REGAN YOUNG ENGLAND BUTERA
REFERENDUMS • ENGINEERING • ARCHITECTURE • DESIGN

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SOUTH JERSEY BIZ BEST OF BIZ 2018

A BLUEPRINT FOR BETTER

PROJECT MANUAL

MAINTENANCE & OPERATIONS BUILDING

SOUTHAMPTON TOWNSHIP SCHOOL DISTRICT

177 MAIN STREET
VINCENTOWN, NEW JERSEY 08088

NJDOE SP# 4930-070-19-1000

SOUTHAMPTON TOWNSHIP SCHOOLS

SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION
177 MAIN STREET
VINCENTOWN, NEW JERSEY 08088
(609) 859-2256

REGAN YOUNG, AIA
NEW JERSEY REGISTRATION NO. 21A00912100

RYEBREAD PROJECT 5561Aa
14 FEBRUARY 2019

Working together, we can create building envelopes/systems/interiors/contexts that are more safe, productive, healthy, efficient, and distinctive.

SECTION 000010 - TABLE OF CONTENTS

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DIVISION 08 - OPENINGS

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DIVISION 32 – EXTERIOR IMPROVEMENTS

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END OF SECTION 000010

SECTION 000100 - ADVERTISEMENT

NOTICE IS HEREBY GIVEN THAT SEALED PROPOSALS FOR:

MAINTENANCE & OPERATIONS BUILDING LOCATED AT 177 MAIN STREET; VINCENTOWN, NEW JERSEY 08088.

Will be received no later than 2:00 PM prevailing time, on 20 March 2019 in the Board Offices located Betty L. Wright Administrative Building, 177 Main Street, Vincentown, New Jersey 08088.

Prime Bidders must be pre-qualified by the New Jersey Department of the Treasury, Department of Property and Management Construction, prior to the date that bids are received. Any bids submitted under the terms of New Jersey Statutes not including a copy of a valid and active Pre-qualified/Classification Certificate and New Jersey Department of Labor Contractor Registration Certificate may be rejected as being non-responsive to bid requirements.

One of the following DPMC-Classified Trade(s) and License(s) are required by the Overall Prime Bidder and/or their subcontractors:

C008 General Construction or C009 General Construction/Alterations and Additions.
C030 Plumbing.
C032 Heating, Ventilation, Air Conditioning and Refrigeration (HVACr).
C047 Electrical.

Proposals must be addressed to the SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION; Betty L. Wright Administration Building; 177 Main Street; Vincentown, New Jersey 08088; Attn.: Casey DeJoseph, Business Administrator/Board Secretary. All bids received on time shall be opened and read publicly at the above time and date. Electronic (e-mail) submissions shall not be accepted. The SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION and REGAN YOUNG ENGLAND BUTERA, PC. assume no responsibility for bids mailed or misdirected in delivery.

Sealed bids shall be received as a SINGLE GENERAL CONSTRUCTION contract for all work, goods and services required to complete the project. The bid must identify the name or names of all subcontractors to whom the Prime Bidder will subcontract the furnishing of: (1) Plumbing and Gas Fitting; (2) Heating, Ventilation, Air Conditioning and Refrigeration; (3) Electrical Work, including any electrical power plant, tele-data, fire alarm, or security system; and (4) Structural Steel and Ornamental Iron Work ("Prime Subcontractors"). Each of the Prime Subcontractors shall be qualified in the same manner as the Prime Bidder, in accordance with the requirements of N.J.S.A. 18A:18A-1 et seq. If none are required, the Prime Bidder shall input "None" on the List of Subcontractors.

The Work shall include, but not be limited to, the demolition of an existing barn structure including the remediation of asbestos materials in the barn, and the construction of a new Operations and Maintenance Facility.

Proposal Forms, Instructions to Bidders, Specifications and other bid documents may be made available and examined by Bidders from the office of REGAN YOUNG ENGLAND BUTERA,

PC; 456 High Street; Mt. Holly, New Jersey 08060 during regular business hours. Additional information, including a list of (registered) Prime Bidders, can be obtained from the Architect's web site (www.RYEBREAD.com). Subcontractors and vendors may obtain copies from registered Prime Bidders. There is a $25.00 non-refundable cost to be a Prime Bidder. An electronic copy of the specifications and drawings shall be made available to Prime Bidders; hard copies of the bidding documents shall not be provided. Access to the electronic documents shall be emailed to the Prime Bidder upon receipt of their payment and all of the following information:

Business name
Contact person
Business mailing address
Business phone number
Business facsimile number
Email address

Inquiries shall be directed to:

Patrick A. Farmer, AIA
REGAN YOUNG ENGLAND BUTERA, PC
456 High Street
Mt. Holly, NJ 08060
(609) 265-2652/0333 Fax
paf@ryebread.com

A NON-MANDATORY PRE-BID CONFERENCE will be held at 3:30 PM prevailing time, on 04 March 2019 in the Betty L. Wright Administrative Building Building located at 117 Main Street, Vincentown, New Jersey 08088. Attendance at the Pre-Bid Conference is encouraged but not mandatory. Bid documents will not be available at the pre-bid conference.

Construction must begin on 01 April 2019 and shall be substantially completed on or before 01 July 2019.

Bids must be made upon the official Form of Bid and shall include Bid Security in the form of a certified check, cashier's check, or by Bid Bond drawn to the order of the Owner in the amount of not less than ten percent (10%) of the Base Bid but in no case in excess of $20,000.00. The bid shall also be accompanied by an executed Consent of Surety in accordance with N.J.S.A. 18A:18A-25, agreeing to furnish a Performance Bond and a Payment Bond, each in the stated principal amount of one hundred percent (100%) of the contract amount, and a two-year Maintenance Bond in the amount of ten percent (10%) of the contract amount.

Contracts for work under these bids will obligate contractors and Subcontractors to (1) pay Prevailing Wages in accordance with N.J.S.A. 34:11-56(a) et. seq., (2) comply with equal opportunity laws in accordance with N.J.S.A. 10:5-31 et. seq., (3) comply with Affirmative Action laws in accordance with N.J.A.C. 17:27 and comply with Exhibit B of the Department of the Treasury, Guidelines for Administering EEO in Public Contracts), (4) provide ownership disclosure information per N.J.S.A. 52:25-24.2, (5) comply with New Jersey Business Registration laws in accordance with N.J.S.A. 52:32-44 and (6) comply with any and all successors, amendments or additions thereto.

Prime Bidders are required to comply with the requirements of the State of New Jersey Public School Contract Law, N.J.S.A. Title 18A bidding laws. A Prime Bidder that withdraws or modifies his/her bid prior to 60 days after the actual date of opening of bids may forfeit their bid security. All bid security, except for the security of the three apparent lowest responsible Prime Bidders shall, if requested, be returned after ten days from the opening of the bids, Saturdays, Sundays and holidays excepted, and the bids of such Prime Bidders shall be considered as withdrawn.

Registered Bidders must submit substitution requests or any questions concerning the project to the Architect on Form 006001 BIDDER REQUEST FOR INFORMATION included in the Project Manual no later than 1:00 PM on 06 March 2019. The Architect will not respond to questions received by those other than Prime Bidders.

The SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION has the right to award the contracts within sixty (60) days of the bid opening and reserves the right to reject any or all bids and to waive any non-material defects, as may be permitted by law.

By Order of the SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION.
Casey DeJoseph, Business Administrator/Board Secretary.

END OF SECTION 000100

SECTION 001000 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

Refer to Sections of Divisions 00 and 01 for additional information that may affect the preparation of bids. These Sections contain information pertaining to:

- Time, date and place for receipt of bids.
- Time for completion.
- Substitution of materials.
- Alternate prices, allowances, unit prices.
- Other conditions pertaining to the Work.

BIDDING DOCUMENTS

Bidding Documents consist of:

- The Project Manual containing:
  - Table of Contents.
  - List of Drawings.
  - Instructions to Bidders.
  - Contract Forms.
  - Modified AIA General Conditions of the Contract.
  - Specifications as listed in the TABLE OF CONTENTS.
- Drawings as listed in the PROJECT MANUAL.
- Any Addenda as may be subsequently issued to Bidders of Record.

Bidding Documents will be available to Prime Contract Bidders as stated in the ADVERTISEMENT. Sub-Contractors and vendors may obtain copies from registered Prime Contract Bidders. All documents furnished to any person, under any condition, shall remain the property of the Architect and shall not be reproduced or used on any other project without approval of the Architect in writing.

BID UPDATES

Bidders should regularly visit the Architect's website at the link indicated in the Advertisement and select the applicable project for relevant project information including, but not limited to, addenda, prospective bidders, and budget.

SINGLE OVERALL BID

In accordance with Title 18A, Public School Contracts Law, the Contractor submitting a bid to perform the work under a single contract shall furnish in writing at the time of Bid, the names of persons or entities proposed as Prime subcontractors. Prime subcontractors shall be qualified in accordance with N.J.S.A. 18A:18A-18. In addition, submit evidence of performance security of each Prime subcontractor simultaneously with the bid.

BID PREPARATION

Proposal for Contracts as listed in the Advertisement for Bids as hereinafter described, will be received for the performance of the Project. The bids shall cover all cost of any nature, incident to and growing out of the work. In explanation but not in limitation thereof, these costs shall include the cost of all work, labor, materials, equipment, transportation and cost of all else necessary to perform and complete the Project in the manner and within the time required, all incidental expenses in connection therewith, all costs on account of loss by damage or destruction of the Project, to the extent that the cost of such loss is not recovered from insurance carried by the Owner and the Contractor, and any additional expenses for unforeseen difficulties encountered, for settlement of damages and for replacement of defective work and materials.

Prior to submitting a bid, Bidder shall examine and thoroughly familiarize himself/herself with all of the following:

The Bidding Documents.
All applicable laws, ordinances, rules and regulations which may affect the Work.
The Site and all existing Work, buildings, utilities, roads, etc.
That the bidding Contractor can secure the necessary labor and equipment and that the materials specified herein may be obtained in the quantities and in the time required by the Contract.
All other conditions that may affect the Work.

Drawings and Specifications have been prepared on the basis of surveys and inspections of the Site and are intended to present an essentially accurate indication of the physical conditions at the Site. This shall not relieve the Bidder of the necessity of fully informing himself/herself as to the existing conditions at the site. The failure or omission of any Bidder to receive or examine any form instrument or document or to visit the site and acquaint themself with conditions there existing, shall not relieve any Bidder from obligation with respect to his bid.

