1) or more of the following:
 - a) That listed products are not available.
 - b) That providing available listed products involves excessive costs or hardships.
 - c) That listing of products involves requirements that unreasonably exceed the requirements of the specifications, codes, and project conditions.
- 3) Products must meet or exceed all specified requirements, industry standards, code requirements, and conditions specific to the project.
- 4) There must be no change in contract price (except that the owner reserves the right to require credit pricing).
- 5) Where acceptable to the owner.

8.3 Where NEC article numbers are referenced in the drawings and specifications, they apply to the latest edition. Where the authority having jurisdiction has not adopted the latest edition, refer to the equivalent applicable code requirement article.

9. PERMITS, CERTIFICATES, AND FEES

- 9.1 Apply for, obtain, pick-up, and pay for (pay all costs associate with) all permits, licenses, certificates, etc., required for execution of the project. Procure all permits immediately upon notice to proceed with the contract. The contractor is fully responsible for verifying all permits, licenses, certificates, etc. which are required. Submit (see the section of these specifications "Summary of Submissions") copies of all permits, licenses, certificates, etc. in conjunction with this project for record. If requested by the Local Code Official, prepare all information and data for submittal to any authority as required to obtain permits and certification of compliance for the permits. This specifically includes this contractor reproducing contract drawings for permit submission, which shall be sealed by an electrical engineer if required by the Local Code Official.
- 9.2 Obtain and submit (see the section of these specifications "Summary of Submissions") six (6) copies of inspection certificate(s) from authorities having jurisdiction indicating approval of the electrical installation. Arrange and pay for all electrical inspections (performed by an approved Underwriters Inspection Agency) associated with inspection certificate(s).

SECTION 16100 - GENERAL ELECTRICAL

- 9.3 Applicable utility service charges will be paid directly by the owner. Obtain and submit (see the section of these specifications "Summary of Submissions") written estimates from all respective utility companies prior to utilities performing work.
- 9.4 If and when requested by the owner or owner's representative, the electrical contractor shall submit to the owner any information necessary as part of the owner's application or submission for applicable grants, rebate programs, reimbursement programs (including, but not limited to, energy rebate programs such as "smart start" or "clean energy"), or other similar/related programs. Submit all required documentation, including, but not limited to, detailed pricing information on materials and/or labor, bills of materials, invoices, receipts, counts, take-offs, other related cost information, submittals, shop drawings, etc.. Compile information in format as required for submission as directed by the owner or owner's representative including tables and other formats as requested.

10. GUARANTEE AND WARRANTIES

- 10.1 The electrical contractor is fully responsible to guarantee all electrical equipment and work (applies to all materials and equipment, including lamps for luminaires) and is fully responsible for all manufacturers' warranties from material purchase (by the contractor), through the date of final acceptance by the owner, to the expiration date(s) of the guarantee and warranties. Guarantee and provide warranties for a period after the date of final acceptance by the owner as per Division 1 General Conditions, unless longer periods are specifically indicated otherwise on the electrical drawings or specifications. Guarantee/warranty periods of less than two (2) years after date of final acceptance are not permitted under any circumstance.
- 10.2 Wherever "warranties" are indicated elsewhere in the specifications, provide and submit (see the section of these specifications "Summary of Submissions") written manufacturers' warranties for equipment. Include all costs in bid associated with providing specified warranties periods (including purchasing any required extended or special warranties to meet the specified periods). Submission of written warranties showing periods, conditions, or coverage of less than the periods, conditions, and coverage specified does not relieve the contractor or manufacturers' of the responsibility to provide warranties with periods, conditions, or coverage as specified. Manufacturers' warranties do not relieve the contractor of any responsibility associated with the electrical contractor's guarantee.
- 10.3 The electrical contractor shall guarantee and respective manufacturers shall warranty equipment and materials from defects in workmanship, materials, and operation. Provide guarantee/warranties including all service, maintenance (excluding routine maintenance), materials, labor, travel, all other work, and all expenses required as part of guarantee/warranties. Provide all guarantee/warranties service at no extra cost to the owner under any circumstance. Provide all guarantee/warranties service in timely manner.
- 10.4 Completely replace or repair, to the satisfaction of the owner, any equipment (as part of this project) improperly installed or damaged before or after installation until expiration of the guarantee period. Completely replace or repair, to the satisfaction of the owner, any equipment (including existing equipment and equipment installed by any other contractor or party) damaged by the electrical contractor (or any subcontractor thereof).

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11. SEQUENCE OF WORK

- 11.1 Perform work in areas or general sequences (including applicable project phasing) as determined and directed by the owner and architect. Submit (see the section of these specifications "Summary of Submissions") a complete schedule of construction for approval, showing delivery of equipment, erection of equipment, pertinent work related to installation, and when equipment will be placed in operation. Fully coordinate exact sequencing, phasing, and scheduling with all contractors, the architect, and the owner in detail and obtain approval of sequencing, phasing, and scheduling before starting work.
- 11.2 Perform all work in such a manner and associated with sequencing, phasing, and scheduling as required and include all costs and manpower allocations in bid. For example, to complete a particular sequence or phase of the work, it may be necessary to perform work in physical areas of the project areas which are covered by and/or part of prior phases or subsequent phases of work (i.e. work in initial phases of the project may involve installing the electrical service and electrical distribution equipment in areas which are proposed for renovation as part of a later phase; this would require installing the electrical service and electrical distribution equipment as part of the initial phase). Verify all such conditions, implications, requirements and include costs in bid. No consideration, claims, charges, or compensation will be granted under any circumstance for sequencing, phasing, and scheduling.
- 11.3 Maintain service at all times (except as provided elsewhere in the drawings and specifications for shutdowns) and minimize disruptions to all active areas, activities, and operations in and around the scope of work. This specifically includes activities and operations of the owner, third parties in the vicinity of the project, roads and highways surrounding the project, and utility companies serving the project. Coordinate specific requirements with the owner before submitting bids.
- 11.4 Maintain service of life safety systems (specifically emergency lighting and fire alarm) at all times.
 - A. As a minimum, maintain the following during construction (except brief periods, not exceeding one (1) working day, while making connections to or transitions between existing, proposed, and temporary systems [where applicable]):
 - 1) Maintain code compliant emergency lighting in all occupied areas of the building. Emergency lighting is not required in unoccupied areas and other areas closed to use by building occupants.
 - 2) Maintain manual fire alarm operation throughout the entire building (including areas under construction). This includes manual pull stations (existing, proposed, and/or temporary) at all active building means of egress exits (i.e. exits from each floor to stairwells or the exterior). This includes audible signaling devices to adequately warn building occupants and construction personnel (visual signaling is not required and signaling is not required to comply with the ADA during construction).

SECTION 16100 - GENERAL ELECTRICAL

- 3) Maintain supervision of all active sprinklers in the building. This includes monitoring flow, tamper, and pressure switches.
 - 4) Maintain service to automatic fire detection as much as practical. Automatic fire detection is not required to operate in areas of construction at times when construction personnel are present (who can activate manual fire alarms). Other shutdowns of automatic fire detection may be considered, if approved in writing by the owner.
 - 4) Whenever ADA approved signaling is not operational during construction, the electrical contractor's construction personnel shall be instructed with and shall carry out procedures to manually notify any disabled building occupants of fire emergencies (*this provision does not apply if the existing fire alarm system is not ADA compliant or is not present*).
 - 5) Whenever HVAC duct smoke detection systems are not operational during construction, the electrical contractor is responsible for maintaining clear and unobstructed access to HVAC controls and/or disconnecting means (to facilitate manual operation in the event of a fire).
- B. To satisfy requirements above, any existing and proposed life safety systems may be used as much as practical. Where requirements cannot be satisfied using existing/proposed systems, provide suitable temporary life safety systems (including all associated temporary wiring) as required.
- C. Whenever unable to meet the above requirements, the electrical contractor (at the electrical contractor's expense) shall provide continuous fire watch.

12. CHANGES TO THE SCOPE OF WORK

- 12.1 Changes to the scope of work include any change effecting the overall nature or cost of the project. Examples of changes to the scope of work include, but are not limited to, additions or deletions of equipment or items of work, substitutions not equivalent or superior to equipment specified, substitutions with characteristics or operation varying from equipment specified, changes which effect the ultimate use or functioning of equipment or areas of the building, changes considered to be "substantial", any change which any party (contractors, sub-contractors, owner, architect, engineers, etc.) believes may involve a possible change in contract price, etc..
- 12.2 Make all changes to the scope of work in complete accordance with the general conditions of the specifications. Submit (see the section of these specifications "Summary of Submissions") changes to the scope of work immediately upon proposal of changes. Do not proceed with any work associated with or affected by changes to the scope of work unless the owner approves changes in writing or authorizes proceeding in writing.
- 12.3 All applicable provisions of the contract drawings and specifications, including addenda and prior changes, apply to all changes to the scope of work, unless specifically indicated otherwise.

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- 12.4 In addition to all requirements of the general conditions, submit all pricing related to changes to the scope of work as indicated below. Pricing will not be reviewed until the required breakdowns (summarized below) are submitted.
- 12.5 Submit pricing for a proposed change to the scope of work with detailed breakdown as follows.
 - A. Submit a complete detailed breakdown of all material associated with the proposed change in scope of work. Itemize each unit of material and the respective cost.
 - B. Submit a complete detailed breakdown of all labor associated with each respective item of the above material breakdown. Itemize labor hours and classification for each item of material. Summarize total labor costs, broken down by worker classification and/or billing rate.
- 12.6 Where instructed to proceed with a change to the scope of work on a time-and-material (T&M) basis, submit pricing with detailed breakdown as follows.
 - A. Submit a complete detailed breakdown of all material. Submit copies of all receipts, invoices, and stock material lists.
 - B. Submit a complete detailed breakdown of all actual labor hours. Submit copies of time sheets. Summarize total labor costs, broken down by worker classification and/or billing rate.
- 13. TEMPORARY POWER AND LIGHTING
 - 13.1 For this specification section only, the term "responsible" (in any form) means "responsible to pay all costs (pay to the electrical contractor) to erect the described work". For this specification section only, the term "erect" (in any form) means "furnish, install, maintain, and remove".
 - 13.2 The electrical contractor is responsible for temporary power and lighting service/source and distribution during construction. Provide service capacity as required for construction. Provide service including any required utility or private metering.
 - 13.3 The electrical contractor is responsible for all temporary lighting, all 120 V power for small construction tools, and all other temporary power not exceeding 120 V or 20 A. Power for large tools and equipment exceeding 120 V or 20 A (including arc welders, etc.) is the responsibility of the contractor requesting such power. Temporary power during construction (exceeding 120 V or 20 A) to permanent equipment installed as part of this project (for installing, testing, operating, etc., including mechanical equipment, elevators, etc.) is the responsibility of the contractor requesting such power.
 - 13.4 Where a general contractor's construction trailer is present, the electrical contractor is responsible for a minimum 60 A, maximum 200 A single phase service to the trailer. Provide service including any required utility or private metering. Temporary service to any other contractor or subcontractor trailer is the responsibility of the contractor requesting such service.

SECTION 16100 - GENERAL ELECTRICAL

- 13.5 Where utility power is not available and during shutdowns of utility power, the contractor requesting power under these conditions is responsible for providing portable generator(s), associated temporary wiring, and fuel (as required to meet power requirements during these conditions). Generator power to owner loads during construction is not required (unless specifically indicated on the drawings).
 - 13.6 The electrical contractor is responsible for temporary power to existing and/or other owner loads, equipment, and wiring as indicated on the drawings.
 - 13.7 The electrical contractor shall erect all temporary power equipment and wiring as required for complete temporary power installation, regardless of the contractor who is responsible for the temporary power.
 - 13.8 Erect all temporary power and lighting during construction in accordance with OSHA and the NEC. This includes required ground fault circuit interrupter (GFCI) protection for personnel and "assured grounding program".
14. TESTING
- 14.1 After completing installation of equipment and wiring and prior to energizing or placing in service, test all electrical equipment, conductors, systems, and each and every part thereof to insure continuity, proper splicing, freedom from unwanted grounds, acceptable insulation values, proper operation and functioning, and a complete workmanlike installation to the satisfaction of the engineer and owner.
 - 14.2 Completely test all equipment installed. This includes all equipment furnished and installed by the electrical contractor as well as equipment furnished by others and installed by the electrical contractor and equipment furnished and installed by others and wired by the electrical contractor.
 - A. Electrical tests of panels, switches, and circuit breakers rated 800 A and less and 600 V and less are not required, except that meg-ohm meter testing is required.
 - B. Electrical tests of motors 75 kW (100 hp) and less are not required.
 - C. Electrical tests of individual motor starters are not required. This does not apply to motor control centers (where applicable), where complete testing is required.
 - D. Visual and mechanical checks are required for all equipment (including all panels, switches, circuit breakers, motors, motor starters, and all other equipment) without exception.
 - 14.3 Test all equipment and wiring as per the latest edition of InterNational Electrical Testing Association (NETA) standards (Acceptance Testing Specifications (NETA-ATS) for new equipment/wiring and Maintenance Testing Specifications (NETA-MTS) for existing equipment/wiring), unless indicated otherwise. For each piece of equipment, perform testing as shown for that equipment in respective NETA standards. Where equipment is not specifically shown in NETA standards, perform testing as shown for equipment most closely resembling the equipment to be tested. Perform all tests shown in respective NETA standards, unless indicated otherwise. Tests shown as "optional" in NETA standards are

SECTION 16100 - GENERAL ELECTRICAL

not required unless specifically indicated otherwise on the drawings or specifications. Utilize suitable instruments in making all tests, as per NETA standards. Battery, magneto, or similar hand-held testers may be used for preliminary conductor continuity checking but are not acceptable for final results, which must be obtained utilizing proper equipment only (i.e. meg-ohm meter, etc.).

- 14.4 Provide all testing performed by a NETA accredited independent testing firm employed by the electrical contractor, unless indicated otherwise. Provide visual and mechanical checks shown in the NETA standards, testing of transformers 225 kVA and less (with primary and secondary voltages 600 V and less only), and testing of panels, switches, and circuit breakers 1,200 A and less and 600 V and less performed by the electrical contractor's direct employees or by the independent testing firm (at the contractor's option). Provide continuity and insulation resistance meg-ohm meter testing of 600 V and less conductors performed by the electrical contractor's direct employees only.
- 14.5 If requested by the owner or engineer, utilize a recording type (i.e. "Drantz") meter to measure phase-to-phase voltage, phase to neutral voltage, phase currents, harmonic content, and surges in the system. Perform testing for a period of one (1) week. Completely set up and take down meter and submit printout tapes formal test results.
- 14.6 For all testing performed, submit (see the section of these specifications "Summary of Submissions") complete typewritten and tabulated test results for review and approval by the engineer and owner. Submit test result bound together in a single three-ring binder (one (1) binder per set of test results) including a table of contents. Submit quantity of sets as directed in the General Construction specifications, but in no case less than three (3) sets. Submit results upon project completion, except under conditions below.
- 14.7 Where any abnormal, questionable, "failing", or "borderline" test results are encountered or where discrepancies are noted during testing, submit results immediately to the engineer before energizing equipment. Do not energize until authorized in writing by the engineer. Test results submitted under these circumstances are not required to be bound or complete.
- 14.8 Where connecting to or otherwise modifying existing wiring, test wiring as follows.
 - A. Test existing wiring before performing work to confirm integrity (where testing is performed, the electrical contractor is not responsible for the prior existing condition of wiring).
 - B. Test new wiring before connecting to existing wiring.
 - C. Test connections of new to existing wiring (test new wiring and existing wiring together) and modified existing wiring after performing work.

Where this testing is not performed, the condition of existing wiring will be assumed to be a direct and sole result of work performed and the electrical contractor will be held fully responsible for the condition of existing wiring. Where this testing is not performed and where existing wiring is not in acceptable condition for maintained use or service, the electrical contractor shall repair or replace wiring to the satisfaction of the owner at no cost to the owner.

SECTION 16100 - GENERAL ELECTRICAL

- 14.9 Provide oscilloscope testing of all variable frequency drives (VFD's) installed as part of this project (with power wiring installed by the electrical contractor), including VFD's furnished by the mechanical contractor, other contractors, or the owner and including VFD's in motor control centers (where applicable). Perform oscilloscope testing to determine the presence/magnitude of voltage surges (at the VFD carrier frequency level, approximately 15 kHz to 25 kHz) associated with reflected wave phenomenon. Perform testing by making oscilloscope measurements at the VFD load terminals and at the motor line terminals (or at the disconnecting means local to the motor where motor terminals are not practical). Record oscilloscope readings with a suitable oscilloscope type "Polaroid" camera (or other recording means which accurately displays equivalent graphic information) and compare readings at the VFD with readings at the motor. Submit photographs with test results. Oscilloscope testing is not required for a VFD located directly adjacent to the motor served, provided the VFD and motor manufacturers submit written certification showing that the complete motor/VFD installation is fully coordinated (including considering reflected wave phenomenon); the electrical contractor is responsible for obtaining this written certification.

15. SUBSTITUTIONS

- 15.1 Materials and equipment manufacturers and catalog numbers specified constitute the type and quality of design, material, workmanship, ruggedness of construction, resistance to vandalism, exact operating and performance characteristics, features, configuration, dimensions, etc.. The engineer will consider substitutions of similar equipment superior to specified equipment (meeting or exceeding all characteristics of the specified equipment).
- 15.2 Submit shop drawings associated with substitutions complete with documentation necessary to establish compliance with the specifications (see the sections of these specifications "Shop Drawings" and "Summary of Submissions"). Submit samples of substitutions where requested (see the sections of these specifications "Samples" and "Summary of Submissions"). If documentation and/or samples are not submitted when required, the request for substitution will be denied.
- 15.3 Determination of compliance with specifications rests with the engineer. When a request for substitution is denied, furnish the equipment specified. The engineer's decisions in cases of substitutions are final and binding upon the contractor, provide equipment accordingly.
- 15.4 Pay all costs associated with a substitution where granted. For the provisions of this section, "substitutions" includes equipment where characteristics or operation vary significantly from equipment specified (including equipment of the specified manufacturer). This includes costs incurred by any party (electrical contractor, other contractors, sub-contractors, owner, architect, engineers, etc.), costs resulting from differences of details, configuration, ratings, operation, characteristics, and dimensions between the specified and substituted equipment, costs to provide features of the specified equipment which may be manufacturer's options of the substituted equipment, and costs to remove and replace work already installed and any other remedial work as a result of substitutions. Approval of substitutions is conditional upon there being no cost change to the contract, unless specifically indicated on the shop drawings submittal and corresponding approval. The electrical contractor is fully responsible for coordinating with the owner, architect, and other trades to identify all possible cost impacts associated with any substitution before releasing equipment and before any party proceeds with work effected by the substitution.