If a Bidder finds discrepancies or ambiguities in, or omissions from the Documents, or if he/she is in doubt as to their meaning, he/she shall notify the Architect in writing by the time, date and method indicated in the ADVERTISEMENT. Failure to report any discrepancies, ambiguities, and/or omissions in the manner herein prescribed constitutes a waiver of any claim for additional compensation arising out of any and all additional work and/or materials necessary as a result of the Architect's decision(s) clarifying said discrepancies, ambiguities and/or omissions. If properly notified, the Architect will, if necessary, send written Addenda to all Bidders of Record. Direct inquiries to:

Patrick A. Farmer, AIA
REGAN YOUNG ENGLAND BUTERA, PC
456 High Street
Mt. Holly, NJ 08060
(609) 265-2652/0300 Fax
paf@ryebread.com

PRE-BID CONFERENCE

A pre-bid conference will be conducted by the Architect as stated in the ADVERTISEMENT. It is the responsibility of the bidders to obtain directions to the place of the meeting and for attendance.

VISITATION OF EXISTING SITE

Visit to the existing site may be arranged by calling:

Kevin Greene, Supervisor of Facilities at (609) 859-2256 , ext. 162.

REQUESTS FOR INFORMATION

Registered Prime Bidders requesting information or clarification to bidding or construction related issues shall fax the request to the Architect at (609) 265-0333 by the date and time indicated in the ADVERTISEMENT. Bidders must submit form 006001, BIDDER REQUEST FOR INFORMATION included in this Project Manual. Only requests submitted on the BIDDERS REQUEST FOR INFORMATION form will be answered.

Request must clearly identify the drawing number and/or specification section in question. All requests must be received in writing no later than the date & time indicated in the ADVERTISEMENT.

ORAL EXPLANATIONS

Oral explanations or instructions given before Award of Contract will not be binding. All authorized interpretations will be made by written Addenda.

ADDENDA

Written Addenda making changes or corrections to the Bidding Documents after they have been issued will be sent, if required, to Bidders of Record. Such Addenda shall take precedence over that portion of the Bidding Documents concerned and shall become a part of the Contract Documents. The failure to provide the additional notice to bidders shall not serve to void the award of the Contract(s). In accordance with N.J.S.A 18A:18A-21, Addenda shall be issued to reach registered Bidders at least 7 days prior, Saturdays, Sundays and holidays excepted, to the Date for Receipt of Bids. It is the responsibility of the Bidder to ascertain that he/she has received all issued Addenda, prior to submission of the bid.

Receipt of all Addenda shall be acknowledged by the Bidder on the FORM OF BID in the space provided. Failure to acknowledge Addenda may be cause for rejection of the bid.

PREQUALIFICATION/CLASSIFICATION

Pursuant to N.J.S.A. 52:35-1 et seq. and 18A:18A-26, 27 et seq., Bidders on any Contract for State Funded and/or Department of Education work in the State of New Jersey in which the entire cost of the Contract exceeds $20,000 must be pre-qualified by the Department of Treasury, Division of Property Management and Construction, as to the character and amount of public work on which they may submit bids. Pre-qualified Bidders must submit with their Proposal a

Notice of Classification setting forth the type of work and the amount of work for which he has been qualified, that there has been no material adverse change in his qualification information, the total amount of uncompleted work on contracts at the time of the bid opening. (Forms for this purpose are available from the Director of the Division of Property Management and Construction, Department of Treasury, Trenton, NJ 08625, www.state.nj.us/treasury/dpmc/forms.shtml).

Each bidder submitting a proposal for a single overall contract must include with its bid evidence that the prime subcontractors it proposes (if any) to utilize for structural steel work; plumbing and fire protection work; heating, ventilating and air conditioning work; and electrical work (prime subcontractors) are pre-qualified by the New Jersey Department of Treasury, Division of Property Management and Construction and shall submit with his/her bid a current Notice of Classification and a No Material Change in Qualification Information Form, and a Total Amount of Uncompleted Contracts Form (DPMC Form 701) for each of the above subcontractors.

Pursuant to N.J.S.A. 18A:7G-37, each prequalified contractor seeking to bid school facilities projects, along with any prime subcontractors required to be named shall, as a condition of bidding, submit a sworn Contractor Certification regarding their qualifications and credentials. A principal owner or officer of each company shall certify that their firm has the qualifications and credentials required by the Contractor Certification. A current, valid copy of a "Certification of Authority to perform work in New Jersey" issued by the Department of the Treasury shall be attached to each Contractor Certification form.

BUSINESS REGISTRATION OF PUBLIC CONTRACTORS

Pursuant to N.J.S.A.52:32-44, as set forth above, the bidder shall submit a copy of their Business Registration Certificate as well as each of their subcontractors or suppliers anticipated to be used in the fulfillment of the contract.

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

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L.2001, c.134 (C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L.1977, c.110 (C.5:12-92), or that provides false business registration information under the requirements of either of those sections, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000 for each business registration copy not properly provided under a contract with a contracting agency.

OWNER'S RIGHT TO ADDITIONAL INVESTIGATION

The Owner may make such additional investigations as it deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that he is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

TIME FOR COMPLETION

Time for completion as indicated in the ADVERTISEMENT. Bidders attention is directed to MODIFIED AIA GENERAL CONDITIONS, Paragraph 8.1.

BIDDER'S LEGAL NAME

The Bidders legal name, address and telephone number shall be stated in full on the FORM OF BID. The Bid shall be signed in ink by a Principal duly authorized to bind the Bidder in contracts.

Bids by Partnerships shall indicate the full names of all partners and shall be signed in the partnership name by one of the partners or by a duly authorized representative followed by the designation of the person signing.

Bids by Corporations shall have the name of the corporation followed by the State of Incorporation and the designation of the corporate officer authorized to bind the corporation in this matter. Disclosure by the bidder must be continued until the individual names and addresses of every non-corporate stockholder and individual partner exceeding the 10% ownership criteria has been listed. (N.J. S.A.52:25-24.2).

DOCUMENTS ACCOMPANYING BID

Refer to Section 002000 - FORM OF BID for a list of all documents required to be submitted with the bid along with the required number of copies.

Failure to provide all required documents and required number of copies may be cause for disqualification and rejection of bid.

MAILED BID PROPOSALS

If a Bid is to be mailed, the bid envelope shall be enclosed in another opaque envelope stating "MAILED BID PROPOSAL" and addressed to:

Casey DeJoseph, Business Administrator
SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION
177 Main Street
Vincentown, New Jersey 08088

Electronic (e-mail) submissions shall not be accepted.

The Bidder assumes full responsibility for bids mailed or misdirected in delivery. The Owner is not responsible for any Bids that fail to arrive within the time specified by the ADVERTISEMENT regardless of fault.

BID OPENING

Bids shall be received and opened as stated in the ADVERTISEMENT.

The award of the Contract(s) or rejection of all bids must be made within sixty (60) days of the bid opening.

The execution of the Contract(s) shall be done within twenty-one (21) days of award of bid.

Award made to a Bidder whom is not a resident of the State of New Jersey is conditioned upon Bidder designating a proper agent in the State on whom service can be made in the event of litigation.

If the successful bidder is a corporation not organized under the laws of New Jersey, the award of Contract and payment of consideration thereunder shall be conditioned upon Corporation promptly filing a certificate of doing business in the State of New Jersey pursuant to the provisions of New Jersey law.

WITHDRAW OR MODIFICATION OF BID

No Bids may be withdrawn or modified after the time set for receipt of bids and for a period of 60 calendar days thereafter without consent of the Owner.

INFORMALITIES IN BID PROPOSALS

The Owner reserves the right to reject any or all bids, and to waive any bid requirements and/or any non-material bid defects, where such rejection or waiver is in the best interests of the Owner, and where such rejection or waiver is permitted by law.

FORM OF AGREEMENT

The Form of Agreement shall be the 2017 AIA Document A101 Standard Form of Agreement between Owner and Contractor (Stipulated Sum).

CONTRACTOR PREFORMANCE REVIEW

In accordance with N.J.S.A. 18A:18A-15, the Board of Education, through its authorized agent, shall upon completion of the contract report to the department as to the contractor's performance, and shall also furnish such report from time to time during performance if the contractor is then in default.

CHALLENGES TO BID SPECIFICATIONS

In accordance with N.J.S.A. 18A:18A-15, any prospective bidder who wishes to challenge a bid specification shall file such challenges in writing with the School Business Administrator/Board Secretary and the Architect no less than three (3) days prior to the opening of bids. Challenges filed after that date shall be considered void and having no impact on the Board of Education or the award of a contract.

AMERICAN GOODS

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

EQUIVALENT PRODUCTS: The use of manufacturers' brand names, catalogue numbers and similar proprietary identifying data in the Contract Documents are not intended to eliminate from consideration products that are equivalent in quality, appearance and function to those specified.

BONDING

Bid Security: Each bid shall include bid security by certified check, cashier's check or bid bond drawn to the Owner in an amount of not less than ten percent (10%) of the base bid but in no case in excess of $20,000.00.

Contract Bonds: The Bidder to whom the Contract has been awarded shall, within ten (10) days of the date of the award, furnish and deliver a Performance Bond and Payment Bond, equal to one hundred percent (100%) of the Contract amount. The Bidder(s) to whom the Contract(s) has been awarded shall, prior to requesting Final Payment, furnish and deliver a TWO (2) year Maintenance Bond, equal to ten percent (10%) of the Final Contract Amount. If, at any time after execution and approval of a Contract and Performance-Payment Bond required by Contract Documents, such Bond shall cease to be adequate security for the Owner, the Contractor shall, within five days after notice to do so, furnish a new or additional Bond, in form, sum and signed by such Sureties as shall be satisfactory to the Owner. No further payment shall be deemed due nor shall any further payment be made to the Contractor unless and until such new or additional Bond shall be furnished and approved.

Consent of Surety: All bids shall be accompanied by an executed Consent of Surety in accordance with 18A:18A-25, agreeing to furnish the required Performance, Labor and Material Payment Bond and Maintenance Bond.

The Contractor shall obligate their Surety to make periodic inquiries of the Board at reasonable times, to determine whether its Principal has performed or was performing the Contract in accordance with all of its terms and conditions, particularly in relation to the progress payments scheduled under said Contract with the Board.

Bidder shall provide proof of executed consent with his/her bid from an approved surety company licensed to conduct business in the State of New Jersey agreeing to furnish the required Maintenance Bond.

BOND AND PERMIT COSTS

The cost of all Bonds shall be paid for and obtained by the Contractor. Permits shall be coordinated by and obtained by the Contractor. If the municipality requires a fee for the review and release of construction permits, the Contractor shall pay all required fees and submit evidence of such to the Owner for full reimbursement of direct costs without any markup.

NON-COLLUSION AFFIDAVIT. Pursuant to N.J.S.A. 52:34-15, each bidder shall submit with his bid a Non-Collusion Affidavit in the form bound herein.

LAW AGAINST DISCRIMINATION

All contracts related to the project, whether between Owner and Contractor or Contractor 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 10:5-31 et seq., N.J.A.C. 17:27, N.J.A.C. 6A:7-1.8.

Pursuant to N.J.S.A. 10:2-1:

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

b. No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;

c. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of $50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and

d. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

ANTI-BULLYING BILL OF RIGHTS—REPORTING OF HARASSMENT, INTIMIDATION AND BULLYING—CONTRACTED SERVICE

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

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

NEW JERSEY PREVAILING WAGE RATE: Bidders are required to comply with the State prevailing wage rate for public works, Chapter 150 Laws of 1963, N.J.S.A. 34:11-56.25 et seq.

PUBLIC WORKS CONTRACTOR REGISTRATION: In accordance with the "Public Works Contractor Registration Act" (N.J.S.A. 34:11-56.51) each bidder is required to be registered pursuant to the Act at the time of the bid and in accordance with N.J.S.A. 34:11-56.55 shall submit their certificate prior to awarding of the contract.

In accordance with N.J.S.A. 34:11-56.27, (a) bidders shall pay workers not less than the prevailing wage rate; (b) in the event it is found that any worker, employed by the contractor or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wage required to be paid by such contract, the 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.

Pursuant to N.J.S.A. 34:11-56.51, a contractor must be registered pursuant to the Public Works Contractor Registration Act in order to bid on a contract. All listed subcontractors must also be registered at the time the bid is submitted.

PAY TO PLAY: Bidders are advised to comply with the disclosure requirements of 6A:23A-6.3.

RESIDENT CITIZENS; PREFERRED IN EMPLOYMENT ON PUBLIC WORKS CONTRACTS

All bidders are to familiarize themselves with N.J.S.A. 34:9-2, which requires the contractor of any public work project to give preference in employment on the project, to citizens of the state of New Jersey. If the terms and conditions of N.J.S.A. 34:9-2 are not complied with, the contract shall be voidable.

CERTIFIED PAYROLL RECORDS

The bidder to whom the contract has been awarded agrees to submit certified payroll records to the public body for each payroll period within ten (10) days of payment of wages in accordance with current New Jersey Statutes. Copies of certified payroll forms may be obtained by calling or writing or calling the following agency:

NEW JERSEY DEPARTMENT OF LABOR
Division of Workplace Standards
Public Contracts Section
CN 389
Trenton, New Jersey 08626-0389
(609) 292-2259

CRIMINAL HISTORY BACKGROUND CHECKS

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

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

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

RECORDS RETENTION

In accordance with N.J.A.C. 17:44-2.2 Bidders 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.

PARTS 2 AND 3 (Not Applicable)

END OF SECTION 001000

SECTION 002000 - FORM OF BID

TO:
Casey DeJoseph, Business Administrator/Board Secretary
SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION
177 Main Street
Vincentown, New Jersey 08088

FROM:

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____ (PHONE/FAX NUMBER)

_____ (EMAIL ADDRESS)

Operating as an individual, a partnership, corporation under the laws of the State of New Jersey

_____
(Input words that apply)

PROPOSAL FOR: RYEBREAD PROJECT NO. 5561Aa

OPERATIONS & MAINTENANCE BUILDING
Southampton Township School District
177 Main Street
Vincentown, New Jersey 08088

This proposal is based on Specifications and Drawings dated 14 February 2019 and prepared by:

ARCHITECTURAL, STRUCTURAL, MECHANICAL & ELECTRICAL
REGAN YOUNG ENGLAND BUTERA, PC
456 High Street
Mt. Holly, New Jersey 08060

SITEWORK
DANTE GUZZI ENGINEERING ASSOCIATES
418 Stokes Road
Medford, New Jersey 08055

DISTRICT'S ENVIRONMENTAL CONSULTANT
Coastal Environmental Compliance, LLC
PO Box 167
Hammonton, NJ 08037

BASE BID: Pursuant to and in compliance with your request for proposals for the above named project and contract, and having examined the site where the work is to be located, and having become familiar with local conditions as they may, in any way, affect the cost and/or execution of the work, and having carefully examined the specifications and drawings named above, the Undersigned Bidder hereby agrees to provide all plant, labor, materials, supplies equipment, transportation and other facilities necessary and proper for, or incidental to, or required for complete and satisfactory execution of work. For a one-time lump sum bid, which shall include the allowance(s) listed below:

_____($_____)

ALLOWANCES below, which include labor, materials, taxes, insurance, overhead, profit and other costs in connection therewith, shall be included in the Base-Bid proposal for the quantities listed. Allowances listed shall include all incidental items required to render the allowance fully complete and operational whether specifically referenced or not. Any unused allowances shall be deducted from the contract value at the stated amount.

Contingency Allowance No. 01: Include in the Base-Bid a contingency allowance amount of $15,000 for additional work as directed by the Architect and approved by the Owner.

ALTERNATE BIDS below to be executed by the Undersigned Bidder in accordance with the Specifications and Drawings for the addition to (ADD), deduction from (DEDUCT) or no change to (NO CHANGE) the Base Bid as follows.

All costs listed for each alternate shall include costs of related coordination, revision, or adjustment.

All Prime Bidders shall complete the schedule for each Alternate Bid. If the Alternate Bid does not pertain to a particular trade or if there is no cost associated with the Alternate, input "No Dollar Change" in that space. If the space is left blank, it will be construed to mean there is no cost impact of that Alternate for your particular contract. Prime Bidders shall be required to bid on all alternates listed under their contract alternate proposals.

GENERAL CONSTRUCTION ALTERNATES

Note: Owner may elect to select from either Alternate No. 1, No. 2 or No. 3, in any order, as deemed in the Owner's best interests.

ALTERNATE No. 1 – PLUMBING: Work includes all plumbing work, including, but not limited to, wash sink, emergency eyewash station, hot water tank, supply and sanitary piping as shown on the drawings and as specified. For a lump sum total of:

(ADD)

_____($_____)

ALTERNATE No. 2 – METAL ROOFING SYSTEM: In lieu of the Base-Bid Asphalt Shingle system, provide a metal roofing system including snow guards, as shown on the drawings and as specified. For a lump sum total of:

(ADD)

_____($_____)

ALTERNATE No. 3 – REAR SHED ROOF AND CONCRETE SLAB: Shed roof, columns footings and concrete slab at the rear of the building as shown on the drawings and as specified. For a lump sum total of:

(ADD)

_____($_____)

NO MATERIAL ADVERSE CHANGE IN QUALIFICATION: The undersigned bidder hereby certifies that there has been no material adverse change in the qualification information last submitted to the New Jersey Department of the Treasury pursuant to NJSA 18A: 18A-28.

HOLD HARMLESS AGREEMENT: By submitting and executing a bid proposal the Bidder, if corporation, also responsible individual of corporation signing individually agrees to indemnify and hold harmless the Owner, Architect, and their agents and employees, from all and against all claims, damages, losses, and expenses, including reasonable attorney's fees in case it shall be necessary to file an action, arising out of bodily injury, illness or death, or for property damage, by the Contractor negligent act or omission or that of a Subcontractor, or that of anyone employed by them or for whose acts contractor or subcontractor may be liable. This indemnification and agreement shall apply in all instances whether Owner, Architect is made a party to the action by third-party in-pleading or is made party to a collateral action arising, in whole or in part, from any of the issues emanating from the original cause of action or claim.

TIME OF COMPLETION: The Undersigned Bidder agrees to complete the work as indicated in the Advertisement, (Bidder is referred to AIA GENERAL CONDITIONS, Par. 8.1).

ATTACHED TO THIS PROPOSAL are **TWO** copies (One original and one copy) of all the following documents (Fill in all blank spaces, alternate bids and unit prices. Failure to comply may be cause for rejection of bid.).

DOCUMENTS ACCOMPANYING BID

Failure to provide all required documents and required number of copies may be cause for disqualification and rejection of bid.

Bidder shall correlate the following required documents in the order listed below & place an "X" in the box next to each item provided.

In bid envelope:

☐ 1. Form of Bid.

☐ 2. DPMC Notice of Classification.

☐ 3. Total Amount of Uncompleted Contracts Affidavit (DPMC Form 701).

☐ 4. Business Registration of Public Contractors from the New Jersey Division of Taxation.

☐ 5. Bid Security in the form of a Bid Bond, certified check or cashier's check in the amount of not less than 10% of the Base Bid, or $500.00 whichever is more, but in any event not more than $20,000.00. The Bid Security must be in a form consistent with the statutory requirements of the State of New Jersey.

☐ 6. Consent of Surety: Section 002800, or similar.

☐ 7. Surety Company & Agency Information: Section 002801.

☐ 8. Affirmative Action Evidence: Section 002850.

☐ 9. Ownership Certificate: Section 002900 or similar if Bidder is a partnership or a corporation.

☐ 10. Non-Collusion Affidavit: Section 002950.

☐ 11. No Material Change in Qualification Information Form: Section 002960.

☐ 12. Form of certification stating that bidder is not currently debarred, suspended or disqualified under N.J.A.C. section 19:32-1.8. Section 002970.

☐ 13. Disclosure of Investment Activities in Iran. Section 002980.

☐ 14. Contractor's Sworn Contractor Certification. Section 004580; and

Credentials A, B & C listed below must be stapled to this certification.

☐ A. "Contractor Registration Certificate" from the New Jersey Department of Labor in accordance with the "Public Works Contractor Registration Act."

☐ B. "Certificate of Authority" issued by the Department of Treasury.

☐ C. Contractor or trade license.

☐ 15. Political Contributions Disclosure Form: Section 004590.

☐ 16. Prevailing Wages Certification Form: Section 004595.

☐ 17. List of Prime Subcontractors: Section 005290.

For each Prime subcontractor listed, attached a copy of:

☐ A. DPMC Notice of Classification.

☐ B. Total Amount of Uncompleted Contracts Affidavit (DPMC Form 701).

☐ C. Business Registration of Public Contractors from the New Jersey Division of Taxation.

☐ D. No Material Change in Qualification Information Form: Section 002960.

☐ E. Contractor's Sworn Contractor Certification. Section 004580; and

Credentials 1, 2 & 3 listed below must be stapled to this certification.

☐ 1. "Contractor Registration Certificate" from the New Jersey Department of Labor in accordance with the "Public Works Contractor Registration Act."

☐ 2. "Certificate of Authority" issued by the Department of Treasury.

☐ 3. Contractor or trade license.

☐ F. Evidence of Prime Subcontractor's performance security. (Required only if Bidders Bid Bond does not cover Bidders Prime subcontractors.) (Attach to Prime Bidder's Bid Bond).

☐ 19. **TWO (2)** copies (One original and one copy) of all required documents.

IF AWARDED CONTRACT, the Undersigned Bidder agrees to execute the AGREEMENT and to furnish the required Performance and Payment Bonds and evidence of required insurance as soon as practicable after Notice of Acceptance of Proposal or in any event not later than 10 calendar days after receipt of such notification.

If the Undersigned Bidder fails to execute AGREEMENT and furnish required bond and evidence of insurance, the Bid Security accompanying this Proposal will be forfeited to the Owner as liquidated damages for the delay and loss caused to the Owner by reason of such failure by the Undersigned Bidder.

THE UNDERSIGNED BIDDER HAS COMPLIED with all requirements concerning licensing and with all Local, State and Federal laws. No legal requirement has been violated in making this Proposal nor will be violated in the execution of the Work if this Proposal is accepted.