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- 15.5 Submit bid based on the items as specified. Substitutions will be considered only after a contract has been awarded.

16. SHOP DRAWINGS

- 16.1 Submit a product list indicating all proposed items of products, materials, and equipment as directed in the general construction specifications.
- 16.2 Submit (see the section of these specifications "Summary of Submissions") shop drawings of all equipment and materials proposed to be furnished for review and approval by the engineer. Submit quantity of sets as directed in the general construction specifications, but in no case less than ten (10) sets.
- 16.3 Submit shop drawings for all equipment and materials including, but not limited to luminaires, solid state energy saving ballasts, raceways, conductors, cable, termination methods, grounding, wiring devices, safety switches, enclosed circuit breakers, branch and distribution panels, transformers, contactors, time clocks, photocells, fire alarm system, emergency power and lighting system equipment, engraved plastic nameplates, and any other items requested by the owner, architect, any code official, or engineer.
- 16.4 Stamp or mark shop drawings with the contractor's approval, as evidence that they were checked for accuracy and that all dimensions, characteristics, ratings, operation, features, data, relation to existing conditions, and coordination with work and shop drawings of other trades were completely verified before submission. Approval of shop drawings by the engineer does not relieve the contractor of responsibilities to review shop drawings in detail, to comply with drawings and specifications, for errors contained in shop drawings, for coordination, and to provide equipment as listed.
- 16.5 Where any characteristics, ratings, operations, or features differ from the specified equipment (where not equal to or superior to the characteristics, ratings, operations, and features of the specifications and specified equipment), circle, highlight, or otherwise clearly designate and identify the specific differences.
- 16.6 In the event that shop drawings are not acceptable to the engineer (including as provided below for conditional approval), submit acceptable shop drawings within seven (7) days of notification.
- 16.7 Approval of shop drawings, including approval of substitutions, is conditional that there is no cost change to the contract, unless specifically indicated on the shop drawings submittal and corresponding approval.
- 16.8 Approval of shop drawings is conditional upon the contractor fully and completely complying with all review comments by the owner, architect, and engineer. Where the contractor fails to or is unable to fully and completely comply with every review comment, then the shop drawings are *disapproved* (whether or not they are stamped or noted as "approved" in any manner in any review comment) and must be resubmitted as within seven (7) days (as indicated above). Immediately upon receipt of shop drawing review comments, the contractor is responsible for carefully reviewing all comments in detail and for complying with comments. Where unable to fully satisfy any comment or where the

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contractor takes exception to any comment, revise and resubmit acceptable shop drawings (or, where taking exception, notify the engineer in writing) within seven (7) days. Where the contractor fails to comply with these requirements (including resubmitting/notifying within the seven (7) day period specified), the contractor shall provide acceptable equipment meeting all specified requirements and all review comments (including removing unacceptable equipment [if installed] and replacing with acceptable equipment) at no cost to the owner.

- 16.9 Do not release equipment until shop drawings are approved. The electrical contractor is responsible for all changes where equipment is released before approval and/or where equipment does not comply with all approval conditions.
- 16.10 In addition to the quantity of shop drawings submitted for approval (see above), submit one (1) copy of *approved* shop drawings to the general contractor, the mechanical contractor, and each other contractor and trade for review and coordination. The electrical contractor is not required to submit copies direct to subcontractors or vendors to other contractors (this is the other contractors' responsibility). The electrical contractor is responsible for all changes and other costs where the electrical contractor fails to submit shop drawings to other parties for coordination.
- 16.11 Obtain copies of all shop drawings relating in any way to electrical work from all other contractors, subcontractors, and trades. Review shop drawings and coordinate with electrical work. Notify the architect and engineer immediately where discrepancies are found. The electrical contractor is responsible for all changes and other costs where the electrical contractor fails to obtain shop drawings or fails to coordinate shop drawing information. Approval of other trades submittals by the architect or engineers (or lack of review by the architect or engineers) does not relieve the electrical contractor of the responsibility to review other trades shop drawings in detail and for coordination.
- 16.12 No extra claims or compensation shall be granted under any circumstance associated with any party's failure or delay in properly submitting, transmitting, obtaining, reviewing, and/or coordinating shop drawings.

17. SAMPLES

- 17.1 Submit (see the section of these specifications "Summary of Submissions") samples of materials and equipment for approval only where specifically requested by the owner, architect, or engineer. Submit samples along with complete catalog data, installation instructions, operating and maintenance (O&M) information, etc. specifically applying to the samples submitted, to facilitate proper evaluate the quality of the sample. Specifically designate and identify each sample as to the service and location where each sample is to be used on the project.
- 17.2 Submit samples within 30 days of the engineer's request, except where the sample is ancillary to a substitution. Where samples are ancillary to a substitution, submit samples within seven (7) days of the engineer's request.

18. AS-BUILT DRAWINGS, MANUALS, AND DEMONSTRATION

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- 18.1 Prepare and submit (see the section of these specifications "Summary of Submissions") as-built record drawings showing conditions exactly as installed.
- A. Indicate the exact locations and elevations of all equipment and devices and underground, concealed, and hidden work (including raceways, junction and pull boxes, etc.).
 - B. Indicate exact layout, connections, and conductor routing for all grounding.
 - C. Indicate all substitutions, including marked-up lighting fixture/luminaire schedule and symbol list as required.
 - D. For underground work, specifically indicate exact conditions accurately. Where underground wiring does not run straight and direct between visible and obvious equipment, objects, or markers (i.e. markers specifically placed to identify underground work [specifically note the presence and approximate location of all markers on as-built drawings]), clearly, accurately, and exactly *mark* and *dimension* exact underground work (including all bends) from visible permanent landmarks. Acceptable visible permanent landmarks include building walls, retaining walls, curbs, foundations, pole bases, etc.. Lines, joints, and markings on pavements are not considered permanent (since they would be covered by re-paving). Acceptable markers for placement to identify underground work include a 0.9 m (3'0") long piece of 102 mm (4") conduit installed vertically in the ground (top flush with grade) completely filled with concrete (or other similar means providing equivalent visibility, durability, and permanence approved by the engineer). Where the contractor does not include this exact marking/ dimensions on as-built drawings or where marking/dimensions are inaccurate (allowing for a tolerance of not greater than 0.6 m (2'0") away from actual locations), the electrical contractor will be held responsible if underground facilities are damaged in the future (where due to lack of or inaccurate marking/ dimensioning).
- 18.2 During the progress of work, maintain an accurate record of all deviations, variations, changes, and corrections from the layouts shown on the drawings. Maintain this information on a "record working" set of drawings and specifications kept at the job site.
- 18.3 Upon completion of work, incorporate all information from the "record working" drawings onto a "marked-up as-built" set of drawings. Submit the "marked-up as-built" drawings to the engineer for review, comment, and approval.
- 18.4 Following approval of "marked-up as-built" drawings, prepare "final as-built" drawings utilizing the latest version of Autocad (or compatible) software. Submit one (1) set of "final as-built" drawing originals, sets of "final as-built" blueprint drawings as directed in the general construction specifications (but in no case less than three (3) sets), and "final as-built" drawings in disk format. Submit photocopies of all panel circuit directories with "final as-built" drawings.
- 18.5 Upon completion of work and following approval of "marked-up as-built" drawings, incorporate all information from the "record working" specifications onto "final (marked-up) as-built" specifications. Submit sets of "final as-built" specifications as directed in the general construction specifications (but in no case less than three (3) sets).

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- 18.6 Submit operating and maintenance (O&M) manuals for all new equipment furnished as part of this contract. Provide O&M manuals including installation, operating, and maintenance instructions for the equipment. Wherever "proof-of-purchase" is required as part of any manufacturer's warranty (whether manufacturer's warranty is specified or not), submit with O&M manuals. Where any proof-of-purchase is required but not submitted (or where insufficient information is submitted), the electrical contractor is fully responsible and liable for providing the warranty. Submit all O&M manuals bound together in a single three-ring binder (one binder per set of manuals) including a table of contents. Submit quantity of sets as directed in the general construction specifications, but in no case less than three (3) sets.
- 18.7 Explain and demonstrate the complete electrical system and all work installed by the electrical contractor to the owner's operating and maintenance personnel. Demonstration is to instruct owner's personnel in the operation and maintenance of systems as well as to prove to the owner correct and adequate operation of all parts of the electrical system. Provide a demonstration period of one (1) full working day for the general electrical installation (including, but not limited to, contactors, time clocks, customer metering equipment, lighting controllers, dimming cabinets, motor controls [where furnished by the electrical contractor], transformer fan controls, generators, transfer switches, key interlocking schemes, and similar equipment, where applicable). Wherever demonstrations are indicated elsewhere in the specifications for equipment furnished by the electrical contractor (i.e. for fire alarm, dimming, sports lighting, stage lighting, UPS units, MCC's, VFD's, metal clad switchgear, power management, sound/paging, security, CCTV, and similar systems, where applicable), provide the specified additional demonstrations during additional periods of time (above and beyond the period above for the general electrical demonstration). Conduct all demonstrations at the project site and after all systems are fully operational.

19. SUMMARY OF SUBMISSIONS

- 19.1 Submit items as indicated elsewhere in the specifications (applicable sections are shown for convenience) and as summarized as follows. Information below indicates relative schedule of submission.
- 19.2 Submit upon commencement of construction (as per general construction specifications); resubmit within seven (7) days of notification:
- A. Permits, licenses, certificates (see 16100-9)
 - B. Schedule of work (see 16100-10)
 - C. Product list (see 16100-17)
 - D. Shop drawings (see 16100-17)
- 19.3 Submit within 30 days of request (within seven (7) days for substitutions):
- A. Samples (see 16100-18)
- 19.4 Submit during the project as applicable (refer to respective specifications sections for conditions and schedule of submission):

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- A. Utility service charge estimates (see 16100-9)
- B. Scope of work changes, w/ breakdowns (see 16100-11)
- C. Test results, abnormal/failing only (16100-15)
- D. Short circuit and coordination report (where specified for adjustable circuit breakers)

19.5 Submit upon substantial completion of the project:

- A. Approved inspection certificate(s) (see 16100-9)
- B. Written manufacturers' warranties (see 16100-14)
- C. Test results (see 16100-15)
- D. As-built drawings (see 16100-19)
- E. O&M manuals (see 16100-19)
- F. Spare parts (where specified elsewhere)

20. SAFETY

- 20.1 Perform all work and work practices in strict accordance with all applicable local, state, and federal codes, standards, regulations, and requirements including OSHA (including the proper use and maintenance of personal protective equipment (PPE) and clothing), state labor and industry, the NEC, ASTM, the National Electrical Safety Code, NFPA, etc..
- 20.2 The term "live" means "energized or capable of being energized at any time for any reason, either intentionally or accidentally".
- 20.3 Suitably protect all live equipment against accidental contact at all times. Install and maintain covers on all live equipment. Where covers are not installed, provide suitable insulating barriers at all live parts. Suitable barriers include arc-resistant NEMA GPO-2 or GPO-3 and UL 94 V-0 electrical grade fiberglass reinforced epoxy compound sheets, rubber insulating blankets, suitable thermoplastic insulating materials, etc. as per OSHA, ASTM, and the NEC. Cardboard and similar materials are not acceptable. Provide listed OSHA approved signs reading "Danger: High Voltage" at locations of live parts and on doors/gates leading to rooms/fences/areas containing the equipment and keep doors/gates locked at all times.
- 20.4 Protect and enclose equipment operating at over 600 V at all times. Equipment is considered adequately protected where all requirements of NEC Articles 110.26 through 110.34 (including all other articles and codes referenced therein) are satisfied at all times. Where equipment must be exposed for work, or where work is to be performed around normally exposed live parts, provide suitable insulating barriers (suitable for the voltage involved), listed warning signs, and door/gate locking, etc. as required above. Provide listed OSHA approved warning tape (reading "Danger: High Voltage") around the equipment and all code required working spaces at equipment.
- 20.5 When working on equipment or wiring, properly identify and use lockout devices and tags (in accordance with OSHA requirements) to prevent unauthorized or accidental energizing of equipment and wiring.

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- 20.6 Perform all work in or associated with confined spaces (including manholes, hand holes, vaults, crawl spaces, etc.) in accordance with all safety codes referenced above. Obtain appropriate permits where required by the above codes and/or the owner.
- 20.7 Perform all excavation and work in and associated with excavation in accordance with all safety codes referenced above (include all required sloping, benching, shoring, bracing, supporting, shields, protective systems [fall protection, protection of personnel in excavation, protection of structures, etc.], ramps, access/egress, warning systems, rescue equipment, etc.). Provide suitable barricades and safety procedures to restrict pedestrian and vehicular access to areas where work is being performed (including open excavations, lay-down areas, clearance space around operating excavation equipment, etc.). Do not leave excavations open when not actually performing associated work (including at night, during weekends, or when working away from excavations). Leaving excavations open for short periods of time will be considered only when approved in writing by the owner and only where suitably protected. Any request for owner's approval must include a written plan on proposed protection and safety procedures. No consideration, claims, charges, or compensation will be granted for any multiple excavations and backfilling needed to satisfy safety requirements.
- 20.8 When working in, on, or near areas subject to vehicular traffic (including public and private roadways, driveways, parking lots, etc. and including loading and unloading equipment/materials in the vicinity of traffic), perform all work and provide appropriate work zone traffic control in accordance with all safety codes referenced above as well as state department of transportation regulations, requirements, and recommendations. Where requested by the owner, architect, or engineer, submit a traffic control plan detailing proposed work zone traffic control and associated safety procedures.

21. HAZARDOUS MATERIALS

- 21.1 The electrical contractor is not responsible for and is not required to remove equipment contaminated by hazardous materials, except as indicated below. For this specification section, the term "hazardous material(s)" applies to any materials classified by federal, state, or local authorities as environmental or health hazards (including, but not limited to, polychlorinated biphenyls (PCB's), asbestos, mercury, radioactive materials, etc.). For this specification section, the term "contaminated" (in any form) means "contains or is contaminated by hazardous material(s)".
- 21.2 The electrical contractor (and all applicable subcontractors) shall be fully insured for performing all work related to, on, and around contaminated equipment and for all work specifically shown in this specifications section as by the electrical contractor. Submit proof of insurance to the owner as part of or along with other applicable insurance submittals (as per Division 1 General Conditions, Supplemental Conditions, and Special Contract Requirements).
- 21.3 Immediately notify the owner if any electrical equipment or wiring to be removed or modified as part of this project is contaminated or suspected as contaminated. Identify all areas where disruptive work is proposed (including, but not limited to, excavation, cutting, penetration, drilling, etc.) in advance of performing work so the owner can arrange to have any necessary abatement completed, include all costs and schedule time accordingly. No consideration, claims, charges, or compensation will be granted under any circumstance for

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any delays resulting from abatement of hazardous materials.

- 21.4 When performing work with, on, and around equipment contaminated or suspected as contaminated, assume that the equipment is contaminated until/unless proven otherwise by testing. Exercise care and suitably guard and protect equipment at all times from the start of work until the equipment is either proven by testing as not contaminated or is removed from the project site.
- 21.5 Where existing equipment is specifically shown on the drawings as containing or filled with electrical insulating fluid ("oil", including transformers marked "OA") and where the equipment is specifically indicated on the drawings as being removed, utilize the services of a qualified testing agency (see the section of these specifications "Testing") to sample and test the oil. Test only for content of PCB's in the oil, unless indicated otherwise. Test a sample from each separate tank/compartiment containing oil. Verify exact conditions (including the quantity and arrangement of tanks, compartments, and enclosures, the presence of sampling, drain, or fill valves or plugs, removable covers or access panels, etc.) in field prior to submitting bid. Submit written certified test results to the owner.
- 21.6 Where equipment is proven by testing as contaminated or is indicated on the drawings as contaminated, perform work as follows:
- A. Completely de-energize, disconnect, and make the equipment electrically safe.
 - B. The owner, at the owner's discretion, shall perform one (1) of the following two (2) options:
 - 1) Completely remove and dispose of the contaminated equipment.
 - 2) Completely "abate" the contaminated equipment by removing hazardous materials from the equipment in complete accordance with all applicable federal, state, and local laws, ordinances, and regulations.
 - C. Once equipment is abated of hazardous materials by the owner and certified by the abating vendor as no longer contaminated, the electrical contractor shall then remove the equipment as if the equipment was never contaminated.
- 21.7 When removing existing luminaires containing ballasts (fluorescent, H.I.D., etc.), consider all ballasts as being contaminated by PCB's, unless ballast factory nameplate specifically indicates that the ballast does not contain PCB's. The electrical contractor shall completely disconnect, remove, and dispose of all ballasts not contaminated by PCB's. For ballasts considered as contaminated by PCB's, remove ballasts from luminaires, cut all ballast wiring leads within 51 mm (2") of the ballasts, and neatly place ballasts in owner furnished drum containers (i.e. 55-gallon). The owner shall dispose of PCB contaminated ballasts in drum containers. For luminaires (with ballasts considered as contaminated by PCB's) where there are signs of ballast rupture or leakage, carefully remove the entire luminaire and turn over to the owner (owner shall dispose of luminaires where PCB leakage is suspected).

END OF SECTION

SECTION 16200 - ELECTRICAL WORK PRACTICES

1. GENERAL PROVISIONS

- 1.1 The applicable requirements and conditions of specifications section "General Provisions" of specifications division 16100, General Electrical, are hereby made an integral part of this section.
- 1.2 The work governed by these specifications includes but is not limited to that as defined in specifications section "Scope of Work" of specifications division 16100, General Electrical.

2. INSTALLATION

- 2.1 Provide all equipment and materials in accordance with the recommendations and instructions of the respective manufacturers. This includes recommendations and instructions for equipment furnished by other trades or the owner and installed or connected by the electrical contractor.
- 2.2 Perform all work in an approved first class and workmanlike manner and conform to the best practices of the trade and to all requirements of the NEC.
- 2.3 Protect and preserve all existing, new and proposed raceways, wiring, materials, devices, luminaires, and equipment from corrosion, dirt, paint, building materials, acid, solvents, chemicals, water, ice, tools, overload, freezing, heat, combustion, theft, damage, abrasion, inadvertent removal, improper installation (including where installation has not been completely or properly coordinated), conflicts, interference, vandalism, etc. at all times. Repair or replace all equipment and materials lost or damaged as the result of inadequate protection. Cap and plug open ends of raceways and equipment during construction until wiring is ready to be installed.
- 2.4 Coordinate with and obtain approval of the owner and architect for all exact locations of all outlets, raceways, materials, and equipment. Where requested by the owner, architect, or engineer, submit sketches/drawings of proposed raceway routing, equipment locations, and any other details of installation specifically requested.
- 2.5 Completely coordinate installation and routing of all wiring, materials, and equipment in the field and with shop drawing information of all trades prior to rough in of wiring or releasing equipment. Completely inspect equipment and materials upon receiving in the field (including equipment received by other trades where installed or connected to by the electrical contractor) and verify exact installation requirements and details (compare to installation and routing as coordinated above) prior to installing, preparing installation, modifying, or handling in any manner which would restrict the ability to return material or equipment in the event of potential installation complications.
- 2.6 Cooperate and fully coordinate all work with the work of all other trades, contractors, subcontractors, and the owner, including work as part of other contracts and projects related to and/or in the vicinity of the specified work. Coordinate the locations of pipes, ducts, structure, reinforcement, foundation components, floor/wall/ceiling construction, raceways, branch and distribution panels, luminaires, devices, electrical outlets, air outlets, motor controls, and all other equipment in order to avoid conflicts, interference, or placing services at the wrong locations. Coordinate all demolition, disconnection, removals, relocations, extension, and re-feeding associated with existing equipment and wiring.

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Coordinate with shop drawings of all trades. Install all wiring and equipment in such a way to maintain clearance and clear access to all equipment requiring access by code or for operating, servicing, maintaining, replacing, examining, etc. This includes access to electrical equipment and devices as well as mechanical, architectural, and other equipment including, but not limited to, valves, dampers, sensors, meters, gauges, clean-outs, access doors and panels, operating mechanisms, motors, pumps, fans, air handling and other mechanical equipment, etc. This specifically includes coordinating wall mounted electrical devices and outlets with wall mounted HVAC equipment (including baseboard, radiation, cabinets, etc.).

- 2.7 Provide all work indicated on the electrical drawings and electrical specifications but involving disciplines of other trades performed by the electrical contractor (or applicable sub-contractors to the electrical contractor), unless specifically indicated otherwise. Perform work in complete accordance with all general construction specifications applicable to the work. This applies to all work including, but not limited to, cutting and patching, excavation, backfill, surface restoration (including paving), concrete, metal fabrication, fire stopping and sealing, painting, etc.
- 2.8 Properly isolate all materials and equipment against the transmission of vibration or noise to, from, or between any parts of the building.
- 2.9 The electrical contractor is fully responsible for determining and verifying all exact details of installation. Where installation details or similar information is shown on the drawings or is otherwise forwarded to the contractor (including during construction), the information represents the minimum criteria required and serves as a guide to the contractor but does not relieve the contractor of the responsibility for determining and verifying installation details.

3. GROUNDING

- 3.1 Completely ground and bond all equipment (specifically including all metallic raceways, cable armor, cladding, and shielding, supports, transformers, cabinets, cable trays, service equipment, and the neutral conductor) in strict and complete accordance with all applicable requirements of the NEC.
- 3.2 Provide insulated grounding conductors run with all wiring (not applicable to "BX" armored cable [type "AC"] where permitted elsewhere in this specification).
- 3.3 Install all metallic raceways in such a way to provide a continuous grounding path without the use of the insulated grounding conductor required above. Include all bonding jumpers and conductors (in addition to the insulated conductor required above) as required for flexible conduit, loosely jointed raceways, etc. Provide suitable raceway/conduit fittings for a completely grounded raceway system as required, including the use of fittings approved and/or listed for grounding, grounding bushings, grounding lock nuts, etc.
- 3.4 Provide all grounding and bonding materials and connections as per specifications section "Grounding Materials" of specifications division 16300, Electrical Materials.
- 3.5 Wherever connections to grounding electrodes or electrode systems are required by code, connect and bond to and interconnect the following.

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- A. Provide new driven (made) grounding rod electrodes, for all services and where equipment is located on or below the second floor of a building.
 - B. Connect to the domestic cold water piping system and any other metal piping system where required by the NEC (excluding piping prohibited from bonding/grounding by the NEC).
 - C. Connect to the structural steel and/or metal building frame, where applicable.
 - D. Connect to all existing grounding electrode systems, where applicable.
- 3.6 Wherever the following is installed as part of this project (including where installed by other contractors), connect and bond to the grounding electrode system.
 - A. Ground new metal piping systems where required by the NEC.
 - B. Ground new structural steel and/or metal building framing.
 - C. Wherever any new foundation and/or footing is installed with continuous length of 3.0 m (10'0") or more or covering area of 3.3 m² (36 sq. ft.) or more, provide concrete-encased electrode(s) as per NEC Article 250.52(A)(3). Provide consisting of not less than 6.0 m (20'0") of #4 AWG bare copper conductor encased in not less than 50 mm (2") of the foundation/footing concrete, except that concrete reinforcement may be substituted for the copper conductor where the size, length, type, and installation of reinforcement complies with NEC Article 250.52(A)(3) for use as a grounding electrode.
 - D. Ground existing or new computer room style raised floors where within the project scope. In addition, connect to grounding for all panels and electrical equipment serving the raised floor area.
- 3.7 Where driven (made) grounding rod electrodes are installed, provide grounding resistance not exceeding 1.0 ohm (maximum). Verify proper ground resistance by testing as per the section "Testing" of this specifications division 16100. Where the measured resistance exceeds the maximum value, install additional ground rod(s) at the location and/or set ground rods in suitable listed and NEC approved chemical ground enhancement material as required to obtain proper values, include all costs in bid.
- 3.8 Detail all grounding on as-built record documents.
- 3.9 Wherever new wiring or equipment is installed at or near roofs of buildings with lightning protection system(s), bond wiring/equipment to the lightning protection system(s) as required by lightning protection codes and standards.
- 4. WIRING METHODS
 - 4.1 The wiring methods in this section apply to all systems (including power, lighting, emergency, over 600 V, control, telecommunications, data, fire alarm, sound, security, CCTV, and any other system), unless specifically indicated otherwise.

SECTION 16200 - ELECTRICAL WORK PRACTICES

- 4.2 In finished areas, run all wiring hidden or concealed in/behind ceilings, walls, and floors, include all cutting and patching as required. In unfinished areas, wiring may run exposed. Run exposed wiring following building lines.
- 4.3 Utilize steel rigid metal conduit (RMC) for all wiring unless indicated otherwise. Utilize only steel RMC for all exposed visible exterior raceways, for raceways in wet locations above ground, for exposed visible raceways in damp locations, and for all raceways in NEC Hazardous Classified Locations (NEC Chapter 5). Utilize only steel RMC (encase in a 76 mm (3") 20 MPa (3,000 p.s.i.) concrete envelope) for raceways in or below grade that are subject to vehicular traffic (except that reinforced concrete encased PVC RNC or concrete encased steel IMC may be utilized as indicated below). Utilize only steel RMC for all wiring over 600 V (except that PVC RNC may be utilized for underground wiring over 600 V as indicated below). Utilize only steel RMC (with concrete encasement where required by code) where field conditions do not facilitate maintaining NEC required minimum cover for underground PVC RNC. For conduits 53 mm (2") and larger, where concrete encasement is not required above, embed all underground 45 degree or greater conduit bends (field fabricated or factory elbows) in a 155 mm (6") 20 MPa (3,000 p.s.i.) concrete envelope.
- 4.4 Steel intermediate metal conduit (IMC) may be utilized for all wiring except conditions indicated above as requiring only steel RMC. Steel IMC may be utilized in any condition where PVC RNC is permitted by these specifications. As an alternate to steel RMC, steel IMC (encase in a 76 mm (3") 20 MPa (3,000 p.s.i.) concrete envelope) is permitted under roadways, parking lots, and other areas subject to vehicular traffic. For conduits 53 mm (2") and larger, where concrete encasement is not required above, embed all underground 45 degree or greater conduit bends (field fabricated or factory elbows) in a 155 mm (6") 20 MPa (3,000 p.s.i.) concrete envelope.
- 4.5 Where permitted by code, schedule 40 or schedule 80 polyvinyl chloride rigid nonmetallic conduit (PVC RNC) may be used underground. Changing PVC RNC thickness (i.e. from schedule 40 to schedule 80 or vice versa) in the middle of any run of PVC RNC is not permitted. Encase all PVC RNC in a 76 mm (3") 20 MPa (3,000 p.s.i.) concrete envelope, unless indicated otherwise. As an alternate to steel RMC, PVC RNC encased in steel reinforced 76 mm (3") 20 MPa (3,000 p.s.i.) concrete envelope is permitted under roadways, parking lots, and other areas subject to vehicular traffic. Provide steel reinforcement consisting of a 12.7 mm (#4) reinforcing rod at each of four (4) "corners" around each conduit in cross section (where encasement includes more than one (1) conduit, rods located between conduits may be "shared"). Provide reinforcing rods continuous for the entire length of the reinforced encasement, join rods where required by overlapping not less than 155 mm (6") and wrapping with suitable reinforcing tie wire. In unpaved areas not subject to vehicular traffic, schedule 80 PVC RNC may be installed without concrete encasement. In unpaved areas not subject to vehicular traffic, schedule 40 PVC RNC 27 mm (1") and smaller may be installed without concrete encasement. For conduits 41 mm (1.5") and larger, where concrete encasement is not required by these specifications, embed all underground 45 degree or greater conduit bends (field fabricated or factory elbows) in a 155 mm (6") 20 MPa (3,000 p.s.i.) concrete envelope.

SECTION 16200 - ELECTRICAL WORK PRACTICES

- 4.6 Where runs of PVC RNC protrude exposed and visible above grade or floors, in indoor or outdoor locations, utilize steel RMC for the portions above grade/floor to a minimum depth of 155 mm (6") below finished grade/floor. This requirement does not apply where protruding PVC RNC is completely concealed/hidden within equipment enclosures, walls, or ceilings. Where exposed visible runs of PVC RNC are installed by the contractor (without prior written approval) the contractor shall remove the PVC RNC and install new steel RMC (including cutting and patching to a minimum 155 mm (6") depth and including replacing or reinstalling conductors) at no cost to the owner.
- 4.7 Where permitted by code, electrical metallic tubing (EMT) may be used for interior feeder and branch wiring in locations not subject to abuse or injury. Utilize steel RMC for conditions indicated above as requiring only steel RMC.
- 4.8 Utilize flexible conduit for flexible connections to motors, equipment requiring flexibility, equipment subject to vibration (including transformers), and where required for adjustment, in lengths not to exceed 1.8 m (6'0"). Flexible conduit may be utilized for flexible connections to luminaires only where wiring is concealed or located above accessible ceilings (in lengths not to exceed 1.8 m (6'0")). Exposed visible flexible conduit is not permitted for luminaires, except adjustable luminaires. Flexible conduit may be used where existing walls are fished in lengths not to exceed the portion in the wall plus 0.9 m (3'0"). Utilize liquidtight flexible metal conduit (LFMC, "sealtite"), unless indicated otherwise. Utilize only LFMC in damp, wet, and outdoor locations, mechanical rooms, and for NEC Hazardous Classified Locations (except as indicated below). Utilize flexible metal conduit (FMC, "greenfield") in dry locations only (except conditions indicated above as requiring only LFMC). Where flexible connections are required in NEC Class I, Division 1 Hazardous Classified Locations, utilize only flexible unions listed as suitable for the application. Flexible conduit/fittings of any type are not permitted as a substitute for conduit bends or offsets under any circumstance.
- 4.9 Where permitted by Code and approved by local authorities and the owner, armored cable (type "AC", i.e. "BX") and metal clad cable (type "MC") may be used for interior branch wiring concealed in walls/ceilings and hidden above accessible ceilings in dry locations only. Where applicable, comply with NEC Article 518 "Assembly Occupancies". Utilize raceway for all feeder wiring (#4 AWG and larger). Types "AC" and "MC" cables are not permitted in wet, damp, or exterior locations. Types "AC" and "MC" cables are not permitted in exposed visible locations. Type "AC" cable is not permitted for use on circuits exceeding 250 V or for use on DC circuits. Hide cables at panels in electrical rooms and electrical closets as per the section "Branch Panels" of specifications division 16300, Electrical Material.
- 4.10 Provide surface raceway with integral wiring devices (including receptacles, power outlets, telephone/data outlets, switches, etc.) and/or surface raceway plug-in strips where specifically indicated on the drawings.
- 4.11 Surface raceway without integral wiring devices is permitted only where all of the following conditions are met or where specifically indicated on the drawings. Surface raceway without integral wiring devices is permitted where physically impossible to run wiring hidden or concealed, where impossible to hide or conceal wiring by cutting, patching, and painting, where approved by code, in dry locations only, and where specifically approved by the owner and architect in writing. Permission to use surface

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raceway without integral wiring devices is conditional upon there being no cost change to the contract, unless specifically indicated on the written approval.

- 4.12 Nonmetallic-sheathed cable (types "NM", "NMC", and "NMS", i.e. "romex") is not permitted under any circumstance. Electrical nonmetallic tubing (ENT), liquidtight flexible nonmetallic conduit (types LFNC-A and LFNC-B), high-density polyethylene (HDPE) conduit, type "A" nonmetallic conduit, and type "EB" nonmetallic conduit are not permitted under any circumstance.
- 4.13 Provide all wiring within air handling plenum spaces in complete accordance with the NEC. Provide wiring methods utilizing metal conduit raceways (as permitted by the specifications) only. Type "MC" cable, where otherwise permitted, may be utilized in plenum ceilings (but not other plenum spaces). Type "AC" cable is not acceptable in plenum ceilings or other plenum spaces.
- 4.14 Provide all wiring in Hazardous Classified Locations or similar locations as defined by the NEC (where applicable) in strict accordance with all applicable requirements of NEC Chapter 5. Utilize wiring methods specified above, installed according to the NEC. Provide a complete installation including all required fittings, all required conduit and cable seals, etc. as indicated in the NEC. The applicable scope of Hazardous Classified Locations shall be as indicated on the drawings.
- 4.15 Provide conduit and cable seals (utilize a NEC Hazardous Classified Locations type, even if location is not classified) for all wiring within or passing through walk-in refrigerators/freezers, cold rooms, other refrigerated spaces, and any other location where wiring is exposed to widely different temperatures, in accordance with NEC Article 300.7(A). Consider these areas as wet locations and utilize aluminum RMC or PVC coated steel RMC for all wiring within or passing through these areas.
- 4.16 Provide all systems wiring (including only fire alarm, telecommunications, data, sound, security, and CCTV, where applicable) in complete accordance with all requirements of other sections of the electrical specifications, except as modified below. Where permitted by Code and approved by local authorities and the owner, suitable code approved systems type cables (without conduit) may be used for interior branch wiring concealed in walls/ceilings and hidden above accessible ceilings in dry locations only. Systems type cables without conduit are not permitted in wet, damp, or exterior locations. Systems type cables without conduit are not permitted in exposed visible locations. Run wiring in pathways as indicated on the drawings and specifications.
 - A. Provide wiring as directed, recommended, and approved by the respective system manufacturer/utility company and meeting all minimum requirements of the system manufacturer/utility (including where manufacturer/ utility requirements exceed the requirements of the specifications and the NEC).
 - B. Provide all cables as multi-conductor style having an overall jacket (of a color other than red; red is reserved for fire alarm) and utilize only cables approved by the NEC for use with the system.

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- C. Provide all wiring in plenum spaces in complete accordance with the NEC. In dry location plenum ceilings, utilize only plenum rated cables. For damp and wet location plenum ceilings and in all other duct and plenum spaces, run wiring (utilize a non-plenum type suitable for the damp/wet location) in metal conduit. Plenum rated cables may be utilized for other (i.e. non-plenum) applications, but only in dry locations. Plenum cables, even when installed in conduit, are prohibited in damp and wet locations.
 - D. In damp locations, utilize only cables specifically listed and identified for use in damp or wet locations. Provide all cables in wet locations (including underground and embedded in concrete slabs at or below grade, whether in conduit or direct buried) specifically designed for outdoor and submerged use and specifically listed and identified for use in wet locations.
- 4.17 Except as indicated otherwise on the drawings, 21 mm (3/4") raceways are the minimum permitted. No raceway smaller than 21 mm (3/4") is permitted under any circumstance (except where specifically approved in writing by the owner and engineer for the individual condition encountered). Where luminaires, devices, or equipment have factory knockouts or hubs smaller than 21 mm (3/4") size (or smaller than conduit sizes specified on the drawings), provide suitable reducing conduit fittings or provide field knockouts at equipment to match conduit size.
- 4.18 Except as indicated otherwise on the drawings, #12 AWG conductors are the minimum permitted for power and lighting and #14 AWG conductors are the minimum permitted for control and signal systems. #10 AWG conductors are the minimum permitted for outdoor wiring, night lighting circuit wiring, and emergency power and lighting wiring. #10 AWG conductors are the minimum permitted where circuits exceed 23 m (75'0") for 120/208/240 V circuits or exceed 46 m (150'0") for 277/480 V circuits, measured to the center of the load.
- 4.19 Provide a separate neutral conductor with each branch circuit where a neutral is required or indicated on the drawings. Multi-wire branch circuits with a shared common neutral are not permitted, unless specifically indicated otherwise on the drawings. Utilize multi-wire branch circuits with a shared common neutral conductor for lighting controlled by "dual switching" where the lighting is connected to two (2) circuits.
- 4.20 Multiple branch circuits may be installed in the same raceway (including surface raceways) where permitted by code and provided all of the following conditions (A through D below) are met.
- A. Apply appropriate NEC de-rating factors and adjust conductor sizes accordingly. Wiring sizes indicated on the drawings are based on each circuit run in an individual raceway (and are not adjusted for de-rating factors), except where multiple branch circuits in a common raceway are specifically indicated on the drawings (wiring is adjusted for applicable de-rating factors in this case, but only for the specific wiring combination shown on the drawings).
 - B. Provide no conductor (after de-rating adjustment) exceeding #10 AWG, except grounding conductors as provided below (or as otherwise specifically approved in writing by the engineer).