In addition, the undersigned hereby certifies that there has been no material adverse change in the qualification information last submitted to the New Jersey Department of Treasury pursuant to N.J.S.A. 18A:18A-28.

IT IS UNDERSTOOD that the right is reserved by the Owner to reject any and all bids and to waive all informalities in connection therewith as may be permitted by law.

AWARD OF CONTRACT(S)

A Single Prime Contract shall be awarded for all of the work and materials required to complete the project, unless all bids are rejected, to the lowest responsible bidder based on the total amount of the Base Bid and Alternates (if any), accepted by the Owner.

IT IS AGREED THAT THIS BID MAY NOT BE WITHDRAWN for a period of 60 days after the actual date of receipt of bids.

RECEIPT OF THE FOLLOWING ADDENDA is acknowledged by the Undersigned bidder (List by number and date):

ADDENDUM NO.	DATED	ADDENDUM NO.	DATED

Respectfully submitted this _____ day of _____ 20_____.

_____(Name of Firm)

By: _____L.S.
Print

*(SEAL IF BIDDER
IS A CORPORATION)

_____
Signature

_____
Title

_____
Federal Employment Identification Number (FEIN)

END OF SECTION 002000

DOCUMENT 002600 - PROCUREMENT SUBSTITUTION PROCEDURES

1.1 DEFINITIONS

A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.

B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.2 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.3 PROCUREMENT SUBSTITUTIONS

A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.

B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:

1. Extensive revisions to the Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
3. The request is fully documented and properly submitted.

1.4 SUBMITTALS

A. Procurement Substitution Request: Submit to Architect. Procurement Substitution Request must be made in writing by prime contract Bidder only in compliance with the following requirements:

1. Requests for substitution of materials and equipment will be considered if received no later than 10 days prior to date of bid opening the date and time for questions indicated in the ADVERTISEMENT.

2. Submittal Format: Submit one pdf copy of each written Procurement Substitution Request, using form 012501 Substitution Request form of the Project Manual.
3. Submittal Format: Submit Procurement Substitution Request, using format provided on Project Web site.

    a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.
    b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:

        1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
        2) Copies of current, independent third-party test data of salient product or system characteristics.
        3) Samples where applicable or when requested by Architect.
        4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
        5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
        6) Research reports, where applicable, evidencing compliance with building code in effect for Project.
        7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.

    c. Bidder shall provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
    d. By submitting the Procurement Substitution Request, Bidder waives the right to additional payment or an extension of Contract Time due to any failure of the substitute to perform as represented in the Procurement Substitution Request.

B. Architect's Action:

1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.

C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

END OF DOCUMENT 002600

SECTION 002800 - CONSENT OF SURETY

TO: SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION (Owner).

_____

herein called the Surety hereby agrees that if the Contract

Contract No. _____ _____(Title)

for the construction of the _____

_____ and approved Allowances, Alternates & Unit Prices (if any) _____

at the _____

be awarded to _____

herein called the Bidder, the Surety will provide the Bidder

with such form and sums that are required by said Contract.

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

_____
(Surety)

_____
(Bond No.)

(SEAL)

Attest: _____ By: _____
(Attorney in fact)

CONSENT OF SURETY MUST BE SIGNED BY AN AUTHORIZED AGENT OR REPRESENTATIVE OF A SURETY COMPANY AND NOT BY THE INDIVIDUAL OR COMPANY SUBMITTING THE BID.

END OF SECTION 002800

SECTION 002801 - SURETY COMPANY & AGENCY INFORMATION

PRIME BIDDER:

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____(TELEPHONE NUMBER)

_____(FACSIMILE NUMBER)

_____(E-MAIL ADDRESS)

In accordance with the bidding requirements, the bidder hereby acknowledges the following responsible surety data for this project:

SURETY COMPANY

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____(TELEPHONE NUMBER)

_____(FACSIMILE NUMBER)

_____(E-MAIL ADDRESS)

SURETY AGENCY

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____(TELEPHONE NUMBER)

_____(FACSIMILE NUMBER)

_____(E-MAIL ADDRESS)

END OF SECTION 002801

SECTION 002850 – AFFIRMATIVE ACTION EVIDENCE FOR CONSTRUCTION PROJECTS

Bidder shall complete this form and submit it with his/her bid proposal.

Pursuant to N.J.S.A.10:5-31 et. seq. and N.J.A.C.17:27, all successful bidders are required to submit evidence of appropriate Affirmative Action compliance to the Division of Public Contracts Equal Employment Opportunity Compliance (hereafter referred to as "Division") and the awarding Public Agency. During a review, the Division representatives will review the Public Agency files to determine whether the Affirmative Action evidence has been submitted by the vendor/contractor. Specifically, each vendor/contractor shall submit to the Public Agency, prior to execution of Public Agency contract the following documents within seven (7) days after receipt of the notification of intent to award the contract or receipt of the contract, whichever is sooner:

The construction contractors shall complete and submit an Initial Project Workforce Report Form AA-201 upon notification of award. Proper completion and submission of this report shall constitute evidence of the contractor's compliance with the regulations. Failure to submit this form may result in the contract being terminated. The contractor also agrees to submit a copy of the Monthly Project Workforce Report Form AA-202 once a month thereafter for the duration of the contract to the Division and to the public agency compliance officer.

After notification of award, but prior to signing a construction contract the EEO/AA evidence must be submitted.

Upon award of a construction contract, it shall be the responsibility of the Public Agency to provide the contractor with Form AA-201, Initial Project Workforce Report. The Division does not supply this form to the contractor.

Failure on the Contractor's part to comply with their requirements of N.J.S.A. 10:5-31 et. seq. and N.J.A.C. 17:27 that result in sanctions and/or penalties against the Public Agency from the Division agree to pay all costs and expenses incurred by the Public Agency.

The undersigned contractor 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 documentation pursuant to the Law.

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

_____ (Company)

_____ (Signature)

_____ (Title)

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. l7:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program, may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active “card

carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

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

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

(l) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

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

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and 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 contactor or subcontractor shall interview the referred minority or women worker.

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

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

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

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

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

applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

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

(Revised: January 2016)

END OF SECTION 002850

SECTION 002900 - STATEMENT OF OWNERSHIP DISCLOSURE

PART 1 - GENERAL

1.1 ORGANIZATION INFORMATION

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

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

Organization Name: _____

Organization Address: _____

_____

C. Type of Business Organization

1. Check the box that represents the type of business organization:

☐ Sole Proprietorship (skip PARTS 2 and 3, execute certification in PART 4)

☐ Non-Profit Corporation (skip PARTS 2 and 3, execute certification in PART 4)

☐ For-Profit Corporation (any type) ☐ Limited Liability Company (LLC)

☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)

☐ Other (be specific): _____

PART 2 - STOCKHOLDER INFORMATION

2.1 LIST OF CORPERATION STOCKHOLDERS

A. Percentage Amount

1. Check the box that represents the corporation’s stockholder percentages:

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

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

Name of Individual or Business Entity	Home Address (for Individuals) or Business Address

☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART 4**)

PART 3 - STOCKHOLDER DISCLOSURE

3.1 DISCLOSURE OF 10% OR GREATER OWNERSHIP

A. Disclosure of 10% or greater ownership in the stockholders, partners or llc members listed in PART 2.

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

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

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

2. List the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in PART 2 other than for any publicly traded parent entities referenced above. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed.

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

Stockholder/Partner/Member & Corresponding Entity Listed In PART 2	Home Address (for Individuals) or Business Address

PART 4 - CERTIFICATION

4.1 I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete.

A. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the SOUTHAMPTON TOWNSHIP BOE is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with the SOUTHAMPTON TOWNSHIP BOE to notify them in writing of any changes to the information contained herein;

B. that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the SOUTHAMPTON TOWNSHIP BOE to declare any contract(s) resulting from this certification void and unenforceable.

1 Full Name (Print): _____

2 Title: _____

3 Signature: _____

4 Date: _____
5
6
7 END OF SECTION 002900

SECTION 002950 - NON-COLLUSION AFFIDAVIT

STATE OF NEW JERSEY

County of Burlington, Owner: SOUTHAMPTON TOWNSHIP BOARD OF EDUCATION

I, _____ of _____ (Municipality)

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

I am _____ of the firm of _____,
the bidder making the Bid for the above named Project, and that I have executed the said Bid with full authority so to do; that said Bidder has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named Project; and that all statements contained in said Bid and in this affidavit are true and correct, and made with full knowledge that the above named Owner relies upon the truth of the statements contained in said Bid and in the statements contained in this affidavit in awarding 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

_____ (Bidder)

By: _____ (Type name)

Subscribed and sworn to before me this

_____ day of _____, 20_____.

State of _____

Notary Public: _____

My commission expires _____, 20_____.

END OF SECTION 002950

SECTION 002960 – NO MATERIAL CHANGE OF CIRCUMSTANCES

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, as required by N.J.S.A. 18A:18A-28 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, as required by N.J.S.A. 18A:18A-32 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:

_____

_____

_____

_____
TITLE

_____
COMPANY

Subscribed and sworn to before me this

_____day of_____, 20_____.

State of _____

Notary Public:_____

My commission expires _____, 20_____.

END OF SECTION 002960

SECTION 002970 - CERTIFICATION REGARDING THE DEBARMENT, SUSPENSION, DISQUALIFICATION, INELIGIBILITY AND VOLUNTARY EXCLUSION

I am _____ of the firm of _____
(title) (name of your organization)

_____.
(state the address of your organization)

CHOOSE ONE OF THE FOLLOWING

( ) A. I hereby certify on behalf of _____ that
(name of your organization)

neither it nor its principals are included on any State or Federal Government's List of Debarred, Suspended, or Disqualified Bidders as a result of action taken by any State or Federal Agency.

( ) B. I am unable to certify to any of the statements set forth in this certification. I have attached an explanation to this form.

_____ (SEAL)
(Signature)

_____
(Type Name & Title)

_____
(Date)

The Board of Education may not enter into a Contract for work with any person, company, or firm that is on the State Department of Labor and Workforce Development, Prevailing Wage Debarment List, or State of New Jersey Consolidated Debarment Report (eee.state.nj.us/treasury/debarred), or the Federal System for award –SAM.gov. By certifying this Form, the Contractor confirms neither it nor its principals are included on any State or Federal Government's List of Debarred, Suspended, or Disqualified Bidders as a result of action taken by any State or Federal Agency.

Subscribed and sworn to before me this

_____day of_____, 20_____.

State of _____

Notary Public:_____

My commission expires _____, 20_____.

END OF SECTION 002970

STATE OF NEW JERSEY -- DIVISION OF PURCHASE AND PROPERTY
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Quote Number: _____ **Bidder/Offeror:** _____

PART 1: CERTIFICATION
BIDDERS MUST COMPLETE PART 1 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.

PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN
You must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

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/Offeror Contact Name _____ Contact Phone Number _____

ADD AN ADDITIONAL ACTIVITIES ENTRY

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

Full Name (Print): _____ Signature: _____

Do Not Enter PIN as a Signature

Title: _____ Date: _____

SECTION 004580 - SWORN CONTRACTOR CERTIFICATION REQUIREMENTS

In accordance with N.J.S.A. 18A:7G-37, a prequalified contractor seeking to bid school facilities projects, and any subcontractors, required to be named under N.J.S.A. 18A:7G-1. shall, as a condition of bidding, submit this Sworn Contractor Certification regarding qualifications and credentials.

By signing and submitting this Sworn Contractor Certification the principal Owner or Officer of the Company or Corporation certifies that the firm has the following qualifications and credentials:

Credentials 1, 2 & 3 listed below must be stapled to this certification.

(1) A current, valid certificate of registration issued pursuant to "The Public Works Contractor Registration Act", P.L. 1999, c.238 (C.34:11-56.48 et seq), N.J.S.A. 34:11-56.48 et seq., a copy of which is attached hereto;

(2) A current, valid "Certificate of Authority to perform work in New Jersey" issued by the Department of Treasury, a copy of which is attached hereto;

(3) A current, valid contractor or trade license required under applicable New Jersey Law for any trade or specialty area in which the firm seeks to perform work, a copy of which is attached hereto;

(4) During the term of construction of the school facilities project, I as principal Owner or Officer of the company or corporation, as contractor, will have in place a suitable quality control and quality insurance program and an appropriate safety and health plan.

As the principal Owner or Officer of the company or corporation, I certify that, at the time of bidding this project, the amount of the bid proposal and the value of all this firm's outstanding incomplete contracts does not exceed the firm's existing aggregate rating limit.

Company:_____

_____
(Signature)

_____
(Print Name)

Date: _____

Corporate Seal

Sworn and subscribed before me this

_____ day of _____ 20___.

NOTARY PUBLIC _____
(Signature)

_____
(Print Name)
SEAL

Notary Public - State of _____

My Commission Expires _____

END SECTION 004580

SECTION 004590 – POLITICAL CONTRIBUTIONS DISCLOSURE FORM

The undersigned, being authorized and knowledgeable of the circumstances, does hereby certify

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

Reportable Contributions

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

The Business Entity may attach additional pages if needed.

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

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

CERTIFICATION

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

Name of Authorized Agent: _____

Signature: _____

Title: _____

Business Entity: _____

END OF SECTION 004590

SECTION 004595 – PREVAILING WAGES CERTIFICATION FORM

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

CERTIFICATION

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

NOTIFICATION OF VIOLATIONS – New Jersey Department of Labor

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

* Yes ☐ No ☐

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

Please include any pending administrative proceedings with the NJDOL, if any.

Name of Company: _____

Authorized Agent: _____

Authorized Signature: _____

END OF SECTION 004595

SECTION 005290 - LIST OF PRIME SUBCONTRACTORS

BIDDER:

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____ (PHONE/FAX NUMBER)

In accordance with NJSA 18A:18A-18, where the Bid requires and/or permits more than one of the specified branches of work to be under one contract, the bidder shall list below the applicable name or names of their Prime Subcontractors. If none are required, the Bidder shall input "None" on the list of those Subcontractors. Subject to compliance with the Public Bidding Laws, if the Overall Bidder elects to undertake one or more of the subcontracts listed with their own forces, they MUST indicate their intentions on this form.

LIST OF PRIME SUBCONTRACTORS

PLUMBING (C030)

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____ (PHONE/FAX NUMBER)

_____ (DOLLAR VALUE)

HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION (HVACr) (C032)

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____ (PHONE/FAX NUMBER)

_____ (DOLLAR VALUE)

ELECTRICAL WORK (C047), including any electrical power plant, tele-data, fire alarm, or security

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____ (PHONE/FAX NUMBER)

_____ (DOLLAR VALUE)

STRUCTURAL STEEL AND ORNAMENTAL IRON WORK (C029)

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____ (PHONE/FAX NUMBER)

_____ (DOLLAR VALUE)

GENERAL CONSTRUCTION (C008 or C009), which shall include all other work goods and services required for the completion of the project.

_____ (NAME)

_____ (ADDRESS)

_____ (CITY, STATE, ZIP)

_____ (PHONE/FAX NUMBER)

_____ (DOLLAR VALUE)

END OF SECTION 005290

SECTION 006000 – PROJECT FORMS

1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:

1. AIA Document A101-2017 "Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is a Stipulated Sum."

   a. The Modified General Conditions for Project are AIA Document A201-2017 "General Conditions of the Contract for Construction."

2. The Modified General Conditions are included in the Project Manual.
3. Form for Requests for Information (RFIs): Section 006001 – Bidder Request for Information is to be used during the Bidding Phase and is included in the Project Manual.
4. Notice to Proceed: Section 007100 – Notice to Proceed is included in the Project Manual.

1.2 ADMINISTRATIVE FORMS

A. Administrative Forms: Additional administrative forms are specified in Division 01 General Requirements.

B. Copies of AIA standard forms may be obtained from the American Institute of Architects; https://www.aiacontractdocs.org; (800) 942-7732.

C. State of New Jersey Pre-Qualification (Notice of Classification) information may be obtained from the New Jersey Department of Treasury at (609) 633-3990 or (609) 984-4708.

D. State of New Jersey WORKFORCE REPORTS may be obtained from the New Jersey Division of Public Contracts Equal Employment Opportunity Compliance at www.state.nj.us/treasury/contract_compliance.

E. Preconstruction Forms:

1. Form of Performance Bond and Labor and Material Bond: Bonding Company's standard form complying with the statutory requirements of the State of New Jersey.
2. Form of Payment Bond: AIA Document A312-2010 "Payment Bond."
3. Form of Performance Bond: AIA Document A312-2010 "Performance Bond."
4. Form of Certificate of Insurance: Insurance Company's standard form complying with the statutory requirements of the State of New Jersey.
5. Form of Certificate of Insurance: AIA Document G715-2017 "Supplemental Attachment, ACORD Certificate of Insurance."
6. Tracking Report: Initial Project Workforce Report - Building Construction (NJAAO Form AA-201).

F. Information and Modification Forms:

1. Form for Requests for Information (RFIs): Section 013100 – Contractor Request for Information is to be used during the Construction Phase and is included in the Project Manual.
2. Form for Requesting Substitutions: Section 012501 – Substitution Request is included in the Project Manual.
3. Form for Submitting Submittals: Section 013300 – Submittal Transmittal Form is included in the Project Manual.
4. Change Order Form: AIA Document G701-2017, "Change Order."
5. Prime Contractor Change Order Request Forms: Sections 012610 & 012610.1 - Prime Contractor COR Summary & Worksheet.
6. Subcontractor Change Order Request Forms: Sections 012620 & 012620.1 - Subcontractor COR Summary & Worksheet.
7. Form of Architect's Memorandum for Minor Changes in the Work: AIA Document G710-2017, "Architect's Supplemental Instructions."
8. Form of Change Directive: AIA Document G714-2017, "Construction Change Directive."
9. Form E-2 NJSDA - Contractor Certification and Consent Upon Award Of Contract.

G. Payment Forms:

1. Schedule of Values Form: AIA Document G703-1992 "Continuation Sheet."
2. Payment Application: AIA Document G702-1992 "Application and Certificate for Payment."
3. Payroll Verification: Section 012910 – Payroll Verification Affidavit is included in the Project Manual.
4. Partial Release: Section 012911 – Partial Release of Liens is included in the Project Manual.
5. Stored Materials: Section 012920 – Bill of Sale/Certification for Stored Materials is included in the Project Manual.
6. Monthly Tracking Reports: Monthly Workforce Tracking - Building Construction (Form AA-202).
7. Form of Partial Release: AIA Document G707A-1994, “Consent of Surety to Reduction in or Partial Release of Retainage.

H. Close Out Forms:

1. Substantial Completion: AIA Document G704-2017, “Certificate of Substantial Completion.”
2. Payment Application: AIA Document G702/703-1992, "Application and Certificate for Payment and Continuation Sheet."
3. Form of Contractor's Affidavit: AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."
4. Form of Affidavit of Release of Liens: AIA Document G706A-1994, "Contractor's Affidavit of Payment of Release of Liens."
5. Form of Consent of Surety: AIA Document G707-1994, "Consent of Surety to Final Payment."
6. Maintenance Bond: Section 017721 - Maintenance Bond is included in the Project Manual.
7. Subcontractor Guaranty: Section 017722 – Subcontractor Guaranty is included in the Project Manual.

END OF DOCUMENT 006000

SECTION 006001 - BIDDER REQUEST FOR INFORMATION

FROM: _____

REQUEST DATE: _____ EMAIL _____

BIDDER'S RFI NUMBER: _____

TO:
Scott Charles England, AIA
REGAN YOUNG ENGLAND BUTERA, PC
Fax: (609) 265-0333 Email: sce@ryebread.com

REFERENCES (List all applicable drawings & specifications):

PLEASE RESPOND TO THE FOLLOWING:

RESPONSE:

DATE OF RESPONSE: _____ BY: _____

DISTRIBUTION: _____

END OF SECTION 006001

SECTION 007100 - NOTICE TO PROCEED

TO: _____ DATE: _____

_____ PROJECT: _____

_____ _____

_____ _____

You are hereby notified to commence WORK in accordance with the Agreement dated _____, on or before _____, and you are to complete the WORK within _____ consecutive calendar days thereafter. The date of completion of all WORK is therefore _____.

_____
(OWNER)

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by:

_____,
(CONTRACTOR)

this the _____, 20_____

_____

By: _____

Title: _____

Employer ID #: _____

END OF SECTION 007100

AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Operations and Maintenance Building – Southampton Township School District
177 Main Street
Vincentown, New Jersey 08088

THE OWNER:
(Name, legal status and address)

Southampton Township Board of Education Casey DeJoseph, SBA
Betty Wright Administrative Building
177 Main Street
Vincentown, New Jersey 08088

THE ARCHITECT:
(Name, legal status and address)

Regan Young England Butera, P.C.
456 High Street
Mount Holly, New Jersey 08060

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

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

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

TABLE OF ARTICLES

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(Topics and numbers in bold are Section headings.)

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. 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. The Contract Documents shall apply to all Contractors for the Project and each Contractor is responsible for the content of all.

§ 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.

§ 1.1.2.1 The Contractor acknowledges and warrants that it has closely examined all of the Contract Documents, that they are suitable and sufficient to enable the Contractor to complete the Work in a timely manner for the Contract Sum, and that they include all Work, whether or not shown or described, which reasonably may be inferred to be required or useful for the completion of the Work in full compliance with all applicable codes, laws, ordinances and regulations and that questions regarding the bid documents and any interpretation(s) regarding same have been asked by the Contractor, in the form and manner required in the instructions to bidders.

§ 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, transportation/delivery, 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.

§ 1.1.3.1 The Work shall include the obligation of the Contractor to visit the site of the Project before submitting a bid. Such site visit shall be for the purpose of 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.

§ 1.1.3.2 Nothing in these General Conditions shall be interpreted as imposing on either the Owner or Architect, or their respective agents, employees, officers, directors or consultants, any duty, obligation or authority with respect to any items that are not intended to be incorporated into the completed project, including but not limited to shoring, scaffolding, hoists, temporary weatherproofing, or any temporary facility or temporary activity, since these are the sole responsibility of the Contractor.

§ 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.

§ 1.1.5 .1 The Drawings are diagrammatical and show the general arrangement and extent of the Work; exact locations and arrangements of parts shall be determined as the Work progresses and shall be subject to the Architect's approval.

.1 The right is reserved by the Architect to make any reasonable change in location of equipment, ductwork, and piping prior to roughing in without involving additional expense to the Owner.

.2 Contractor shall coordinate his Work with the Work of others and shall be responsible for the coordination work, so that interference between mechanical, electrical and other work and architectural and structural work does not occur.

.3 Contractor shall furnish and install supports, hangers, offsets, bends, turns, and the like in connection with this Work to avoid interference with work of other Contractors, to conceal Work where required, and to secure necessary clearance and access for operation and maintenance without involving additional expense to the Owner.

§ 1.1.6 The Specifications

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

§ 1.1.7 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.

§ 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.

(Paragraph deleted)

§ 1.2.1.1 The general character of the detail work is shown on the drawings, but minor modifications may be made in large-scale details. Where the word "similar" occurs on the drawings it shall be used in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to other parts of the work.

.1 Where on any drawings a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to other like portions of the work.

.2 Where detail is indicated by starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts in the work unless otherwise indicated.

.3 In case of differences between small and large-scale drawings, the larger scale drawings shall take precedence. Dimensions given shall take precedence over scale measurements.

.4 Any discrepancies or questions as to the application of, and interpretations related to 1.2.1.1, shall be referred to the Architect for adjustment before any work affected thereby has been performed.

§ 1.2.1.2 During the course of the work, should any ambiguities or discrepancies be found in the Specifications or on the Drawings; or should there be found any discrepancies between the Drawings and Specifications to which the Contractor has failed to call attention before submitting his bid, then the Architect will interpret the intent of the Drawings and Specifications; and the Contractor hereby agrees to abide by the Architect's interpretation and to carry out the work in accordance with the decision of the Architect.

§ 1.2.1.3 It is expressly stipulated that neither the Drawings nor the Specifications shall take precedence over the other, and it is further stipulated that the Architect may interpret or construe the Drawings and Specifications so as to secure in all cases the result most consistent with the needs and requirements of the Owner. In the event of such ambiguity or discrepancy subject to any Architect's interpretation, the Contractor shall comply with the more stringent requirement, and supply the better quality or greater quantity of work.

§ 1.2.1.4 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.

§ 1.2.2.1 The various materials and products specified in the specifications by name or description are given to establish a standard of quality and of cost for bid purposes. It is not the intent to limit the acceptance to any one material or product specified, but rather to name or describe it as the absolute minimum standard that is desired and acceptable, all determinations as to equality of a proposed product or material shall be at the discretion of the Architect and/or the Owner.

.1 A material or product of lesser quality will not be acceptable.

.2 Where "Basis of Design" products or manufacturer's names are used, whether or not followed by the words "or approved equal," they shall be subject to approved equals and authorized only by the Architect and/or the Owner.

§ 1.2.2.2 Substitutions lowering performance, quality, method of assembly or installation, or in general not in keeping with details and specifications, will not be permitted. Refer to substitution procedure indicated elsewhere in the Contract Documents.

§ 1.2.2.3 It is understood when a bid for any product or material is submitted, the bidder is aware of specified requirements and all materials or products within his bid are equal or better than such specified items.

§ 1.2.2.4 In addition to the Specifications, it shall be understood that details on Drawings shall become part of the Specification in determining the required "standard of quality."

§ 1.2.2.5 If a conflict occurs between Drawing details and Specifications, bidder during bidding process and/or Contractor shall bring such conflicts to the attention of the Architect in accordance with applicable requirements indicated elsewhere in other sections of Contract Documents.

§ 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.

§ 1.4.1 Whenever in the Contract Documents an item of work is referred to in the singular number, such reference shall apply to as many such items as are required to complete the work.

§ 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.

§ 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 the Electronic Indemnification Form provided by the Architect to establish the protocols for the development, use, transmission, and exchange of digital data.

(Paragraphs deleted)

§ 1.9 EXECUTION OF CONTRACT DOCUMENTS

§ 1.9.1 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, approvals, 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.

§ 1.9.2 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 reasonable 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.

§ 1.9.2.1 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.

§ 1.9.2.2 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.

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

§ 1.9.2.4 The Contractor shall request, from the Architect's 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's interpretation, shall be in written form; other forms of communications shall be used to expedite resolution of concerns, but will not be binding.

§ 1.9.3 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.

§ 1.9.4 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.

§ 1.9.5 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.

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.

(Paragraphs deleted)

§ 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. The term "Architect" means the Architect or the Architect's authorized representative.

§ 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 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 the 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.

(Paragraphs deleted)

§ 2.3.4.1 After award of Contract and for construction purposes, designated Contractors will be furnished with printed signed and sealed Drawings and Specifications free of charge for filing with public bodies.

.1 Additional copies of Drawings and Specifications will be furnished upon receipt of the amount indicated in the Advertisement. Subcontractors and vendors shall obtain copies of the Drawings and Specifications through the Contractor from his/her allotment.

.2 Digital copies of the Drawings and Specifications shall be issued to the Contractor at no charge.

§ 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, though 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.

§ 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 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 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 their 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.

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 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.

§ 3.1.1.2 The term "Contractor" shall mean and apply with equal force to each respective Prime Contractor and all other Contractors having a direct Contract with the Owner, or with each respective Contractor or other Prime Contractor for other branches of the Work, or his authorized representative.

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

§ 3.1.3 The Contractor shall not be relieved of 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.

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

.1 If the Contractor requires clarification of the intent of the Contract Documents after award, the Contractor shall be responsible to issue a typewritten Request for Information (RFI) to the Architect utilizing the Architect's sample form via acceptable methods set forth in Article 4.2.

§ 3.2.2 In addition to and not in derogation of Contractor's duties under Paragraph 1.5.2, 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. 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. 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. However, any design errors or omissions noted by the Contractor during this review shall be reported promptly to the Architect.

§ 3.2.2.1 Conditions Precedent – Notice

.1 Notice of any alleged Conflict that have been reasonably identified prior to submitting a Bid shall be provided to the Architect immediately in order that the Architect in its discretion, may issue an Addendum.

.2 A Bidder's failure to do so constitutes an absolute waiver of any Conflict that may thereafter be asserted with respect thereto and shall bar any recovery regarding such Conflict.

.3 If any errors, inconsistencies or omissions appear in the drawings, specifications or other Contract Documents, which should reasonably have been discovered and concerning which interpretation had not been obtained from the Architect during the Bidding Period, the Contractor shall within ten (10) days after receiving written "Notice of Award" notify the Architect in writing of such error, inconsistency or omission. In the event the Contractor fails to give such notice, Contractor and its Surety may be required to indemnify Owner for the costs of any such errors, inconsistencies or omissions and the cost of rectifying same including attorney's fees. Interpretation of this procedure after the ten-day period will be made by the Architect and his decision will be final. By Submission of a bid, the Contractor acknowledges that the Contract Documents are full and complete, are sufficient to

have enabled it to determine the cost of the Work and that the Drawings, the Specifications and all addenda are sufficient to enable the Contractor to construct the Work outlined therein in accordance with applicable laws, statutes, ordinances, building codes and regulations, and otherwise to fulfill all of its obligations under the Contract Documents.

.a The Contract Documents are sufficiently complete and detailed for the Contractor to perform the Work and comply with all requirements of the Contract Documents;

.b The Work required by the Contract Documents, including, without limitation, all construction details, construction means, methods, procedures, and techniques necessary to perform the Work, use of materials, selection of equipment, and requirements of products by manufacturers are consistent with;

.i Good and sound practices within the construction industry;

.ii Generally prevailing and accepted industry standards applicable to Work;

.iii Requirements of any warranties applicable to the Work; and

.iv All laws, ordinances, regulations, rules, and orders which bear upon the Contractor's performance of the Work.

.c The Contractor has read, understands and accepts the Contract Documents and its bid was made in accordance with them;

.d The Contract Sum is based upon the products, materials, systems and equipment required by the Contract Documents without exception. Where the Contract Documents list one or more manufacturer or brand name products, materials, systems and equipment as acceptable, the Contract sum is, in each instance, based upon one of the listed manufacturers or brand name products, materials, systems, and equipment, or, if the contract Sum is based upon the substitution of an "or equal" manufacturer or product, material, system or equipment, the Contractor has in each such instance sought and received the Architect's approval for the substitution either:

.i Prior to the Bid in accordance Architect's Addenda; and

.ii After commencement of the Work, under in conformance with substitution procedure elsewhere in the Contract Documents.

.e The Contract Sum is firm and all inclusive, and no escalation is contemplated for any reason whatsoever.

.i The Contract Sum includes any and all costs associated with completion by those dates and times, including any and all costs associated with out-of-sequence work, come-back work, stand-by work, stacking of trades, coordination with the schedules and work of separate Contractors, allowing sufficient time, work and storage areas, and site access for separate Contractors to timely progress and complete their work, overtime, expediting and acceleration that may be required to complete the work by those dates and times.

.ii The Contractor has reviewed the completion dates and times, and milestone dates set forth in the Contract Documents, agrees that such dates and times are reasonable and commits to achieve them.

.f The Contractor shall satisfy itself as to the accuracy of all dimensions and locations. In all cases of interconnection of its work with existing or other work, it shall verify at the site, all dimensions relating to such existing or other work. Any errors due to the Contractor's failure to verify all such locations or dimensions shall be promptly rectified by the Contractor without any additional cost to the Owner.

§ 3.2.2.2 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 Section 3.2 of the General Conditions and Paragraph 3.2.1 and 3.2.1.1 above.

§ 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 and/or their Surety shall pay such costs and damages to the Owner 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 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; unless the Contractor recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Architect.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. 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 and Construction Code Officials 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.

.1 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 materials and 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 bench marks 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 In the case of a single prime Contract (single prime), the General Contractor becomes the sole responsible party for the coordination of the entire project, and all other contractors shall mean subcontractors. In the case of a multiple Prime Contract (separate prime), the General Contractor shall also be responsible to coordinate the relationships among the Prime Contractors.

.2 The General 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 General 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 General Contractor is responsible for proper sequence and coordination. It shall determine the location of work and resolve conflicts amongst Contractors.

.3 The General 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, Architect who at all times may require additional manpower. The Superintendent shall be responsible for on-site 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 and Architect who at all times have the right to require the contractor to replace this Construction Superintendent if they fail to perform.