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- C. Common equipment grounding conductors are permitted in lieu of individual equipment grounding conductors for each individual circuit. Provide minimum single equipment grounding conductor size two (2) standard wire sizes larger than the size as determined in accordance with the NEC. Provide isolated grounding conductors (where required) individually for each circuit and in addition to common equipment grounding conductors.
 - D. Provide raceway fill (after de-rating adjustment) not exceeding 30% (provide maximum number of conductors permitted not exceeding 75% of the maximum number allowed by Code [i.e. refer to NEC Chapter 9 and Annex C] to allow for future wiring). Adjust minimum conduit size to maintain 30% maximum fill.
- 4.21 Minimum raceway sizes indicated in the specifications and on the drawings are applicable to all conduit types specified, except schedule 80 PVC RNC (unless the drawings specifically indicate schedule 80 PVC RNC). Where schedule 80 PVC RNC is utilized and the specified conduit size is 63 mm (2.5") and smaller, increase conduit to the next higher trade size. Where schedule 80 PVC RNC is proposed and the specified conduit size is 78 mm (3") and larger, submit raceway fill calculations; where raceway fill with the specified conduit size exceeds 40%, increase conduit to the next higher trade size.

5. WIRING INSTALLATION

- 5.1 Securely support and fasten all raceways, cables, outlets, boxes, equipment, etc. in place as required by the NEC. Support at intervals as required by the NEC, but in no case exceeding 3.0 m (10'0"). Refer to the section of this specification "Fastenings, Supports, and Hangers" for information.
- 5.2 Where any run of wiring passes vertically through more than one (1) floor level (including where installed in open vertical chases), support at every floor level. For conduits 63 mm (2.5") and larger, utilize only suitable pipe riser clamps (B-Line #B3373 series or approved equal), suitable wall bracket offset pipe clamps (NPHC-National Pipe Hanger Corp. figure #430 series or approved equal), or engineer approved heavy duty steel brackets (fabricated of not less than 6.5 mm (1/4") thick steel and of type, design, and arrangement suitable for the specific application and weights involved) for these floor level supports. Conduit clamps and strut type supports are not acceptable for this application.
- 5.3 Make all changes in direction of 27 mm (1") and larger conduits with standard elbows or case metal fittings. Fabricate field-made bends and offsets in conduit with suitable hickey/conduit-bending machine. Make conduit bends of the long radius type without kinks, flattening or crushing. Do not install crushed or deformed raceways. Avoid trapped raceways in damp and wet locations. Exercise care to prevent the accumulation of plaster, dirt, or trash in raceways, boxes, fittings and equipment during the course of construction. Entirely free clogged or obstructed raceways or replace raceways
- 5.4 Provide raceway ends cut squarely and reamed. Provide raceway installation (including pull boxes as required) so there is no more than a total of 360 degrees of bends in any run of raceway. Provide pull boxes at intervals not greater than every 30 m (100'0"), unless otherwise indicated on drawings.

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- 5.5 Maintain a separation of not less than 155 mm (6") between all raceways and hot water lines, steam lines, and any other surface with temperature exceeding 104 degrees F (40 degrees C), whenever possible. When not possible to maintain the 155 mm (6") separation, provide insulation pipe covering on the electrical raceways.
- 5.6 Provide a suitable insulating or grounding type (as required) bushing on each conduit terminating in a pressed steel box and for each conduit stub. Bushing is not required where conduit terminates in a suitable conduit connector/termination fitting which includes an integral bushing or which provides smoothly rounded surface suitable and approved for use without a bushing.
- 5.7 Wherever raceways pass across structure expansion joints, provide suitable conduit expansion fittings. Where expansion fittings are not listed for grounding, provide external flexible copper grounding strap. Wherever expansion fittings are installed, provide a suitable junction box located not farther than 7.6 m (25'0") from the expansion fitting location. Coil suitable slack conductors in this junction box to allow functioning of expansion fittings. For continuous runs of PVC RNC exceeding 27 m (90'0"), provide expansion fittings at intervals not exceeding 15 m (50'0") as required to compensate for linear thermal expansion and contraction.
- 5.8 Where metal raceway is installed in contact with or entering earth or concrete in outdoor, wet, or damp locations, coat raceway with engineer approved coal tar or epoxy based corrosion resistant coating (3M, Benjamin Moore, Carboline, or approved equal).
- 5.9 Running threads are not permitted.
- 5.10 Do not run wiring horizontally across floors or the ground, to avoid tripping hazards and facilitate cleaning floors.
- 5.11 Horizontal runs of raceway at rooftops are not permitted (to facilitate future roofing repairs/replacement), except where specifically approved in writing by the architect and owner. Horizontal runs may not exceed 2.4 m (8'0") length. Horizontal runs of any length are not permitted within 4.5 m (15'0") of any edge of any roof under any circumstance, to avoid tripping hazards. Support raceways at roofs in a manner to avoid harming, impacting, or compromising the roofing weatherproof integrity (fully coordinate requirement with roofing contractor/supplier [where present], architect, and owner). Where wiring is installed atop roofing material, utilize only pre-cast concrete paving units measuring not less than 12" x 12" x 2" (300 mm x 300 mm x 51 mm) thick laid on the roof and bonded to the roof using suitable roofing adhesive. Running rooftop wiring on wood blocks or bricks is not permitted under any circumstance.
- 5.12 In all kitchens, food preparation, and similar areas, run wiring concealed as much as possible. Where necessary to run wiring exposed, maintain space between raceways and building surfaces and run raceways *vertically only* in such a way to facilitate cleaning walls, ceilings, and floors and to avoid accumulation of foreign materials.
- 5.13 Install wiring in such a manner to avoid infiltrating water into the wiring system (during or after construction). Install wiring in such a manner so any water which does infiltrate cannot become trapped or accumulate and cannot drain into electrical or other equipment.

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- 5.14 Install exposed wiring (including visible wiring and wiring in accessible ceiling spaces or other accessible locations) parallel or perpendicular to walls, structural members, or intersections of vertical planes and floors or ceilings.
 - 5.15 Install concealed wiring (except as provided above for wiring in accessible spaces) as straight and direct as possible. Detail routing of all concealed wiring on record (as-built) documents.
 - 5.16 Space raceways embedded in concrete slabs, walls, beams, etc. or run underground not closer than 76 mm (3") between outsides of raceways and install as to avoid changing the locations of reinforcement.
 - 5.17 Except when plans of raceways are approved by the engineer, provide embedded raceways, other than those merely passing through, not larger in outside diameter than one-third the thickness of the slab, wall, beam, etc. in which they are embedded.
 - 5.18 Embedded raceways are not permitted to cross, except where the 76 mm (3") spacing and one-third thickness provisions above are maintained or exceeded.
 - 5.19 Provide all splices only in suitable code-sized junction or outlet boxes. Splices are not permitted in any type of conduit body under any circumstance.
 - 5.20 Do not install any wires in raceways until all raceway work is completed and closed in such a manner as to prevent the possibility of water or other foreign matter entering raceways.
 - 5.21 Wherever empty or spare raceways are installed, provide suitable pull wires with identification tags securely attached to each end. Where empty or spare raceways do not terminate in boxes or enclosures, provide suitable conduit caps. Utilize only conduit fitting type caps appropriate for the conduit involved. Rubber and plastic conduit plugs, duct sealing compounds, and tape are not acceptable.
6. FASTENERS, SUPPORTS, AND HANGERS
- 6.1 Provide all fastenings, supports, hangers, clamps, and anchors of the type made for the specific purpose for which they are used.
 - A. Utilize wood screws for fastening to wood.
 - B. Utilize toggle bolts or bolt fastenings for fastening to hollow tile, terra cotta, hollow masonry units, lath, and similar construction.
 - C. Utilize machine screws/bolts with nuts for fastening to structural steel.
 - D. Utilize metallic expansion shield anchors and machine screws/bolts for fastening to concrete, brick, and solid masonry. Wooden plugs with screws and plastic expansion shield anchors are not acceptable.
 - E. Threaded studs driven in by a powder charge and provided with washers and nuts may be used in lieu of expansion anchors, machine screws, and wood screws under the applications indicated above.
 - F. Utilize engineer approved adhesive fastening on roofing areas (mechanical fasteners are not be permitted to be driven into roofing surfaces).
 - G. Threaded C-clamps are not permitted.

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- H. Additional acceptable supports for a single 21 mm (3/4") EMT only include common nails for wood, spring-tension clamps for steel and nail-type nylon anchors for masonry.
 - I. Additional acceptable supports for not more than two (2) cables (where cable wiring methods are permitted elsewhere in this specification) only include nails for wood, spring-tension clamps for steel, and nail-type nylon anchors for masonry. A single cable only may be secured directly to wood with NEC approved cable staples.
- 6.2 To prevent swaying, vibrating and/or sagging, rigidly and firmly install raceway and cable (where cable wiring methods are permitted elsewhere in this specification).
- A. Support with malleable or wrought steel clamps, hangers, or with fabricated strut type supports. Provide strut type supports as B-Line, Kindorf, Power-Strut, Unistrut, or approved equal (steel only, aluminum is not acceptable unless specifically indicated on the drawings).
 - B. Stamped metal one-hole and two-hole straps are permitted to secure EMT and cable wiring methods permitted by the specifications in exposed and concealed dry indoor locations not subject to abuse or injury only.
 - C. Stamped metal wrap around "mineralax" type hangers are permitted to secure EMT and cable wiring methods permitted by the specifications in hidden and concealed dry indoor locations not subject to abuse or injury only. Stamped metal wrap around type hangers are not permitted for visible exposed wiring.
 - D. Additional manufactured fastening systems specifically designed for the purpose shall be considered to secure cable wiring methods permitted by the specifications, but only where submitted for review and approval before commencing work.
 - E. Do not weld raceways, clamps, hangers, or straps to steel structure.
 - F. Wire (including ceiling support wires), perforated pipe straps, plastic ties, "J" hooks, and bridle rings are not acceptable.
- 6.3 Provide all supports and fasteners of the following materials, unless indicated otherwise.
- A. Utilize stainless steel for all applications, unless indicated otherwise. Utilize stainless steel only when underground or in contact with earth or floors in outdoor areas, mechanical rooms, kitchens, and other areas subject to the possible presence of water on the floor/ground.
 - B. Steel protected by hot-dip or mechanical galvanizing after fabrication may be utilized for all conditions except conditions indicated above as requiring only stainless steel. Clean areas where galvanizing is cut or damaged and touch-up with suitable zinc dust/zinc oxide paint.
 - C. Steel protected by pre-galvanizing before fabrication, epoxy coating, zinc electrolytic plating, or other engineer approved corrosion resistant coating may be utilized for interior locations not subject to abuse or injury.
 - D. Other materials providing equivalent strength and corrosion resistance to the above shall be considered.
 - E. Supports and fasteners without corrosion protection, protected only by painting, or protected only by oil coating are not acceptable under any circumstances.
 - F. For electrical fasteners (at conductors and all current-carrying parts), utilize only materials and types approved by the NEC and listed for the application.

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- 6.4 Provide all fastening, supports, wall brackets, ceiling trapeze, and hangers as required for the installation of all equipment and wiring. Install all fastenings, supports and hangers in such a way and at such intervals as required by Code or otherwise required to support the equipment. The electrical contractor is responsible for verifying that supports are adequate for the load supported, based upon weight, stresses which may be applied to the support (including when installing equipment, pulling wiring, physical impacts to equipment, and seismic/earthquake loads as per IBC Section 1613), vibration, etc. Submit calculations for any supports where requested by the engineer.
 - 6.5 In new concrete structure, engineer approved cast-in-place type inserts (furnished and installed by the electrical contractor and coordinated with and under the direct supervision of the general contractor) may be utilized in concealed locations, unfinished spaces, and other locations where approved by the architect and owner. Inserts may be of the spot or continuous types. Continuous type may be used to directly support raceways.
 - 6.6 For all telephone and equipment backboards indicated on the drawings and wherever plywood backboards are installed to support and/or mount electrical equipment, utilize only fire resistant plywood.
 - 6.7 Where the contractor installs fasteners or supports not meeting specified requirements (without prior written approval) the contractor shall remove the fasteners and supports and install new fasteners and supports as specified at no cost to the owner.
7. CHASES, RECESSES, AND OPENINGS
- 7.1 Provide, including all excavation, cutting, patching, fire stopping, sealing, backfill, surface restoration, and painting, all required openings, chases, and recesses in the construction for all work.
 - 7.2 Where openings are required in new or modified structure, furnish the exact location, size, and other necessary information to the contractor installing or modifying the structure in ample time to have them incorporated during construction as approved by the architect and engineer. If the electrical contractor fails to comply with these information requirements, then the electrical contractor shall perform the necessary cutting and patching at his own expense under the direct supervision of the general contractor.
 - 7.3 Where openings in masonry are required, make by coring only.
 - 7.4 Locate and provide all openings (including openings for junction and outlet boxes and luminaires) in such a manner to maintain any required fire/smoke rating, waterproof, and sound transmission integrity in accordance with all applicable codes and standards (including, but not limited to IBC/BOCA, NFPA, and UL). Where boxes are located in opposite sides of fire/smoke/sound rated walls, maintain minimum spacing between boxes as required. The general contractor shall provide fire/smoke rated enclosures around luminaires and boxes where required to comply with fire/smoke ratings.
8. CUTTING, PATCHING, FIRE STOPPING, AND PAINTING

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- 8.1 Perform all required excavation, cutting, patching, fire stopping, sealing, backfill, surface restoration, and painting associated with the electrical installation. Perform in accordance with general construction specifications and as indicated elsewhere in this specification. Coordinate all requirements with the general contractor. This includes cutting and patching associated with suspended ceiling tiles and grid.
 - 8.2 Completely restore (including painting where applicable) all surfaces to match existing condition as directed and approved by the owner, architect, and engineer.
 - 8.3 Completely seal and fire stop all penetrations of all fire and/or smoke rated walls, floors, ceilings and any other construction (including all construction required to be rated by any code) to a rating matching or exceeding the fire rating of the construction. Refer to architectural drawings and specifications for information on fire ratings of building construction and include all costs in bid. Provide the complete installation (including fire stopping methods and materials) complying with all applicable fire rating codes and standards (including the NEC, NFPA, IBC/BOCA, and UL (including the UL "Fire Resistance Directory")).
 - 8.4 Completely seal and weatherproof all penetrations of exterior, at or below grade, and wet location walls and floors and roof penetrations.
 - 8.5 Paint all exposed raceways, boxes, enclosures, etc. as directed by the owner and architect.
 - 8.6 Provide baked enamel painted finish for all equipment and materials as directed by the owner and architect. Wherever finish colors are indicated on the drawings (including symbol list and luminaire schedule) as being selected by the architect ("as per architect", etc.), include costs in bid to utilize any of the available standard and/or optional colors listed in manufacturers' catalogs (excluding any colors identified in manufacturers' catalogs as "custom" or "premium").
 - 8.7 Touch up damages to prime and/or finished paint coats on equipment. This includes touching-up stainless steel surfaces to avoid superficial surface rust (i.e. at cut surfaces and welds).
9. SLEEVES
- 9.1 Provide sleeves in all construction. Provide sleeves of minimum 0.85 mm (22 ga.) galvanized steel, sized for passing raceway/cable, and of the proper design for sealing and flashing around the sleeves where required. Locate and set sleeves extending approximately 51 mm (2") above floor in concealed locations, unfinished rooms, and mechanical spaces. Locate and set all sleeves flush with finished surfaces in finished areas unless otherwise directed by the owner and architect.
 - 9.2 Seal the space between the raceway/cable and sleeve and between the sleeve and structure in an engineer and code approved manner. Seal and fire-stop all penetrations to a fire rating not less than the wall, ceiling, floor, or member penetrated. Completely seal and waterproof all penetrations of exterior walls, roofs, mechanical room floors, or any other area subject to weather or water.

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10. FLASHING AND ACCESS PANELS

- 10.1 Where a general contractor is present, base flashing is by the general contractor, otherwise base flashing is by the electrical contractor. Counter flashing (provide of 0.47 mm (28 ga.) copper) is by the electrical contractor under all circumstances.
- 10.2 Provide access panels for all items requiring accessibility for operation and maintenance or where required by code. Provide access panels of not less than 1.6 mm (16 ga.) steel frame and not less than 1.9 mm (14 ga.) steel panel, with tamper-proof fasteners, and compatible with the type of construction in which they are installed.
- 10.3 Where a general contractor is present, the electrical contractor shall furnish all access panels and the general contractor shall install access panels under the direction of the electrical contractor.

11. LOCATIONS AND MOUNTING HEIGHTS

- 11.1 The approximate locations of luminaires, pipes, switches, radiation, receptacles, outlets and other equipment and materials are indicated on the drawings. Provide actual locations and mounting heights as determined by, confirmed with, and approved by the owner and architect during field construction (prior to rough-in). Where equipment or devices are installed without prior approval/confirmation or without prior written notification (see below) and the location or mounting height is not acceptable to the owner and architect, relocate the equipment and all associated wiring as directed by the owner and architect at no cost to the owner.
- 11.2 Provide mounting heights complying with all applicable federal, state, and local disabled ("handicapped") access codes, standards, and requirements, including the Americans with Disabilities Act (ADA).
- 11.3 Provide mounting heights for all equipment as follows. Utilize standard mounting heights indicated below for all equipment, unless indicated otherwise on the drawings or otherwise directed by the owner and architect. Where installation conditions and/or obstructions make it impossible to install equipment at the standard height, the mounting height may be adjusted as required by conditions, provided the mounting height falls within the listed maximum and minimum heights. Notify the architect and engineer in writing of all conditions where deviating from standard mounting heights. Provide mounting heights not greater than the maximum mounting height and not less than the minimum mounting height under any circumstance, unless specifically approved in writing by the owner, architect, and engineer.
- 11.4 All mounting heights listed below are above finished floor, unless indicated otherwise. Mounting heights listed as "to bottom" are measured to the lowest operable part of the equipment or the lowest visual indicating device on the equipment. Mounting heights listed as "to top" are measured to the highest operable part of the equipment or the highest visual indicating device on the equipment.

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	<u>Mounting Heights</u>		
	<u>Standard</u>	<u>Minimum</u>	<u>Maximum</u>
<u>Control Devices</u>			
Wall Switches & lighting controls	46" (1.17m) to ctr.	15" (0.38m) to bot.	48" (1.22m) to top
Thermostats & other controls	46" (1.17m) to ctr.	15" (0.38m) to bot.	48" (1.22m) to top
<u>Receptacles and Outlets</u>			
Receptacles, tele/data, & similar *	18" (0.46m) to ctr.	15" (0.38m) to bot.	48" (1.22m) to top
Wall mounted telephones	46" (1.17m) to top	27" (0.69m) to bot.	48" (1.22m) to top
<u>Electrical Equipment</u>			
Safety switches **	See max./min.	15" (0.38m) to bot.	48" (1.22m) to top
Enclosed circuit breakers **	See max./min.	15" (0.38m) to bot.	48" (1.22m) to top
Devices with fuses/breakers **	See max./min.	15" (0.38m) to bot.	48" (1.22m) to top
Contactors **	See max./min.	15" (0.38m) to bot.	48" (1.22m) to top
Transfer Switches **	See max./min.	15" (0.38m) to bot.	48" (1.22m) to top
Time clocks, individual **	See max./min.	15" (0.38m) to bot.	48" (1.22m) to top
Annunciators and displays	46" (1.17m) to ctr.	15" (0.38m) to bot.	48" (1.22m) to top
Equip. indicated with (**) where group mounted	15" (0.38m) to 48" (1.22m)	None	78" (1.98m) to top
Equip. indicated with (**) where too large to mount at above heights	15" (0.38m) to 48" (1.22m)	None	78" (1.98m) to top
Branch panels	15" (0.38m) to 48" (1.22m)	None	78" (1.98m) to top
Wall mounted distribution panels	15" (0.38m) to 48" (1.22m)	None	78" (1.98m) to top
Controllers & grouped controls	15" (0.38m) to 48" (1.22m)	None	78" (1.98m) to top
Individual meter sockets ***	48" (1.22m) to ctr.	36" (0.92m) to ctr.	60" (1.52m) to ctr.
Meter centers ***	Contact engineer		
<u>Fire Alarm Equipment</u>			
Fire alarm controls	15" (0.38m) to 48" (1.22m)	None	78" (1.98m) to top
Pull stations	48" (1.22m) to top	42" (1.07m) to bot.	48" (1.22m) to top
Horns/speakers/strobes/bells ****	80" (2.03m) to bot.	80" (2.03m) to bot.	96" (2.43m) to bot.
<u>All</u> equipment mounted above counters	*****	15" (0.38m) to bot.	46" (1.17m) to top
<u>Other Equipment</u>			
Other equipment mounted on standard electrical outlet boxes	46" (1.17m) to ctr.	15" (0.38m) to bot.	48" (1.22m) to top

Contact the engineer for any equipment not listed or similar to equipment above.

- * Specifically coordinate with any wall-mounted radiation, if present
- ** Applies where equipment is mounted individually, see below for group mounted equipment.
- *** Provide metering equipment mounting heights conforming to utility company requirements, where applicable, regardless of mounting heights indicated above.
- **** For ceilings lower than 90" (2.29m), mount fire alarm signaling devices 6" (0.15m) below the ceiling. Fire alarm signaling devices may be ceiling mounted if mounted on the lowest portion of the ceiling, if mounted not higher than 9.14 m (30'0") above the lowest floor level in the room and if located and spaced in accordance with NFPA requirements.
- ***** Standard mounting height for above counter equipment is 6" (0.16m) above back splash or 8" (0.20m) above counter where no back splash is present.

- 11.5 Where any equipment or device protrudes more than 100 mm (4") from the finished wall surface, mount at height conforming with the ADA and in accordance with the following.

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Contact the engineer where maximum and minimum heights listed above conflict with mounting requirements summarized below.

- A. Mount so the bottom of equipment/device is 0.68 m (2'3") AFF or less.
- B. Mount so the bottom of equipment/device is 2.0 m (6'8") AFF or greater.
- C. Projecting equipment/devices are permitted mounted with the bottom between 0.68 m (2'3") and 2.0 m (6'8") AFF where protected with a suitable warning barrier in accordance with ADA requirements.
- D. Projecting equipment/devices are permitted mounted with the bottom between 0.68 m (2'3") and 2.0 m (6'8") AFF without warning barrier protection only where specifically approved in writing by the engineer.

12. ELECTRIC SERVICE

- 12.1 Perform all electrical service work complying with applicable electric utility company standards and requirements, including metering equipment locations, equipment specifications, inspections, notification, scheduling, and service pole/manhole.
- 12.2 Submit to utility company all required service/meter application forms. Obtain written approval from utility company prior to commencing service related work. Utility service-related work shown on the drawings is approximate as a guide to pricing only and is not fully coordinated with respective utility companies. Fully coordinate all service-related work in detail with utility companies before releasing equipment and before associated rough-in of work. No consideration, claims, charges, or compensation will be granted under any circumstance associated with failure to coordinate with utility companies.
- 12.3 Reference single line diagram for a complete description of the proposed electrical system.
- 12.4 Where pole risers are indicated on the drawings, provide a complete riser in accordance with all applicable utility company requirements. Verify exact riser requirements with utility company prior to submitting bid (include all costs in bid). Provide riser including all ancillary equipment as directed by the utility company, including (but not limited to) raceways stubbed and/or run up pole, molding, grounding, suitable slack conductors, location of riser around circumference of pole, etc.
- 12.5 Provide protective bollards for all pad mounted outdoor equipment. Provide quantity and location as per utility company standards (for both utility and customer owned equipment) unless otherwise indicated on the drawings. Provide consisting of not smaller than 102 mm (4") steel RMC filled with concrete, protruding at least 1.2 m (4'0") above finished grade, set in not less than 0.3 m (1'0") diameter x 0.9 m (3'0") deep concrete base, and in no case less than the minimum construction required by utility company standards. Provide bollards even if not shown on electrical drawings.

13. UTILIZATION EQUIPMENT CONNECTIONS

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- 13.1 Provide complete power wiring and final connections for utilization equipment as indicated on the drawings. This includes, but is not limited to, all mechanical, kitchen, manufacturing, computer, medical, office, copier, fixed, and portable equipment and apparatus. Coordinate all requirements with the contractor supplying the equipment (the supplying contractor).
- 13.2 Provide connections complete and including power wiring from the electrical contractor provided local disconnecting means to each piece of equipment. If required, pass power wiring through supplying contractor furnished control equipment (including thermostats, relays, timers, integrated controllers, starters, contactors, VFD's, etc.). Provide a single point connection or multiple-point connections (by separating one larger circuit into smaller circuits at controller and/or equipment) as required (include all costs in bid). The electrical contractor is responsible for taking deliveries of all control equipment (which power wiring passes through) from the supplying contractor and for mounting and passing power wiring through this control equipment. Locate control equipment as indicated on mechanical or other trades documents or as otherwise coordinated with and approved by the owner, architect, mechanical engineer, and the supplying contractor.
- 13.3 All control wiring and associated raceway is by the supplying contractor, unless specifically indicated on the drawings. All central/common control panels are by the supplying contractor (power wiring is by the electrical contractor), unless specifically indicated on the drawings.
- 13.4 Provide safety switches as local disconnecting means at all equipment. Provide switches regardless of whether shown on the drawings or not. Provide switches regardless of whether or not the equipment includes integral unit switches or circuit breakers. Provide outdoor switches as NEMA-3R and indoor switches as NEMA-1.
- 13.5 For all equipment rated 120 V or 277 V and 20 A or less, provide either direct connection, including thermal overload switch where disconnecting means is required, or suitable receptacle where equipment is supplied with cord and plug (combination of plug and receptacle serves as disconnecting means), include all costs in bid.
- 13.6 Prior to rough in of raceway or purchasing any associated electrical equipment, obtain shop drawings from the supplying contractor and verify all requirements. The electrical contractor is fully responsible for contacting and obtaining copies of approved shop drawings from the supplying contractor. This includes fully coordinating the locations of all equipment and wiring in/serving elevator shafts, pits, and machine rooms.
- 13.7 Where equipment is served by variable frequency drives (VFD's), other solid-state controllers, or other special starters or controllers, wiring indicated on the drawings is as a guide to pricing only. Prior to rough in of raceway or purchasing associated electrical equipment, verify all requirements in writing with the supplying contractor. Provide exact circuit breaker trip amperes (or fuse amperes, where applicable) for circuits feeding this equipment as coordinated with and directed and approved by the manufacturer, include all costs in bid. Where the required circuit breaker/fuse amperes exceed the ampacity of the specified wiring, notify the engineer in writing. Provide all safety switches connected on the load side of VFD's with auxiliary contacts and interconnect (including providing all required wiring in separate 21 mm (3/4") raceway from power wiring) with VFD controls (to prevent and stop operating VFD with load disconnected). Provide all power wiring on

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the load side of any VFD as a dedicated circuit (from individual VFD to motor served) with no other circuit or wiring (of any kind) in the same raceway.

- 13.8 Where heat tracing, control power transformers and control power supplies (rated 500 VA and less), electric alarm bells, plug-in condensate pumps, ultraviolet germicidal lamps in HVAC equipment, electrically operated security devices, door hardware, dampers, and valves (including sinks/toilets/urinals), switchgear/switchboard strip/space heaters, etc. are specified on mechanical, plumbing, fire protection, electrical, or architectural drawings or specifications, provide appropriate wiring and power connections (whether shown on electrical drawings or not). Verify and coordinate voltage and wattage/amperes in field and provide wiring accordingly. Obtain power from a suitable nearby branch circuit. Include all disconnecting means switches, junction boxes, receptacles, and other equipment as required by code or manufacturer recommendations. Provide ground fault protection (utilizing protective devices complying with the NEC) for all heat tracing.

14. DEMOLITION, REMOVAL, RELOCATION, AND RE-FEEDING

- 14.1 Disconnect, remove, relocate, and/or re-feed existing wiring and electrical equipment as indicated on the drawings (including, but not limited to, as indicated in electrical notes on the drawings) and otherwise provided in contract documents. Assume that all demolition and new construction requires disconnecting, removing, relocating, and re-feeding unless verified otherwise in the field. No consideration, claims, charges, or compensation will be granted for any alleged misunderstanding of the scope of disconnecting, removing, relocating, and re-feeding or as a result of failure to verify existing conditions.
- 14.2 Fully verify all requirements associated in any way with demolition, removals, relocations, and re-feeding and include all costs in bid. Visit site prior to submitting bid and investigate and verify all existing conditions (including verifying conditions above all accessible "drop" ceilings and in accessible chases).
- 14.3 Prior to commencing any removals, completely verify all conditions and exact requirements related to re-feeding, maintaining, or affecting service to existing electrical equipment, devices, and wiring and mechanical, architectural, and other equipment and system in the field during construction. Where equipment or wiring is removed which is required to re-feed equipment, maintain service, or effects systems to remain, replace or reinstall the equipment and wiring as required. No extra claims or compensation shall be granted to re-feed, reinstall, replace, reconfigure, etc. wiring and equipment where removed without first verifying all conditions.
- 14.4 Wherever electrical equipment and wiring is removed from visible finished surfaces, patch and restore the surface to the original condition matching existing adjacent surfaces. This includes all required painting, filling all openings (including channels and filling holes left from supports), etc.
- 14.5 Where existing ceilings are removed and reinstalled (either partly or entirely), remove all existing electrical equipment (including lighting fixtures, fire alarm devices [including, but not limited to, smoke and heat detectors, signaling devices, indicators, etc.], security/CCTV cameras, motion detectors, speakers, and all other electrical devices, equipment, and apparatus) from the ceiling grid and ceiling tiles. Leave in place at the ceiling and temporarily support (in a code approved and local code official approved manner) as

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required to facilitate ceiling removal. Once ceiling is reinstalled, permanently reinstall all electrical equipment in the ceiling. Where new equipment is shown on the drawings, completely disconnect and remove existing equipment (being replaced) and all associated wiring and provide all new equipment and associated wiring as shown on the drawings. Ceilings may be left open for a long period of time (i.e. there may be several months or more between the time of removal and the time of reinstalling ceilings). When ceilings are not in place, maintain (as operational) all fire alarm devices and equipment and normal and emergency lighting as required (temporarily install fire alarm devices, supported from structure and provide temporary lighting or temporarily support existing lighting from structure as required). When ceilings are not in place, safely secure everything which is exposed by the absence of ceilings (new and existing) and keep all areas clean when occupied. This ceiling work is not shown on electrical plans (see architectural drawings and ceiling plans and other trades drawings for information). This ceiling work applies regardless of the party removing the ceiling and regardless of whether or not ceiling removal is shown on drawings. Coordinate with all contractors and trades to confirm the extent of ceiling work and include all costs in bid. This ceiling work also applies where any contractor chooses to install new ceiling in lieu of reinstalling the existing ceiling.

- 14.6 Where existing ceilings are removed and new ceilings are installed (either partly or entirely), remove all existing electrical equipment (including lighting fixtures, fire alarm devices [including, but not limited to, smoke and heat detectors, signaling devices, indicators, etc.], security/CCTV cameras, motion detectors, speakers, and all other electrical devices, equipment, and apparatus) from the ceiling grid and ceiling tiles. Leave in place at the ceiling and temporarily support (in a code approved and local code official approved manner) as required to facilitate ceiling removal. Once new ceiling is installed, permanently reinstall all electrical equipment in the ceiling. Where new equipment is shown on the drawings, completely disconnect and remove existing equipment (being replaced) and all associated wiring and provide all new equipment and associated wiring as shown on the drawings. Ceilings may be left open for a long period of time (i.e. there may be several months or more between the time of removal and the time of installing new ceilings). When ceilings are not in place, maintain (as operational) all fire alarm devices and equipment and normal and emergency lighting as required (temporarily install fire alarm devices, supported from structure and provide temporary lighting or temporarily support new or existing lighting from structure as required). When ceilings are not in place, safely secure everything which is exposed by the absence of ceilings (new and existing) and keep all areas clean when occupied. This ceiling work is not shown on electrical plans (see architectural drawings and ceiling plans for information).
- 14.7 Where electrical work involves removal and reinstallation of existing ceilings, removal and relocation is the responsibility of the electrical contractor. As an alternative (at the electrical contractor's option) to reinstalling ceilings removed to facilitate electrical work, the electrical contractor may install a new ceiling of a type matching the existing ceiling provided there is no cost change to the contract (wherever new ceiling involves additional cost to the contract, new ceiling is not acceptable).

15. EXCAVATION, BACK-FILLING, AND RESTORATION

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- 15.1 Perform all required excavation, cutting, patching, backfill, surface restoration, and painting associated with the electrical installation, perform in accordance with general construction specifications. Coordinate all requirements with the general contractor. Refer to the section of this specification "Cutting, Patching, Fire-Stopping, and Painting" for additional information.
- 15.2 Install all underground wiring to maintain a minimum cover of 0.8 m (2'7") to top of raceways. Where field obstructions do not facilitate the above minimum cover, minimum cover as indicated in NEC Article 300.5 is permitted.
- 15.3 Perform all excavation and work in and associated with excavation in accordance with all applicable safety codes, standards, regulations, and requirements (refer to specifications section "Safety" of specifications division 16100, General Electrical).
- 15.4 Completely restore all surfaces to a condition matching or exceeding the original condition to the satisfaction of the owner, architect, and engineer. Backfilling and restoration below does not supersede or serve as a substitute for concrete encasement of raceways specified elsewhere.
 - A. Earth (and other unpaved surfaces) excavation: Backfill with suitable on-site material, preferably utilizing excavated material, and compact during backfill. Provide additional material as required to provide a flush surface after compacting or settlement. Provide seeding (as directed by the owner and architect) to restore grass surfaces.
 - B. Sidewalk (and other paved surfaces not subject to vehicular traffic) excavation: Where pavement construction joints are spaced not greater than 1.8m (6'0") apart, remove complete blocks of paving to the construction joints to facilitate excavation. Where construction joint spacing exceeds 1.8 m (6'0"), either saw cut pavement at a convenient location or remove to construction joints to facilitate excavation. Backfill with suitable on-site material, preferably utilizing excavated material and compact during backfill. Replace pavement sub-base with new materials to match existing sub-base materials. Replace pavement with new materials to match existing pavement.
 - C. Roadway and parking lot (and other surfaces subject to vehicular traffic) excavation: Saw cut pavement 76 mm (3") deep prior to excavation. Remove pavement 300 mm (1'0") beyond the edges of below grade excavation ("cut-back" pavement 300 mm (1'0") on both sides of trench). Backfill with suitable on-site material, preferably utilizing excavated material and compact during backfill. Replace pavement sub-base with new materials to match existing sub-base materials. Replace pavement with new materials to match existing pavement, filling the entire width of the excavation with "cut-backs".
 - D. Optional roadway and parking lot (and other surfaces subject to vehicular traffic) excavation: The following may be substituted for the methods indicated in item "C" above at the contractor's option. Saw cut pavement 76 mm (3") deep prior to excavation. Remove pavement to the same width as the edges of below grade excavation (without any "cut-back"). Back fill with concrete only to the bottom of the sub-base. Replace pavement sub-base with new materials to match existing sub-base materials. Replace pavement with new materials to match existing pavement.

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- 15.5 Completely remove and properly dispose of any material excavated and not utilized for backfill, include all costs in bid.