.4 The other prime contractors (separate prime) or subcontractor's (single prime) shall also have a designated Superintendent and/or Foreman who will at all times be subject to the approval of the Owner, Architect. The Owner and Architect reserve the right to require the Contractor to replace the Superintendent and/or Foreman if, in the opinion of the Owner or Architect, the Superintendent and/or Foreman is not performing satisfactorily.

.5 Each prime contractor shall coordinate his activities with the activities of other contractors.

.6 All questions pertaining to the work are to be made to the Architect sufficiently in advance (via an RFI Form) of construction to permit comparisons investigation or references to drawings and shop drawings as necessary.

.7 The General Contractor is required to submit a site logistics plan coordinating all Owner functions with the access and safety of the job site.

.8 The Contractor is required to coordinate all the inspection and material testing to meet the contract documents specifications.

.9 The Contractor has full and sole responsibility for construction methods and implementation of a "quality control system" to insure coordination.

.10 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.

.11 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.

.12 Minor changes in locations of equipment, parts, etc. due to field conditions shall be made, if so directed, at no additional cost.

.13 The Contractor shall coordinate the delivery, unloading, movement, relocation, storage and protection of all materials.

.14 The Contractor shall examine the drawings and dimensions and is responsible for satisfactory joining and fitting of all parts of the work.

.15 Accurate dimensions, sleeved and opening drawings are to be submitted prior to placement in the field.

.16 Prepare coordination drawings for all above ceiling areas throughout the entire project. Drawings

showing all piping, duct, cable trays, electrical ductbanks, 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.).

.17 The Contractor is responsible for any omissions of the subcontractors and is required to provide a complete operating facility.

.18 The General 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 Architect with final inspections;
- **.d** Coordinate all mechanical, plumbing, electrical, food service and equipment/furnishings work, and coordinate that work with all other work; and
- **.e** Inform the Owner via the Architect when coordination of his work is required.

.19 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.

.20 Coordinate cutting and patching activities and sequencing.

.21 The Architect 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.

§ 3.4.2.1 Not later than ten (10) days from the Notice to Proceed, the Contractor shall provide a list showing the names of the manufacturers proposed to be used for each of the products identified in the Specifications and the installing Subcontractor's name(s).

§ 3.4.2.2 STANDARD OF QUALITY: The various materials and products specified in the specifications by name or description are given to establish a standard of quality and of cost for bid purposes.

- **.1** It is not the intent to limit the Contractor to any one material or product specified but rather to described as the minimum standard.
- **.2** When proprietary names are used as the "Basis of Design", for specified products or equipment, they shall be followed by the words "or approved equal in quality necessary to meet the specifications," unless otherwise indicated elsewhere in the Contact Documents.

§ 3.4.2.3 The Architect will evaluate alternatives and substitutions and shall be the sole judge of whether the alternatives, (substitutions), are acceptable or not.

- **.1** The burden of proving the alternatives, (substitutions), are equal, or better, to the specified product is that of the Contractor.
- **.2** Contractor shall submit request for substitution in accordance with substitution procedures indicated elsewhere in the Contract Documents.
- **.3** Any alternative names or products which do not meet the specifications will not be accepted.

§ 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 will be held 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.

§ 3.4.5 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 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 suppliers 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 3.5.1.1 shall survive the expiration or earlier termination of the Contract. The warranty period for all work of each Contractor shall not be less than two (2) years from the date of Substantial Completion and acceptance by the Owner unless otherwise specified.

§ 3.5.3 The Contractor represents and warrants the following to the Owner (in addition to the other representations and warranties contained in the Contract Documents), as an inducement to the Owner to execute the Owner-Contractor Agreement, which representations and warranties shall survive the execution and delivery of the Owner-Contractor Agreement and the final completion of the Work:

.1 That he/she is authorized to do business in the State, County, and/or City where construction will take place at the Project and is properly licensed by all necessary governmental and public authorities having jurisdiction over him/her and over the Work and the site of the Project;

.2 That he/she is familiar with all Federal, State, Municipal and Department laws, ordinances and regulations, which may in any way affect the work of those employed herein, including but not limited to any special acts relating to the work or to the project of which it is a part;

.3 That such temporary and permanent work required by the Contract Documents as is to be done by him/her, can be satisfactorily constructed and used for the purposes for which it is intended;

.4 That he/she is familiar with local trade jurisdictional practices at the site of the project;

.5 That he/she has carefully examined the plans; the specifications and the site of the work, and that from his own investigations, he/she has satisfied himself/herself as to the nature and location of the work, the character, quality and quantity of the surface and subsurface materials likely to be encountered, the character of equipment and other facilities needed for the performance of the work, and the general

local conditions, and all other materials which may in any way affect the work or his/her performance; and

.6 That he/she has determined what local ordinances, if any, will affect his work. That he/she has checked for any County, City, Borough, or Township rules or regulations applicable to the area in which the Project is being constructed and in addition, for any rules or regulations of other organizations having jurisdiction, such as planning commission, industries, or utility companies who have jurisdiction over property on which the Work will be performed. Any costs of compliance with local controls are included in the prices bid, even if documents of such local controlling agencies are not listed specifically in the Contract Documents.

§ 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 all taxes including Federal Excise Tax, fuel tax, transportation taxes and State Sales or Use Tax.

§ 3.6.2 The Contractor shall pay all social security taxes, unemployment insurance, contributions, or other taxes measured by wages of employees, attributable to, or performing the Work.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 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 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.

.1 It shall be the obligation of the Contractor to review the Contract Documents and to determine and to notify the Owner and Architect of any discrepancy between building codes and regulations of which the Contractor has knowledge or should be reasonably able to determine.

.2 The Contractor shall not violate any zoning, setback or other requirements of applicable laws, codes and ordinances, building codes, rules or regulations, the Contractor promptly shall notify the Architect, in writing, and necessary changes shall be accomplished by appropriate modification.

.3 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. Fees shall be paid for by the Owner or reimbursed after submission of receipt to the Architect for Owner's payment, by the Contractor of subcontractor without additional markup.

§ 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.

§ 3.7.2.1 Subject to the other terms and conditions of these General Conditions, it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes shall be accomplished by appropriate modification.

§ 3.7.3 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 the correction thereof or related thereto, including all fines and penalties.

§ 3.7.4 Concealed or Unknown Conditions

Claims for Concealed or Unknown Conditions: Subject to the Contractor's obligations under Articles 3.2, if conditions are encountered at the site which 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 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 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. Claims by either party in opposition to such determination must be made within 21 days after the Architect has given notice of the decision. If the conditions encountered are materially different, the Contract Sum and Contract Time shall be equitably adjusted, but if the Owner and Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be referred to the Architect for initial determination, subject to further proceedings pursuant to Section 15.2.5.1.

§ 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. 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

§ 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; and

.2 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 the difference between actual costs and the allowances under in the Contract Documents.

§ 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 full-time superintendent and necessary assistants, acceptable to the Owner and Architect who shall be in attendance at the Project site during performance of the Work and until final completion of all work including all corrective and punch list items. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. If, in the Architect's opinion, the quality or progress of the work is adversely affected by the lack of adequate supervision, the Contractor shall increase the number of supervisory personnel at no increase in the Contract Sum. Each contractor must have supervisory personnel on site at all times during the execution of any work under their respective contract.

§ 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 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 determined by the areas where work is in progress so that the work areas are adequately supervised by the Contractor's superintendent or one of his assistants. If in the Architect'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 supervisory personnel at no increase in the Contract sum.

§ 3.9.5 The Contractor shall provide a qualified full-time staff member or members to provide mechanical and electrical coordination and perform coordination with all their subcontractors.

§ 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 General 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.

§ 3.11 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.

§ 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 shall 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 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in "SUBSTITUTION PROCEDURES" and "PRODUCT REQUIREMENTS" in Division 01 of the Project Manual.

§ 3.12.12 All substitutions or deviations from the plans and specifications must be clearly noted as such on all Shop Drawings, Product Data, Samples or similar submittals. Contractor shall identify, coordinate and pay for any additional requirements as a result of substitutions, deviations, etc., including necessary change orders and additional work of other trades as a result of the substitution.

§ 3.12.13 All Shop Drawings, Product Data, Samples or similar submittals are to be submitted within the time frame indicated in the Contract Documents. Shop Drawings, Product Data, Samples or similar submittals logs shall be updated and submitted at each job meeting along with job meeting report form.

§ 3.12.14 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.

§ 3.13 Use of Site

§ 3.13.1 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.

§ 3.13.2 The Contractor shall not place or maintain, or allow to be placed or maintained, any advertising matter, sign, bill, poster, etc., on or about the Site, except those required by law or by the Contract Documents, unless approved by the Architect.

§ 3.13.3 Contractor shall store materials on site only in areas as directed by the Owner and shall confine operations only to areas of new construction. The Contractor shall provide adequate protection around the designated storage areas. Workers will not be permitted in areas other than construction areas. When by exception, the Owner allows any room to be 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 Owner for use of such areas is mandatory and Contractor shall be required to provide full access to other trades for work activities. Contractors shall not be permitted to use partially completed spaces for storage areas or offices.

§ 3.13.4 If the Work is to be executed in areas occupied by the Owner, the Contractor shall inform the Owner in advance of the areas scheduled to be worked on so that the Owner's personnel may make proper preparations to protect equipment and records.

§ 3.13.5 All storage of materials at the site shall be subject to the approval or rejection of the Owner and such storage, even when approved, will be done as to minimize any impact upon the Owner's ongoing operations at the site.

§ 3.13.6 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 Owner's consent; but the Contractor shall remove all surplus materials upon completion of each phase of the work and as directed by the Architect.

§ 3.13.7 The existing facilities may be in use during the progress of the work as indicated in the specifications. The Contractor shall schedule his work in conjunction with the use of the facility to permit operation by the Owner and cause the least disruption to the Owner's normal schedule.

§ 3.13.8 If the Contractor is required to work in areas that will also be occupied, he/she shall maintain adequate barricades, fences, etc. to protect the occupants and the work. Any work that is not possible to be completed while occupants are present shall be completed on weekends or evenings only with approval of the Owner. No work shall

occur while the building is occupied without consent of the Owner.

§ 3.13.9 Construction shall be limited to the hours indicated in "SUMMARY" in Division 01 of the Project Manual.

§ 3.13.9.1 In the event that a Contractor will require working beyond 3:30 PM or on weekends, the Contractor agrees to pay the overtime expenses incurred by the Owner. The overtime rates per person will vary between $75.00 per hour to $90.00 per hour depending on the individual selected by the Owner for building coverage. All construction shall be performed with a minimum of inconvenience to the building occupants or grounds.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. 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 Each Prime Contractor shall perform a daily clean up and removal of debris from the site including that of his subcontractors. Each Prime 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's team may stop all work and require all personnel on site to clean up. Prior to installation of finishes, the floors shall 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 their agents, and as such the work may be stopped to provide time and labor for immediate clean up by the Contractor(s).