16. HOUSEKEEPING AND EQUIPMENT PADS

- 16.1 Mount all fully or partially freestanding electrical equipment on pads as follows. Where equipment is installed without pad (without prior written approval) the contractor shall remove the equipment, provide a suitable approved pad, and reinstall the equipment (including providing temporary power [including the use and cost of a generator if required] to maintain service) at no cost to the owner.
- 16.2 Provide all floor and roof mounted equipment on a 100 mm (4") concrete housekeeping pad.
- 16.3 Provide all outdoor ground mounted equipment on a suitable pad. Level grade around pad. Provide top of pad 155 mm (6") nominal above finished grade (100 mm (4") minimum at any point).
- 16.4 Provide all housekeeping and equipment pads in complete accordance with equipment manufacturer's requirements and recommendations. This includes, but is not limited to anchor bolts, reinforcement, minimum thickness, pad openings and cutouts, raceway stubs, overall dimensions and shape, steel leveling channels, concrete characteristics, grounding (including grounding grids and loops), and structural details. Where applicable, provide pads as per utility company standards.
- 16.5 Where approved by the manufacturer, engineer, and utility company (where applicable), pre-cast concrete pads and foundations may be utilized for outdoor installation. Install and set all pre-cast concrete pads on a smooth, compacted, and level base of not less than 155 mm (6") of crushed stone (or sand, for manhole style vault foundations 1.2 m (4'0") or deeper) according to manufacturer's (and utility company, where applicable) recommendations.
- 16.6 Where the project schedule, shutdown considerations, or other project conditions do not allow the time required for a cast-in-place indoor housekeeping pad, utilize a suitable custom pre-cast housekeeping pad (include all costs in bid). Pre-cast housekeeping pads may also be used under other conditions where approved in writing by the engineer and owner. Submit shop drawings for review and approval. Provide complete with openings pre-cast or cored in advance as required to facilitate conduit stub-ups (where applicable). Secure pad to the floor utilizing suitable concrete anchors. Set pad on wet bed of grout/mortar (to provide a firm and level surface regardless of floor surface conditions/irregularities) and utilize shims as required (to level pad and avoid pad settling before/while grout/mortar cures). Where a new cast-in-place pad will be poured adjacent to a new pre-cast pad, provide 10 mm (3/8") (minimum) reinforcement cast into and stubbed out from the pre-cast pad (extending at least 230 mm (9") and spaced not farther than 230 mm (9") on center) in the direction of proposed poured pad.

END OF SECTION

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1. GENERAL PROVISIONS

- 1.1 The applicable requirements and conditions of specifications section "General Provisions" of specifications division 16100, General Electrical, are hereby made an integral part of this section.
- 1.2 The work governed by these specifications includes but is not limited to that as defined in specifications section "Scope of Work" of specifications division 16100, General Electrical.
- 1.3 Provide all materials and equipment (products) as new, the best in grade and quality, and manufactured in the United States of America with standards and ratings as specified herein. No substitution or deviation from the materials and equipment specified is permitted except by written permission from the engineer. Provide all materials and equipment as listed and/or labeled where applicable.
- 1.4 Replace or repair, to the satisfaction of the owner, any materials and equipment damaged before or after installation.
- 1.5 Materials and equipment manufacturers and catalog numbers specified constitute the type and quality of design, material, workmanship, ruggedness of construction, resistance to vandalism, exact operating and performance characteristics, features, configuration, dimensions, etc.. Where multiple acceptable manufacturers are shown in the drawings and/or specifications, not all manufacturers shown may be capable of providing materials and equipment meeting the specifications, field conditions, etc.. Showing acceptable manufacturers indicates that the manufacturer is acceptable only if they can meet the specifications, conditions, and requirements specific to this project. Provide materials and equipment as required (include all costs in bid).

2. RACEWAYS

- 2.1 Steel Rigid Metal Conduit (RMC) and Steel Intermediate Metal Conduit (IMC)
 - A. Provide steel RMC as full weight, heavy wall, mild steel pipe, galvanized inside and outside.
 - B. Provide steel IMC as standard wall steel pipe; otherwise the same as steel RMC.
 - C. Provide fittings for steel RMC and steel IMC of high grade steel, having rust resistant finish, providing ample wiring space, having smooth round edges, and having full threaded hubs.
 - D. Utilize only fully threaded screw-on fittings with steel RMC and steel IMC (coat field-cut threads as per NEC Article 300.6(A)). Compression, set screw, bolt on, or other thread-less fittings are not permitted.
- 2.2 Electrical Metallic Tubing (EMT)
 - A. Provide EMT of high grade steel and galvanized inside and outside. Enamel coating only is not acceptable.

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- B. Provide fittings for EMT of high-grade steel, having rust resistant finish, providing ample wiring space, and having smooth round edges. For EMT in damp locations (i.e. concealed), utilize only fittings of the thread-less compression type without set screws. For EMT in dry locations only, thread-less set screw steel type fittings are permitted. Die cast, set screw, and indenter fittings are not permitted.

2.3 Flexible Metal Conduit (FMC) and Liquidtight Flexible Metal Conduit (LFMC)

- A. Provide FMC ("greenfield") of high-grade steel, galvanized inside and outside, having a smooth interior, and providing a continuously effective ground. Provide fittings for FMC of high grade steel, having rust resistant finish, providing ample wiring space, having smooth round edges, of the two (2) screw type, listed and NEC approved for grounding.
- B. Provide LFMC ("sealtite") with an overall PVC sheath; otherwise the same as FMC. Provide fittings for LFMC of high grade steel, having rust resistant finish, providing ample wiring space, having smooth round edges, listed and NEC approved for grounding, and of the sealing compression gland type.
- C. Where applicable, provide FMC and LFMC manufactured to comply with NEC Article "Places of Public Assembly".

2.4 Polyvinyl Chloride Rigid Nonmetallic Conduit (PVC RNC)

- A. Provide PVC RNC of virgin PVC (or material reground from the manufacturer's own products), heavy wall, schedule 40 or schedule 80.
- B. Provide fittings for PVC RNC of schedule 40 virgin PVC, providing ample wiring space, and having smooth round edges. Make all interfaces between PVC RNC and raceways, enclosures, boxes, other conduit types, etc., utilizing adapter fittings designed for the purpose.
- C. Make all joints utilizing solvent welding method, installed to be completely watertight and pressure-tight to 172 kPa (25 p.s.i.).
- D. High density polyethylene (HDPE) conduit and type "EB" encased burial and type "A" PVC conduits are not permitted under any circumstance.

2.5 Surface Raceway

- A. Surface raceway with integral wiring devices: Provide steel or aluminum type as indicated on the drawings. Utilize one (1), two (2), or three (3) compartment types (with dividers as required) as indicated on the drawings.
- B. Surface raceway without integral wiring devices: Provide steel type. Utilize Wiremold types #V700, #V2000, #V2100, or #V2400 (or approved equals) as required by the number of conductors to be run in the raceway. Utilize the smallest size raceway facilitating conductors. Raceway smaller than #V700 type is not acceptable.

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- C. Surface raceway plug-in strips: Provide steel type, Wiremold #V2000 series or approved equal. Provide with #12 AWG through wiring suitable for use on 20 A branch circuits. Provide with 15 A, 120 V single receptacles 300 mm (12") on center, unless indicated otherwise. Provide one (1) or two (2) circuit type as indicated on the drawings.
- D. Provide all steel surface raceways in factory ivory finish. Provide final painting (over the ivory factory finish) as directed by the owner and architect in the field. Provide all aluminum surface raceways in natural brushed aluminum finish.
- E. Nonmetallic surface raceways are not permitted, unless specifically indicated otherwise on the drawings.
- F. Provide all installations of surface raceways complete including all required fittings, accessories, details of installation, etc.. Include costs in bid for installing surface raceways around all obstructions encountered.
- G. Provide fittings for surface raceways manufactured by the surface raceway manufacturer and specifically designed to be used with and compatible with the surface raceway and the actual installation conditions encountered. Provide fittings for surface raceways having rust resistant finish, providing ample wiring space, and having smooth round edges. Provide device box type fittings as per the section of this specification "Outlet, Switch, and Junction Boxes".
- H. Perform all cutting, bending, and offsetting of surface raceways and components utilizing tools specifically designed and manufactured for the purpose by the surface raceway manufacturer. Cutting with hacksaws and bending/offsetting with standard conduit benders is not acceptable. Where the manufacturer does not manufacture or supply tools to perform work required (as indicated in manufacturer's standard catalogs), use only tools specifically recommended and approved for the purpose by the manufacturer.
- I. Fasten and secure all surface raceways utilizing hardware concealed by the surface raceway. Visible securing and fastening hardware is not acceptable except that Wiremold #V5703 (or approved equal) supporting "back clip" type fasteners are permitted with #V700 style surface raceway without integral wiring devices only. One (1) or two (2) hole straps over the raceway are not acceptable.
- J. Specifications are based on equipment as manufactured by Wiremold. Equipment as manufactured by Hubbell, Mono-Systems, or approved equal shall be considered.

3. OUTLET, SWITCH, PULL, AND JUNCTION BOXES

- 3.1 Provide boxes of proper types and sizes as required at all outlets and junctions indicated on the drawings and as otherwise required.
- 3.2 In unfinished areas, mount boxes flush or exposed. In finished areas, mount boxes flush in ceilings, walls, and floors, include all cutting and patching as required. Where impossible to mount flush in finished areas or where surface wiring is required to serve equipment in finished areas, finished style (Wiremold #V5730 to #V5760 series or approved equal)

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surface boxes are permitted. Standard style pressed steel boxes are not permitted in finished areas. Where the contractor installs improper boxes in finished locations (without prior written approval), the contractor shall remove the boxes and install new boxes flush mounted (including cutting and patching to flush mount boxes and wiring and including replacing or reinstalling wiring) at no cost to the owner.

- 3.3 Utilize boxes of either unit or ganged construction and sized as required for devices and wiring installed and not smaller than the minimum sizes as per the drawings and specifications (and in no case smaller than the minimum size permitted by the NEC). Provide boxes as galvanized pressed steel (unless indicated otherwise), not less than 4" square, and with the proper size knockouts to facilitate wiring.
- 3.4 For flush mounted boxes, provide box shape permitting surfacing materials to be on straight lines and to fit closely around the box. Provide boxes in plastered, drywall (GWB), and similar walls, partitions, and ceilings with suitable plastering rings.
- 3.5 Utilize cast and/or malleable rust-resisting steel boxes for wiring in exterior, wet, or damp locations and for exposed visible steel RMC and IMC runs. Utilize aluminum or alloy boxes only where aluminum conduit is permitted by the specifications and used.
- 3.6 For all boxes in floors, utilize only boxes specifically designed, NEC approved, and listed for floor installation. Provide as required to maintain fire rating of the floor.
- 3.7 Provide all boxes for lighting outlets with studs of a size suitable for the weight of the luminaire supported (in no case less than 10 mm (3/8")). Provide the stud of integral construction with the box or of the type inserted from the back of the box. Studs held to the box with bolts to support luminaire weight are not permitted.
- 3.8 100 mm (4") diameter "octagon" boxes are not acceptable, except under the following conditions. Octagon boxes are permitted in conjunction with luminaire mounting studs where studs are required above. Octagon boxes are permitted where required to mount equipment where equipment is not compatible with square or ganged type boxes (including the use of adapter rings on square boxes).
- 3.9 Secure boxes firmly in place and set true, square, and flat or flush (as applicable) with finished surfaces. Keep all unused knockouts closed or close with suitable threaded plugs (for threaded knockouts or hubs) or knockout seals (for unthreaded knockouts). Install flush mounted boxes so the covers are flush with the finished surface.
- 3.10 Provide all boxes with cover plates as specified below.

4. COVER PLATES

- 4.1 Provide cover plates for switches, receptacles, outlet and junction boxes, and other devices of 1.0 mm (0.04") thick metal with paint finish or of stainless steel (as directed by the owner and architect, include costs in bid for painted or non-magnetic stainless steel), unless indicated otherwise.

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- 4.2 Utilize suitable pressed galvanized steel code gauge raised covers for exposed wiring methods in unfinished areas and accessible hidden locations. Flat pressed galvanized steel code gauge covers may be utilized on junction boxes (where devices are not installed) or for ganged devices (three (3) gang or greater only). Tile and/or plastering rings style covers are not permitted for exposed wiring methods under any circumstance.
 - 4.3 Utilize cast rust-resisting steel or #302 stainless steel covers with gaskets for boxes in wet, damp, or exterior locations or other locations where cast steel boxes are utilized.
 - 4.4 Provide suitable blank covers on all unused boxes and boxes for future use (including boxes where devices are not installed at the time that electrical work is completed; specifically including telephone/data outlets where jacks and covers are not installed).
5. CONDUCTORS AND CABLE (600 V)
- 5.1 Provide all wiring (for all systems) utilizing multiple single conductors in raceway, unless indicated otherwise. Conductor sizes indicated in the specifications and on the drawings are the minimum that will be accepted (conductor sizes are identified based on the NEC, as either American Wire Gauge [AWG] or thousands of circular mils [MCM equivalent to kcmil]). Where the contractor installs conductors smaller than the minimum size, the contractor shall remove conductors and install new conductors of the specified size at no cost to the owner.
 - 5.2 Provide all conductors (including conductors in cables, where permitted) as 600 V, having flame retardant, heat resistant, and moisture resistant insulation, and listed and marked in accordance with industry standards and the NEC. Unless indicated otherwise, provide all conductors identified both as type "THHN" and as type "THWN" ("THHN/THWN"), rated 90 degrees C for dry and damp locations and rated 75 degrees C for wet locations. Conductors identified as type "XHHW" (in lieu of type "THHN/THWN") are permitted only where conductors are of the compact stranded type (type "XHHW" is not permitted for solid conductors or for standard concentric or compressed stranded conductors). Provide all conductors for all systems of a type suitable for installing in dry, damp and wet locations. Conductors suitable for dry locations only and conductors suitable for dry and damp locations only are not acceptable (except as specifically otherwise provided for plenum rated systems cables).
 - 5.3 Provide all conductors of soft drawn copper (Cu, CU) wire of 98% conductivity. Aluminum (Al, AL) conductors are not acceptable, unless specifically indicated otherwise on the drawings.
 - 5.4 For wiring installed in high temperature locations subject to temperature exceeding 60 degrees C (140 degrees F), utilize conductors with special heat resistant insulation based on exact temperature conditions and location classifications encountered (consult engineer for exact conductor type; include costs in bid to utilize any of types "FEPB" (glass braid type only), "MI", "PFA", "SA", "THWN-2", "Z", and "ZW"). Install wiring in high temperature locations in conduit raceways (surface raceways and cable wiring methods without conduit are not permitted, except type "MI" cable); provide respective conduit sizes in accordance with NEC raceway fill requirements. Transition to standard conductor types are permitted (in a suitable junction box) beyond the minimum distance as per NEC Article 310.15(A)(2), Exception, measured from the first point where normal ambient temperature occurs.

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- 5.5 Where permitted elsewhere in this specification, provide metal clad cable (type "MC") having interlocked steel or aluminum cladding and having conductors as specified above, including an insulated grounding conductor. Provide conductors #10 AWG and smaller as solid and conductors #6 A.W.G and larger as stranded. Conductors #8 AWG may be solid or stranded. Provide type "MC" cable listed and NEC approved to provide an acceptable grounding path. Provide fittings for type "MC" cable of suitable pressure pad/clamp type, high grade steel, having rust resistant finish, providing ample wiring space, having smooth round edges, and having full threaded hubs. Fittings utilizing set screws are not acceptable. "Snap-in" fittings of any kind (including, but not limited to, fittings designed to fasten in knockouts or hold cable with spring tension, fittings without treaded hubs, and fittings designed to be installed without the use of tools) are not acceptable. Install type "MC" cable in complete accordance with NEC Article 330. Where permitted by the NEC (including Article 604), listed manufactured wiring systems consisting of cables identified as type "MC" may be utilized wherever specifications allow the use of type "MC" cables.
- 5.6 Where permitted elsewhere in this specification, provide armored cable (type "AC") having interlocked steel or aluminum armor and having conductors as specified above along with a code sized copper or aluminum (compatible with armor material) armor bonding wire. Provide conductors #10 AWG and smaller as solid and conductors #6 A.W.G and larger as stranded. Conductors #8 AWG may be solid or stranded. Provide type "AC" cable listed and NEC approved to provide an acceptable grounding path. Provide fittings for type "AC" cable of suitable pressure pad/clamp type, high grade steel, having rust resistant finish, providing ample wiring space, having smooth round edges, and having full threaded hubs. Fittings utilizing set screws are not acceptable. "Snap-in" fittings of any kind (including, but not limited to, fittings designed to fasten in knockouts or hold cable with spring tension, fittings without treaded hubs, and fittings designed to be installed without the use of tools) are not acceptable. Install type "AC" cable in complete accordance with NEC Article 320. Where permitted by the NEC (including Article 604), listed manufactured wiring systems consisting of cables identified as type "AC" may be utilized wherever specifications allow the use of type "AC" cables.
- 5.7 Where direct buried cables/conductors are specifically indicated on the drawings, provide conductors as 600 V, having flame retardant, heat resistant, moisture resistant, and sunlight resistant insulation and identified as types "RHH/RHW-2/USE-2". Where messenger supported aerial multiplex cables are specifically indicated on the drawings, provide conductors as 600 V (with flame retardant, heat resistant, moisture resistant, and sunlight resistant insulation of a type in accordance with the NEC) with bare messenger as required to support the cable (hard drawn for copper conductors or ASCR for aluminum conductors).

6. SPLICES, TAPS, AND CONNECTIONS

- 6.1 Make all splices, taps, and connections at locations indoor and above ground only. Splices, taps, and connections are not permitted below grade (including below any floor level where the floor is in direct contact with earth, i.e. basement slabs, slabs on grade, etc.), or where subject to being submerged (except as specifically provided as follows). Route raceways and wiring as required and include all costs in bid. Where physically impossible to install wiring to make splices/taps above grade, splices/taps below grade shall be considered where specifically requested in writing in advance (prior to installing conductors) by the contractor and where approved in writing by the engineer. Specifically and individually

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identify each and every case involved for below grade splices/taps in the request(s) and submit shop drawings for splices/taps (as indicated below). Where below grade splices/taps are installed by the contractor (without prior written approval) the contractor shall remove the raceways, wiring, splices, and taps and install new raceways and wiring in such a manner to completely avoid below grade splices/taps at no cost to the owner.

- 6.2 Perform all splices/taps in suitable code sized outlet and junction boxes only, not in raceways, conduit bodies, or equipment cabinets. Clean each strand of conductors carefully before connecting.
- 6.3 Where aluminum wiring is permitted elsewhere in this specification or where connecting to existing aluminum wiring, utilize only suitable crimp-on compression connectors/lugs. Bolted pressure type connectors/lugs are not acceptable under any circumstance. Where aluminum wiring terminates in factory installed bolted pressure lugs at equipment, utilize suitable crimp-on compression adapters (Ilsco #CPM, #ACM, and #ACO types or approved equal).
- 6.4 Insulation piercing type splices, taps, and connections of any kind are not permitted under any circumstance (including where applied after removing insulation).
- 6.5 Provide connections at equipment, apparatus, and devices as required for a complete installation and as follows. Coordinate all requirements with equipment to connect.
 - A. Where equipment includes factory "pig tails" for connections, make connections as specified above for splices and taps.
 - B. For stranded wiring #10 AWG and smaller, utilize suitable crimp-on "stacon" type terminals. Where equipment terminals include pressure pads, wiring may terminate directly at equipment without crimp-on terminals. Connecting stranded wiring directly at wire binding screw terminals (i.e. wrapped around screw) is not permitted under any circumstance.
 - C. For solid wiring #8 AWG and smaller, provide wiring connecting directly at terminals.
 - D. For wiring #6 AWG and larger and #8 AWG stranded wiring, utilize suitable crimp-on compression lugs. Where equipment is provided with factory-installed lugs, wiring may connect directly at factory lugs.
- 6.6 Where equipment (including equipment furnished by other contractors or the owner) is provided with factory installed lugs and the factory-installed lugs do not facilitate the specified wiring sizes, provide complete connections as required and as summarized for the following options. Options "A" and "B" apply where the specified conductors are either larger than the maximum conductor for the lug or smaller than the minimum conductor for the lug. Option "C" applies where the specified conductors are larger than the maximum conductor for the lug.
 - A. Remove factory lugs and provide new suitable field-installed lugs. This option is not permitted where removal and replacement of lugs would violate equipment listing or where factory lugs are not removable.

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- B. Utilize suitable crimp-on compression reducing adapters to splice between specified conductors and conductors compatible with factory lugs. Perform this splice within the equipment enclosure containing the factory lugs (where there is sufficient NEC required space for splices) or in a code sized junction box outside of the equipment enclosure (where sufficient space is not available). Install splices as indicated above for splices and taps. Provide conductors between the reducing adapters and the factory lugs insulated, as short as practical, and sized as per the NEC and the factory lugs. Utilize Burndy types #YSV, #YRV-L, #Y-R (Cu), and #YRB (Cu/Al) reducing adapters, or approved equal. Coordinate exact types and sizes with actual conductors involved.
 - C. Utilize suitable crimp-on compression pin type adapters on the end of conductors connecting in the factory-installed lugs. Utilize Burndy types #YE-P, #YE-P-FX (Cu), #AYP, and #AYPO (Al) pin adapters, or approved equal. Coordinate exact types and sizes with actual conductors and factory lug size involved.
- 6.7 Provide splices and taps at indoor locations and outdoor locations above ground (excluding exposed outdoor splices/taps) as follows.
- A. For stranded wiring #10 AWG and smaller and solid wiring #8 AWG and smaller, make splices/taps by twisting conductors together and utilizing suitable pressure type "wire nut" connectors. Tightly over-wrap with vinyl insulating tape. Utilize listed wire nuts with internal coiled square metal binding spring ("all plastic" and porcelain wire nuts are not acceptable under any circumstance). For splices/taps in wet locations, utilize only "self-sealing" wire nuts with integral water repellent non-hardening sealant (Ideal #60 "DB Plus" or approved equal).
 - B. For wiring #6 AWG and larger and for #8 AWG stranded wiring, make splices/taps utilizing suitable crimp-on compression connectors. Bolted type connectors are not permitted, except where available crimp-on compression connector configurations do not correspond to combinations and arrangement of conductors to be connected. Wrap with rubber insulating tape or vinyl mastic of type, thickness, and insulation level equal to or exceeding the original insulation then tightly over wrap the entire assembly with vinyl insulating tape covering all rubber tape/mastic without gaps or voids.
- 6.8 Provide all splices and taps underground, below grade, and subject to being submerged (where specifically approved in writing by the engineer) as follows. Provide splices/taps of direct buried and open aerial wiring (where specified elsewhere) as follows. Submit shop drawings for all proposed splice/tap products and methods. Where any splice/tap is installed in any underground, below grade, submerged, or exposed wet or outdoor location for which shop drawings are not previously submitted, the contractor shall disconnect and remove the installed splices/taps and provide new acceptable splices/taps (as directed by the engineer) at no cost to the owner.
- A. Utilize manufactured or pre-engineered splices/taps specifically designed and listed for the application, including being suitable for installation underground, direct buried, submerged, and in wet locations. Provide outdoor exposed splices/taps also as sunlight resistant. Pre-molded, heat-shrink, and cold-shrink manufactured kits and engineer approved pre-engineered hand-wrapped tape kits shall be considered.

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- B. For underground splices/taps of stranded wiring #10 AWG and smaller and solid wiring #8 AWG and smaller only, splices/taps may be made as follows. Permanently electrically connect conductors by either of the following options:

- 1) Twist conductors together then solder conductors. Utilize suitable pressure type wire nut connectors with integral water repellent non-hardening sealant (Ideal #60 "DB Plus" or approved equal) to mechanically bind the soldered splice/tap and tightly over wrap with vinyl insulating tape.
- 2) Splice/tap conductors with suitable insulated crimp-on connectors and tightly over wrap with vinyl insulating tape.

Once electrically connected, embed splices/taps in sealant compound. Utilize only engineer approved hardening flexible sealant (i.e. "bondo" traffic detector loop style sealant; contact the engineer for information and submit shop drawings for approval). Place sealant (uncured liquid) in a suitable container, immerse splices/taps in sealant in the container, and rigidly support splices, taps, and conductors in place until sealant has set.

- C. Self-sealing wire nuts (used alone and/or when over wrapped with vinyl insulating tape) are not an acceptable substitute for splices/taps as specified in items "A" and "B" above.

- 6.9 Splices, taps, and connections (and associated materials) as manufactured by Burndy, Elastimold, G&W, Homac, Ideal, IlSCO, Mac Products, O-Z/Gedney, Plymouth, Raychem, Skotch/3M, Thomas and Betts/Blackburn, and approved equal shall be considered.

7. GROUNDING MATERIALS

- 7.1 Provide all material used for grounding of non-ferrous copper. Aluminum is not acceptable, unless specifically indicated on the drawings.
- 7.2 Provide all driven (made) grounding rod electrodes of copper or copper clad steel, minimum 19 mm (3/4") diameter by 3.0 m (10'0") long.
- 7.3 Provide all grounding conductors in accordance with the section of this specification "Conductors and Cable (600 V)", except as follows. Grounding conductors may be insulated or bare, except as follows. Wherever grounding conductors #6 AWG and smaller are insulated, provide insulation colored green. Provide "isolated" grounding conductors as insulated only (green with yellow tracer). Provide grounding conductors run in raceway/cable with wiring as insulated only (bare conductors are not permitted for grounding conductors run with wiring, except cable wiring methods permitted elsewhere in the specifications where insulated grounding conductors are not available).
- 7.4 Provide all grounding connections as per the section of this specification "Splices and Taps", except as modified below. Grounding connections do not require insulation.

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- 7.5 For wiring #4 AWG and larger, provide all grounding connections utilizing exothermic weld process (Erico/Cadweld, Thermoweld, Thomas & Betts, or approved equal). Crimp-on compression type connectors may be used only where available exothermic weld process connection configurations do not correspond to combinations and arrangement of conductors to be connected. Bolted type connectors are not permitted, except where available exothermic weld process and crimp-on compression connector configurations do not correspond to combinations and arrangement of conductors to be connected. Where equipment is provided with factory installed lugs, #4 AWG and larger wiring may terminate directly at factory lugs.
 - 7.6 Utilize only exothermic weld process connections for all concealed grounding connections; compression, mechanical, and other grounding connections are not permitted concealed. Where available exothermic weld process connection configurations do not correspond to combinations and arrangement of conductors to be connected in concealed locations, utilize combinations and arrangement of conductors as required to facilitate exothermic weld process connections and extend from the concealed connection location to an accessible location where crimp-on compression or bolted type connections may be utilized (as permitted above).
 - 7.7 Accessible connections of wiring #6 AWG and smaller to piping and similar materials/equipment may utilize multiple-bolt type ground clamps. Accessible connections of wiring #6 AWG and smaller to driven (made) grounding rod electrodes may utilize one-piece, single bolt "acorn" type ground clamps.
 - 7.8 Provide conduit grounding bushings of galvanized malleable iron with integral screw pressure connector or provisions to accept factory or field installed lug where required.
8. IDENTIFICATION, NAMEPLATES, AND TAGS
- 8.1 Provide all new electrical equipment with engraved three (3) layer laminated plastic nameplates describing the equipment, load/device served, ratings, circuit(s) feeding the equipment, etc. as indicated below. Provide engraved plastic nameplates for existing electrical equipment where modified or connected to as part of this project or where specifically indicated on the drawings. Provide these engraved plastic nameplates in addition to any code required or manufacturers' standard nameplates.
 - 8.2 Provide engraved plastic nameplates for all electrical equipment, including, but not limited to, safety switches, enclosed circuit breakers, branch panels, distribution panels (including branch circuit breakers and circuit breaker spaces), transformers, any equipment containing fuses, power outlets, thermal overload switches, contactors, time clocks, photocells, meter sockets, modular meter centers, fire alarm equipment and devices, lighting controllers, dimming cabinets, capacitors, snow melting equipment, generators, motor control centers, motor controls (starters, variable frequency drive [VFD] units, etc.) where furnished by the electrical contractor, high voltage equipment, etc. (where applicable). Provide engraved plastic nameplates for all receptacles and switches where dedicated to serving specific equipment. Provide engraved plastic nameplates for convenience receptacles (only where indicated on the drawings).

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- 8.3 Secure engraved plastic nameplates with suitable screws or rivets, self-adhesive nameplates are not acceptable. Provide engraved plastic nameplates with white letters on black background, unless indicated otherwise. Provide engraved plastic nameplates with 6.5 mm (1/4") minimum lettering, unless indicated otherwise. Provide engraved plastic nameplates on the front and/or cover of the equipment plainly visible when the cover (where applicable) is closed, unless indicated otherwise.
- 8.4 Submit shop drawings showing proposed sizes (overall and lettering sizes) and exact proposed wording (including exact arrangement of wording) of all engraved plastic nameplates for review and approval.
- 8.5 Provide all engraved plastic nameplates in accordance with the following example. Equipment names are the alphanumeric designation for equipment indicated on the drawings (i.e. "MDP", "PP1", "EF-1", etc.). Equipment descriptions identify the equipment in "plain English" (see example). Indicate the operating voltage of the equipment, including phase and wires (see example). Where equipment includes overcurrent devices (i.e. main breaker panels, fused switches, enclosed circuit breakers, etc.) show the appropriate amperes on the engraved plastic nameplate. Where equipment does not include overcurrent devices (i.e. main lug panels, unfused switches, contactors, transformers, etc.) show the amperes of the overcurrent device protecting the circuit serving the equipment. Remarks include information as described below.

EXAMPLE ENGRAVED PLASTIC NAMEPLATE WORDING

Equipment Name (use 10 mm (3/8") lettering):	PP1
Equipment Description:	POWER PANEL
Equipment Voltage, Phase, Amperes:	120/208V-3PH-4W, 100A
Remarks:	FED FROM MDP - CCT. 4

- A. Branch Panel: Provide engraved plastic nameplate showing panel name and use (description) as indicated on the single line diagram and/or respective panel schedule. Remarks indicate the panel and circuit number or transformer feeding the panel.
- B. Distribution Panel: Provide "master" engraved plastic nameplate on the front cover showing information as indicated above for branch panels. For multiple section panels, locate master nameplate on the section containing the main breaker or incoming line main lugs. Remarks indicate the panel and circuit number or transformer feeding the panel (i.e. sub-distribution panel) or indicate "Service Disconnect" if a service entrance distribution panel. Provide additional nameplates for all branch circuit breakers and circuit breaker spaces (see below).
- C. Branch Circuit Breaker in Distribution Panel: Provide engraved plastic nameplate for each new circuit breaker within a distribution panel (including breakers in existing panels connected to as part of this project). Show the name and description of equipment/load fed. Voltage and phase are not required on these nameplates. Amperes are not required on these nameplates if the rating is clearly and visibly indicated on the circuit breaker. Where adjustable trip circuit breakers are used, show the proper ampere setting on this nameplate. Remarks indicate the approximate location of the equipment/panel served. Where the distribution panel includes a

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hinged overall cover door, provide these nameplates mounted inside the hinged door.

- D. **Circuit Breaker Space in Distribution Panel:** Provide engraved plastic nameplate for each circuit breaker space within a new distribution panel. Show the word "SPACE" and the maximum circuit breaker poles and frame size ampere rating. Equipment name, description, voltage, and remarks are not required on these nameplates. Where the distribution panel includes a hinged overall cover door, provide these nameplates mounted inside the hinged door.
 - E. **Safety Switch/Enclosed Circuit Breaker:** Provide engraved plastic nameplate with the name and description of equipment/load fed. Remarks indicate the panel and circuit number or transformer feeding the switch/breaker. Ampere rating may be omitted if the proper rating is clearly indicated on the switch/breaker and is visible with the cover closed. Where fusible switches are used, show the fuse ampere rating. Where adjustable trip circuit breakers are used, show the proper ampere setting.
 - F. **Fusible Device:** On the inside cover of each fused device, provide an engraved plastic sign indicating the proper fuse size (as indicated on the drawings or as required). Provide nameplate reading, "USE ____A FUSE ONLY" (fill in the proper fuse rating).
 - G. **Transformer:** Provide engraved plastic nameplate with the name and description of equipment/load fed. Show both the primary and secondary voltages and phase as well as the transformer kVA rating. Ampere ratings are not required. Remarks indicate the panel and circuit number feeding the transformer.
 - H. **Metering:** Wherever new metering equipment is installed (including meters, meter sockets, meter boards, digital panel metering units, etc.), provide engraved plastic nameplate showing panel name(s) served by the meter as indicated on the single line diagram and customer buying electricity (description) as verified with the owner. Remarks indicate the panel and circuit number or transformer feeding the panel (or indicate "Fed From Service" if a utility meter). Show service voltage and phase of the metered feeder (not necessarily the meter voltage). For transformer rated metering installations, show current transformer (CT) ratio in place of ampere rating (i.e. "400:5 CT"). For self-contained metering (without CT's), show ampere rating of the metered feeder.
- 8.6 Provide engraved plastic nameplates for power outlets, thermal overload switches, and for receptacles and switches where dedicated to serving specific equipment. Show the equipment served, the voltage and ampere rating, and the circuit feeding the equipment. Utilize 3.2 mm (1/8") high minimum lettering. Provide as per the following example:
- | | |
|---------------------------------|---------------------|
| Equipment Name and Description: | MO-1 MICROWAVE OVEN |
| Equipment Voltage and Amperes: | 120V, 20A - PP1-12 |
- 8.7 Where specifically indicated on the drawings only, provide engraved plastic nameplates for convenience receptacles showing the voltage and ampere rating and the circuit feeding the receptacle. Utilize 3.2 mm (1/8") high minimum lettering. Provide as per the following example:

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Equipment Voltage and Amperes:
Equipment Circuit:

120V, 20A
PP1-14

- 8.8 Provide engineer approved wrap-around adhesive or tube type wire tags or markers for all conductors, except conductors in feeders tagged as indicated below. Provide tags/markers indicating the panel or device where the wiring originates and the conductor circuit number (or other identifying number/letter/designation unique to the conductor). Tag/mark neutral and grounding conductors with the respective circuit number(s) of the corresponding phase conductor(s).
- 8.9 Provide engineer approved tags for all panel feeders (regardless of ampere rating) and other circuits (600 V and less) rated 100 A and larger, at both ends and at all intermediate junction and pull boxes. Provide tags indicating the circuit designation or equipment served, panel name and circuit number (or other source of feeder), and stating the voltage, phase, and amperes of the circuit. Provide tag wording and layout similar to engraved plastic nameplates as indicated above.
- 8.10 Where any conductor size differs from the conductor size normally expected for the respective overcurrent device (for any reason, whether specified or not, including voltage drop consideration, NEC "tap rule" application, ampacity derating considerations, etc.), provide engineer approved tags at the point where the wiring terminates at the overcurrent device reading, "WIRING IS ADJUSTED FOR VOLTAGE DROP/TAP RULE/DERATING, USE MAXIMUM ___A FUSE/CB" (indicate the proper reason for the adjustment and fill in the proper overcurrent device ampere rating). For feeders, this information may be included on the tags specified above.
- 8.11 Provide engineer approved plastic tags for all primary feeders (over 600 V) identifying the feeder number/designation and service voltage. Provide feeder numbers and exact tag configuration and information as designated by the owner and/or engineer during construction. Apply tags after applying cable fire protection tape, where applicable.
- 8.12 Provide all new and existing branch panels (where connected to or modified as part of this project) with accurate and descriptive typewritten circuit directories. For existing panels, provide directories including all modifications as part of this project as well as all previous "penciled in" changes and information. Actual tracing and identifying of existing circuits is not required, unless specifically indicated on the drawings. Submit photocopies of circuit directories at project close out as part of as-built record documents.
- 8.13 Provide all new electrical equipment with all caution, danger, and warning signs or indications required by any applicable regulation, code, standard, or manufacturer's recommendation (provide as listed where applicable and refer to specifications section "Regulations and Codes" of specifications division 16100, General Electrical). This includes, but is not limited to NEC Articles 100, 110, 200, 230, 250, 450, 490, 504, 513, 516, 550-552, 585, 620, 647, 665, 669, 690, 692, 700, 705, etc., as applicable.
- 8.14 Identify conductors in complete accordance with the NEC and as indicated below (including identifying "high-leg", grounding, and grounded (i.e. neutral) conductors, where applicable). For conductors #6 and smaller, identify by natural insulation color. For conductors #4 and larger (and for cable wiring methods where applicable colors are not readily available from cable manufacturers), identify by natural insulation color or by a 155

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mm (6") long (minimum) band of colored vinyl electrical tape on conductors at all terminations and in all boxes and enclosures. Where "tracers" are required, identify by natural insulation color including narrow stripes of the tracer color. Where conductors including tracer stripes are not readily available, provide a 25 mm (1") band of tape (apply over and in the center of the 55 mm (6") band of tape, where applicable) of the tracer color at all terminations and in all boxes and enclosures.

- 8.15 Identify phases of all conductors where more than one phase conductor is present (in raceways, cables, boxes, enclosures, etc.) with methods as indicated above. Utilize standard color-coding throughout the project as follows:

120/208/240 V SYSTEM

A-phase	Black
B-phase	Red (utilize orange if 120/240V-3PH-4W midpoint grounded delta (i.e. "high-leg") system)
C-phase	Blue
Neutral	White
Ground	Green

277/480 V SYSTEM

A-phase	Brown
B-phase	Orange (utilize purple where orange is used for 120/240V-3PH-4W delta system above)
C-phase	Yellow
Neutral	White with brown tracer(s)
Ground	Green

Isolated ground conductors (any system): Green with yellow tracer(s)

OVER 600 V SYSTEMS

Utilize multiple 51 mm (2") wide bands of colored tape to identify phases. Utilize yellow for 5 kV nominal, red for 15 kV nominal, and orange for 25/35 kV nominal.

A-phase	Single band
B-phase	Two (2) bands
C-phase	Three (3) bands

- 8.16 The electrical contractor shall provide new OSHA approved "DANGER - HIGH VOLTAGE" signs on all doors which directly enter any room containing exposed live parts or containing new or existing equipment operating at over 600 V (where connected to or modified as part of this project). Provide new signs even if existing signs are present (except that new signs are not required where existing signs are OSHA approved type complying with *current* OSHA standards).

9. LOCKS AND KEYS

- 9.1 Provide all locks for lighting and power panels, fire alarm and signaling cabinets and all other electrical systems or locked apparatus with keys which are alike.

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10. RECEPTACLES AND SWITCHES

- 10.1 Provide all receptacles and switches as industrial and specification grade, totally enclosed in non-flammable and heat resistant heavy-duty thermoset or thermoplastic case, with terminal screws on the side of the case. Pigtail conductor connections are not permitted (except for specialty devices where side terminal screws are not available options in the manufacturer's catalog), unless specifically indicated otherwise. Provide color as selected and approved by the owner and architect.
- 10.2 Provide receptacles as duplex, parallel blade, side wired, three (3) wire, grounding type, 20 A, 120 V, and listed as "tamper-resistant", unless specifically indicated otherwise on the drawings. Listed combination receptacle and separable snap-in wiring terminal assemblies (Hubbell "SNAPConnect" style, Pass & Seymour "PlugTail" style, or approved equal) may be used and may utilize pigtail connections on the wiring terminal assemblies.
- 10.3 Provide weatherproof receptacles listed as weather-resistant type and mounted in a weatherproof box with gasket and single spring-hinged weatherproof-while-in-use cover over both receptacle positions.
- 10.4 Provide receptacles at bathrooms, janitor closets, kitchen/kitchenette counters, outdoors, wet locations, and as indicated on the drawings or required by the NEC with integral ground fault circuit interrupter (GFCI) protection for personnel with trip characteristics as per the NEC and UL standards.
- 10.5 Where indicated on the drawings, provide isolated ground type receptacles with the receptacle grounding terminal electrically isolated and insulated from the receptacle mounting yoke. Where indicated on the drawings, provide with integral transient voltage surge suppressor (TVSS, with integral light emitting diode (LED) indicating integrity of TVSS protection) with TVSS components rated 150 V, 210 J (at 10 x 1,000 μ s), and 13 kA (minimum) and complying with UL-1449. Provide all wiring serving isolated ground receptacles with separate equipment and isolated grounding conductors as per specifications section "Grounding" of specifications division 16200, General Electrical. Where isolated ground type receptacles are shown in nonmetallic raceways or nonmetallic boxes, either ground the metal receptacle yoke (in addition to grounding the receptacle ground terminal) with the equipment (raceway) grounding conductor (utilizing methods approved by the NEC) or substitute a standard (i.e. non-isolated-ground) type receptacle (but with TVSS where specified) so the receptacle yoke is grounded by the isolated ground conductor, at the contractor's option.
- 10.6 Provide wall switches as single pole, three-way, or four-way as required, heavy duty flux tumbler type, UL "T" rated, specification grade, and rated 20 A, 277 V and 120 V.
- 10.7 Provide horsepower rated single-pole thermal overload switches (manual motor starters, O/L switches, etc.) with thermal overload heater element coordinated with equipment served. Where overload protection is not required (where the switch acts only as disconnecting means) provide overload heater element rated in excess of the branch circuit breaker amperes.

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- 10.8 For all switches where locking provisions are required by Code or indicated on the drawings and for all thermal overload switches, provide a suitable handle locking guard capable of visibly padlocking in the open or closed position (with switch handle position visible when locked).
 - 10.9 Provide dimmer switches of thin profile slide type ("off" when slider is in the lowest position), Lutron #NT series (Hubbell, Leviton, or approved equal), unless indicated otherwise. Dimmer switches of the rotary type, with raised profile (with raised cooling fins), and/or with on/off toggle separate from slider are not acceptable. Provide with full wattage rating as indicated on the drawings, do not "de-rate" by removing cooling fins or heat sink sections (unless specifically indicated on the drawings). Where multiple dimmer switches or dimmer switch(es) along with standard type switches (single pole, three-way, and four-way) are shown grouped together on the drawings, gang switches together with a single overall cover plate (conform with NEC Article 404.8(B) "Voltage Between Adjacent Switches", where applicable). Utilize special cover plates as required by the combination of switches involved. Where ganged with dimmer switches, utilize single pole, three-way, and four-way switches of the slide type with appearance and manufacturer matching dimmer switches.
 - 10.10 For all receptacles at any location in hospitals and in patient care and/or treatment areas in other occupancies (doctors/nurses offices, athletic training, first aid rooms, etc.) provide receptacles as hospital grade (in addition to requirements above) and provide wiring feeding the receptacles complying with NEC Article 517.13
11. SAFETY SWITCHES
- 11.1 Provide all safety switches (disconnect switches) of the quick-make and quick-break type, with contacts not marked or shielded, designed to function if the operating spring fails or is removed, with mechanical interlock so operation is impossible when the cover is open (provide means to manually bypass/defeat the interlock), with provisions for padlocking in both the open and closed positions, and of the heavy duty type. Provide switches with voltage ratings equal to or exceeding the operating voltage. Provide indoor switches with NEMA-1 enclosures. Provide outdoor switches with NEMA-3R enclosures. Where NEMA-4X enclosures are specifically indicated on the drawings only, provide of the stainless steel type only.
 - 11.2 Provide fuse clips in fusible switches to facilitate fuses as per the section of this specification "Fuses". Provide suitable "rejection" type clips to prevent replacing fuses with short circuit ratings lower than specified.
 - 11.3 Provide safety switches with ground busses. Where neutral conductor is present, provide safety switches with separate neutral busses (with provisions for bonding, bond where required by the NEC).
 - 11.4 For all safety switches on the load side of variable frequency drive (VFD) units, provide safety switches with integral "electrical interlock" auxiliary contacts (one (1) N.O. and one (1) N.C., minimum) which "break" before safety switch opens. Provide two (2) #14 AWG interlock conductors run (in raceway with line side power conductors) from auxiliary contact to VFD unit. The VFD supplying contractor shall connect interlock wiring at VFD unit to shut down VFD unit if safety switch is opened to prevent operating VFD without load connected.

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- 11.5 For all safety switches serving elevators, provide safety switches with integral "electrical interlock" auxiliary contacts (one (1) N.O. and one (1) N.C., minimum) which "break" before safety switch opens. Provide two (2) #14 AWG interlock conductors run (in raceway with load side power conductors) from auxiliary contact to elevator controller. The elevator contractor shall connect interlock wiring at elevator controls as required.
- 11.6 Equipment as manufactured by Eaton, General Electric, Siemens, Square-D, and approved equal shall be considered.

12. FUSES

- 12.1 Provide an NEC cartridge fuse for each fuse-gap in the work. Furnish three (3) spare fuses of the rating installed to the owner for each fused device. Specifications are based on equipment as manufactured by Cooper/Bussman. Equipment as manufactured by Ferraz Shawmut, Littlefuse, or approved equal shall be considered.
- 12.2 Provide fuses of the dual element time delay, current limiting, and non-renewable type with voltage rating not less than the operating voltage and coordinated with the respective fuse clips and with short circuit rating of 200,000 A. Provide fuses as class "RK1" (600 A and less, Cooper/Bussman #LPN/S-RK series) or class "L" (over 600 A, Cooper/Bussman #KRP-C series). Class "CC" fast acting (Cooper/Bussman #LP-CC series) or time delay (Cooper/Bussman #KTK-R series) fuses, as recommended by manufacturer, are permitted for control applications.

13. CIRCUIT BREAKERS

- 13.1 This section applies to all circuit breakers installed within or in conjunction with branch and distribution panels, enclosed circuit breakers, contactors, starters, and any other electrical equipment, unless indicated otherwise.
- 13.2 Provide all circuit breakers of the molded case type unless specifically indicated otherwise. Provide readily removable from the front of panels and equipment without disturbing adjacent units, having quick-make and quick-break toggle mechanisms and non-fusible contacts, having inverse time and short circuit characteristics, which trip free on overload or short circuit so that they cannot be held closed on overload, clearly indicating whether they are in the open, tripped, or closed position. Provide automatic release obtained through the medium of a bimetallic thermal type element (ambient compensated) engaged in the releasing latch of the breaker or mechanism.
- 13.3 Provide circuit breakers in branch and distribution panels with short circuit ratings as indicated in the respective equipment specifications. Provide circuit breakers as part of enclosed circuit breakers, contactors, starters, and any other electrical equipment with short circuit ratings not less than the short circuit rating of the first overcurrent device on the line side of the breaker, unless indicated otherwise on the drawings.
- 13.4 Provide field-installed handle locking devices for all circuit breakers not requiring switch control, for all circuit breakers feeding emergency lighting equipment (including battery equipment) and fire alarm controls, and for all circuit breakers fed from an emergency generator system (where applicable).

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- 13.5 Provide 15 A and 20 A circuit breakers "SWD" and "HID" rated. Provide branch panel (250 V and less) circuit breakers rated 70 A and less as "HACR" rated. Provide enclosed circuit breakers and circuit breakers in distribution panels rated 250 A and less as "HACR" rated.
 - 13.6 For all 120 V, 20 A and 120 V, 15 A circuits (including multi-wire branch circuits feeding 120 V loads) serving any new or existing outlets (receptacle outlets, lighting outlets, fan outlets, equipment outlets, utilization outlets, etc.) in any dwelling unit family room, dining room, living room, parlor, library, den, bedroom, sunroom, recreation room, closet, hallway, or similar room or area, provide branch circuit breakers of the arc fault circuit interrupter (AFCI) type. This does not apply to circuits rated 208 V and greater or circuits rated 30 A and greater. For the purposes of this section, bedrooms include all bedrooms, hotel/motel guest rooms, dormitory rooms, and any other room capable of being converted to or used as a bedroom or for sleeping. Provide as NEC approved and listed for the purpose. Provide whether indicated on the drawings (including panel schedules) or not, include all costs in bid.
 - 13.7 Provide all circuit breakers over 250 A of a type with interchangeable trip units. Provide all circuit breakers rated 1,000 A or larger and operating at over 250 V with integral ground fault protection for equipment.
 - 13.8 Where circuit breakers include or facilitate adjustable settings, adjust and set as follows. Set adjustable continuous current settings (where applicable) to ratings shown on drawings. For adjustable instantaneous, short time, and ground fault settings (where applicable), the electrical contractor is responsible for (include all costs) a basic short circuit and coordination study performed by the respective circuit breaker manufacturer. Set breakers as per this study. Provide study in accordance with applicable ANSI and IEEE standards. Gather all information required by the manufacturer to perform this study. Submit a written report of the study to the engineer for review prior to releasing equipment for manufacture. The basic coordination study may be limited to a minimum of coordinating each adjustable setting circuit breaker with the nearest line side overcurrent device directly feeding the breaker and all nearest load side overcurrent device(s) fed directly by the breaker. The basic short circuit study may be limited to the minimum required to complete the coordination study and confirm proper settings. Setting adjustable circuit breaker settings to the minimum or factory "default" settings (i.e. as shipped from the factory) is not acceptable.
14. ENCLOSED CIRCUIT BREAKERS
- 14.1 Provide each enclosed circuit breakers consisting of a molded case circuit breaker, with a trip rating as indicated on the drawings, with provisions for padlocking in both the open and closed positions, within a listed enclosure manufactured for the purpose of housing a circuit breaker. Provide indoor breakers with NEMA-1 enclosures. Provide outdoor breakers with NEMA-3R enclosures.
 - 14.2 Provide circuit breakers (including short circuit ratings) as specified elsewhere in this specification. Provide circuit breakers of the bolt-on type.

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- 14.3 Provide enclosed circuit breakers with ground busses. Where neutral conductor is present, provide safety switches with separate neutral busses. Provide neutral bus with provisions for bonding and bond where required by the NEC.
- 14.4 Equipment as manufactured by Eaton, General Electric, Siemens, Square-D, and approved equal shall be considered.

15. BRANCH PANELS

- 15.1 Provide branch panels (panel boards) of dead front completely enclosed safety type construction, listed (with all components bearing labels), of a type suitable for use as service entrance, and containing thermal-magnetic "bolt-on" type circuit breaker branches as per the respective schedules on the drawings.
- 15.2 Provide circuit breakers as specified elsewhere in this specification.
- 15.3 Provide cabinets consisting of code gauge galvanized sheet steel boxes of sufficient depth, width, and length to mount the panels as indicated on the drawings and to facilitate wiring, with suitable lugs for mounting panel interiors, and with wiring gutters at top, bottom, and sides of sufficient size to adequately accommodate the raceways, conductors, and cables entering and leaving (provide all gutters at least 100 mm (4")).
- 15.4 Provide panel faces with adjustable indicating type clamps and of single door construction, with door opening over the circuit breaker section (secured with locks and pulls as specified under paragraph heading "Locks and Keys"), hung with heavy hinges, and with faces and doors not less than 2.7 mm (12 ga.) thick.
- 15.5 Provide metal frame circuit directory holders welded to the inside of the cabinet doors with transparent covers. Place typewritten directories in these holders.
- 15.6 Provide bus bars with ampacity as indicated on the drawings (or corresponding to main breaker, where applicable) and with all current carrying parts sized per UL 67 heat rise testing.
- 15.7 Provide panels with copper or aluminum bus bars.
- 15.8 Provide panels with separate ground and neutral busses. Provide neutral bus with provisions for bonding and bond where required by the NEC.
- 15.9 Provide panels with 10,000 A short circuit rating (A.I.C., I_{sc}), unless indicated otherwise on the drawings. Provide panels fully short circuit rated, series short circuit rating of panels are not acceptable (unless specifically indicated otherwise).
- 15.10 Provide ALL new panels with integral surge suppression as specified elsewhere in this specification.
- 15.11 Equipment as manufactured by Eaton, General Electric, Siemens, Square-D, and approved equal shall be considered.

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- 15.12 Where branch wiring fed from the panel utilizes cable wiring methods (i.e. types "AC" or "MC" cables, where permitted elsewhere by the specifications) avoid visible exposed cables in electrical closets and electrical rooms by either of the following options:
- A. Provide suitable sheet metal panel "skirt" enclosure(s) above and/or below the panel as required to completely enclose cable wiring methods so not more than a 300 mm (12") total length of each cable is visible. Provide skirt enclosures fabricated of galvanized sheet steel not less than 0.55 mm (26 ga.) thick.
 - B. Provide a nearby junction box for branch wiring as indicated below.
- 15.13 Where panels are flush mounted, provide an adjacent junction box for branch wiring as indicated below.

16. JUNCTION BOXES FOR BRANCH PANELS

- 16.1 Provide suitable junction boxes (and/or wiring troughs) for branch wiring at branch panels as follows. The electrical contractor must provide junction boxes for all flush mounted panels. The electrical contractor may utilize junction boxes (as an option to metal panel skirts) to avoid exposed visible cables in electrical closets and electrical rooms. The electrical contractor may utilize junction boxes at other locations and applications if desired, but the boxes and raceways (wherever used) must comply with all of the following requirements.
- 16.2 Locate each junction box above an accessible drop ceiling (or an access panel if ceiling is inaccessible) directly above or as close as practical to the panel. Where junction box is installed to satisfy requirements to hide cable wiring methods, locate outside of the electrical closet/room or inside the closet/room at a perimeter wall so there are no visible cables in the closet/room (except that not more than 300 mm (12") total visible length of each cable is permitted leaving the junction box).
- 16.3 Provide junction boxes and raceways between boxes and panel as indicated below.
- | <u>Panel Size</u>
<u>(Branch Cct. Poles)</u> | <u>Junction Box</u>
<u>Min. Dimensions</u> | <u>Quantity and</u>
<u>Size of Conduits</u> |
|---|---|--|
| 43-Poles & Over
(All Double panels) | 48"W x 8"H x 8"D (1.2m x 205mm x 205mm) * | (8) 53 mm (2") |
| 31-to 42-Poles | 24"W x 8"H x 8"D (0.6m x 205mm x 205mm) | (4) 53 mm (2") |
| 19-to 30-Poles | 24"W x 6"H x 6"D (0.6m x 155mm x 155mm) | (3) 53 mm (2") |
| 18-Poles and less | 18"W x 6"H x 6"D (460mm x 155mm x 155mm) | (2) 53 mm (2") |
- * Two (2) 24"W x 8"H x 8"D (0.6 m x 205 mm x 205 mm) junction boxes may be substituted. Provide (2) 78 mm (3") conduit nipples between the junction boxes.
- 16.4 Adjust wiring sizes between each junction box and panel in accordance with NEC de-rating factors. Utilize #8 AWG wiring for branch circuits rated 25 A or 30 A. Utilize #6 AWG wiring for branch circuits rated over 30 A but less than 60 A. Coordinate routing of wiring between junction box and panel with the engineer during construction for all circuits rated over 30 A. Where wiring sizes change due to de-rating considerations, splice wiring in the junction box as required.

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- 16.5 Do not pass the incoming panel feeder and any branch circuits rated 60 A and larger through junction boxes, run this wiring directly into panels. Do not terminate any branch wiring conductors (including grounding conductors associated with each branch circuit) in junction boxes. Terminate conductors only at circuit breakers, ground bus, and neutral bus in panels. Do not splice conductors in junction boxes, except straight-through splicing of two (2) conductors as provided above for de-rating.
- 16.6 Bond each junction box to the panel enclosure with a grounding conductor run in one of the raceways between the panel and junction box. Provide bonding conductor not smaller than the grounding conductor for the panel feeder.

END OF SECTION