§ 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 General Construction 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, finger prints, other soil, dust, dirt, from painted, decorated, or stained woodwork, plaster or gypsum wall board, metal, acoustic tile, and equipment surfaces;
- .4 Remove spots, paint, soil, from resilient flooring and carpeting;
- .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 finger prints, blemishes; and
- .7 Final site cleanup shall extend beyond the Contract Limit Lines as reasonably required to insure the complete removal of all construction debris from the entire site, including staging areas.

§ 3.15.6 No accumulation of flammable material shall be permitted.

§ 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 Contractor shall keep only necessary equipment on site and shall cooperate with the Owner regarding the location of stored material. Contractor shall not be allowed to unreasonably encumber the Project site (or building) with equipment and stored material and shall afford other contractors reasonable opportunity for introduction and storage of their materials and for execution of other work.

§ 3.16.2 General Contractor shall be responsible to maintain access/egress to building and site.

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

.1 Contractor, for itself, its successors and assigns, agrees to indemnify and save Owner, the individual members (past, present and future), its successors, assigns, employees, agent, Architects, Engineers harmless from, and against any and all claims, demands, damages, actions or causes of action by any party, 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 or property damage arising in or in any manner growing out of the work performed, or to be performed under this Contract. Contractor and its successors and assigns agree to indemnify the Owner, its individual members (past, present and future), its successors, assigns, employees, agents, Architects, Engineers 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, or any ordinance, regulation, rule of law of any political subdivision or duly constituted public authority. Without limiting the foregoing, the Contractor, at the request of Owner, its individual members (past and present), its successors, assigns, employees, agents, Architects, Engineers agrees to defend at the Contractor's expense any suit or proceeding brought against Owner, its individual members (past, present and future), its successors, assigns, employees, agents, Architect, Engineers due to, or arising out of the work performed by the Contractor.

.2 The Contractor assumes the entire risk, responsibility, and liability for any and all damage or injury of every kind and nature whatsoever (including death resulting therefrom) to all persons, whether employees of the Contractor or otherwise, and to all property (including the Work itself) caused by, resulting from, arising out of or occurring in connection with the execution of the Work, or in preparation for the Work, or any extension, modification, or amendment to the Work by the Change Order or otherwise. To the fullest extent permitted by law, the Contractor and its Surety shall indemnify and save harmless the Owner, the Architect, the Architect's consultants, and the respective agents and employees of any of them (herein collectively called the Indemnitees) from and against any and all

liability, loss, damages, interest, judgments, and liens growing out of, and any and all costs and expenses (including, but not limited to, counsel fees and disbursements) arising out of, relating to or incurred in connection with the Work including, any and all claims, demands, suits, actions, or proceedings which may be made or brought against any of the Indemnitees for or in relation to any breach of the Contract for Construction or any violation of the laws, statutes, ordinances, rules, regulations, or executive orders relating to or in any way affecting the performance or breach of the Contract for Construction, whether or not such injuries to persons or damages to property are due or claimed to be due, in whole or in part, to any negligence of the Contractor or its employees, agents, subcontractors, or materialmen, excepting only such injuries and/or damages as are the result of the sole gross negligence of the Owner, Architect, or Engineer.

§ 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.

§ 3.19 Re-Design

§ 3.19.1 If the Contractor makes or causes to be made, due to approval of substitute equipment or otherwise, any substantial change in the form, type, system and details of construction from those shown on the drawings, he/she shall pay for all costs arising from such changes. The Contractor shall reimburse the Owner for all Architectural and engineering fees required to check the adequacy of and/or document such changes. Any changes or departures from the construction and details shown shall be made only after written approval from the Architect.

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.

§ 4.1.1.1 The Architect is REGAN YOUNG ENGLAND BUTERA, PC, a professional corporation under the laws of the State of New Jersey, with principal offices at 456 High Street, Mount Holly, New Jersey 08060, and is identified as "the Architect" in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as "the Architect" as though singular in number. The term "the Architect" means REGAN YOUNG ENGLAND BUTERA, PC or its authorized representative. Engineering Services for Mechanical, Plumbing, Electrical and Fire Protection are provided under the Architect's contract.

§ 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.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment and with the Owner's concurrence, from time to time during the two-year period for correction of Work described in Section 12.2. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 4.2.2 The Architect 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. The Contract Documents may specify other communication protocols.

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

§ 4.2.6 The Architect has 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 13.4.2 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 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 and by regulations regarding "Change Orders" promulgated under the Public School Contracts law, N.J.S.A. 18A:18A-1 et seq., and N.J.A.C. 6:20-8.3.

§ 4.2.9 The Architect 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 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 Reference in the technical provisions of the specifications to standard specifications and test methods, including those of the American Society for Testing and Materials, the American Iron and Steel Institute, the American National Standards Institute, the American Society of Mechanical Engineers, the American Society of Heating, Refrigeration and Air Conditioning Engineers, the Factory Mutual System, the National Fire Protection Association, Federal Specifications, and other similar nationally recognized technical societies and agencies shall refer to the editions and revisions current with the date of the codes referenced in the Contract Documents.

§ 4.2.16 The Architect's decision with respect to proposed substitutions of material or equipment specified by trade name shall be final. The Architect reserves the right to waive specifications and to accept a proposed substitution, which in his opinion is superior to the material or product specified, or to limit the specification to the product specified.

§ 4.2.17 Approval of substitutions shall not relieve the Contractor of responsibility for adequate fulfillment of all the various parts of the work, nor from specified guarantees and maintenance. Modification of adjacent or connecting work required due to any substitution approval shall be provided as part of the substitution.

§ 4.2.18 Insofar as practicable, except as otherwise specified or shown, the material or product of one manufacturer shall be used throughout the work for each specified purpose.

§ 4.2.19 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in strict accordance with the manufacturer's directions. Should such directions conflict with the Specifications, the Contractor shall request clarification from the Architect before proceeding.

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.

§ 5.2.1.1 In accordance with Title 18A, Public School Contracts Law, the Contractor submitting a bid to perform the work under a single contract shall furnish in writing at the time of Bid, the names of persons or entities proposed as Prime subcontractors. Prime subcontractors shall be qualified in accordance with N.J.S.A. 18A:18A-18. In addition, submit evidence of performance security of each Prime subcontractor simultaneously with the bid.

§ 5.2.1.2 In accordance with Chapter 150, Laws of 1963: Prime subcontractors appearing on the Commissioner of Labor and Industry's current list of subcontractors who have failed to pay prevailing wages, will be automatically rejected.

§ 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 Failure of the Owner or Architect to voice objection to a Subcontractor or material supplier shall not relieve the Contractor of responsibility for compliance with the Contract Documents.

§ 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.

§ 5.2.3.1 Prime Subcontractors or Subcontractors proposed by the Contractor will not be acceptable to either the Owner or Architect where evidence exists that such proposed Subcontractors (1) are unable or unwilling to comply with the requirements of the Contract Documents; (2) have experience, judged by the Owner or Architect, to be inconsistent with requirements for the Work; (3) or appear on the Department of Labor and Workforce Development Prevailing Wage Debarment List. In these instances, the Contractor will not be entitled to a change in the Contract Sum as provided in Subparagraph 5.2.3 and shall propose substitute Subcontractors for those not accepted for causes stated herein.

§ 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.

§ 5.2.5 No work shall take place on site by a subcontractor unless a qualified Contractor, responsible for the subcontractor's work, is on site to manage the work of their subcontractor.

§ 5.3 Subcontractual Relations

(Paragraphs deleted)

§ 5.3.1 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.

§ 5.3.1.1 Where the Contractor sublets portions of the Work, the entire responsibility for the subdividing of Work rests with the Contractor. The Owner and Architect are not responsible for the manner of the subdivision of the Work and neither will enter into nor settle disagreements or disputes between Contractor and Subcontractors.

§ 5.3.2 The Contractor shall obligate each Subcontractor specifically to comply with the New Jersey Plan of Affirmative Action to avoid discriminatory practice in employment.

§ 5.3.3 The Contractor shall obligate each Subcontractor to comply with the applicable prevailing wage schedule of the Department of Labor of the State of New Jersey per 16.2.1 and 16.2.2.

§ 5.3.4 The Contractor shall obligate each Subcontractor to comply with the Public Works (the Public Works Contractor Registration Act of the State of New Jersey).

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 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 and the Construction Schedule to complete the work as required by the Owner. The Contractor is required to have their Superintendent or Foreman on site at all times when their work or that of their Subcontractors 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 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 or Architect, and the Owner and the Architect shall have no liability therefore, 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 adjourning 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 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 and Architect 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 and 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 therefore unless it shall, prior to complying with same and in no event no later than 10 working days from the date such direction or order was given, submit to the Owner for the Owner's approval its change proposal.

§ 7.1.1.2 When submitting its Change Order request, 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. The Contractor shall use the Prime Contractor Change Order Request forms, 012610 and the Subcontractor Change Order Request forms, 012620 of the Project Manual.

§ 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 Section 7.4.

§ 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 Notwithstanding anything to the contrary contained in this article, all Change Orders shall be subject to the requirements of N.J.A.C. 6A:26-4.9 (2006).

§ 7.1.5 A directive or order from the Owner or 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 Change Orders shall include all costs, including cost of preparation of the Change Order, all impact and ripple costs associated with modifications or delays to the work an assessment of the amount and impact of any perceived potential delays, and all costs associated with modifications to other work.

.1 The Prime Contractor shall furnish all necessary documentation to support the additional cost, including but not limited to the following:

.a Copy of subcontractor's proposal;

.b Complete breakdown for all costs for labor and material;

.c Complete breakdown of related costs; and

.d Other information as may be requested by the Architect.

§ 7.2.3 The overall cost of the Change Order shall be inclusive, and once accepted by the Owner it shall be considered full and final.

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

§ 7.2.5 When any change in the Work, regardless of the reason therefore, 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 therefore, shall be submitted to the Owner and Architect 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.

§ 7.3 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, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance shall be in accordance with the Prevailing Wage Rates at the time the Contract is signed with no additional "labor burden", future increases or any other considerations;
.2 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; and
.3 The allowance for overhead and profit combined, included in the total cost to the Owner, shall be based upon the following schedule, may only include a Contractor, his Subcontractor and shall be limited to a total of 15% of the cost:
.a 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 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 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 and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect 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.

§ 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.

§ 8.2.3.1 Contract Time shall start and end on the dates indicated in the Agreement plus any authorized extension(s) of time as approved by written Change Order.

§ 8.2.4 The Contractor shall have sole responsibility for any and all costs, charges, fees or expenses of any and all kinds from the failure to complete the work within the preceding time period, and such sums shall be deducted from the Contract Sum.

§ 8.2.5 Owner, or his 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 the Owner's activities. Under no circumstances shall the Contractor begin or continue with work that is adversely impacting the 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 building is not in operation. All cutting, hammering or other activity that is noisy, produces smoke or fumes or is otherwise disruptive to the building occupants may have to be done during hours when the building is not in operation. Work required to be performed during non-operating hours, as determined by the Owner or his representative, will be performed at no additional cost to the Owner. Contractor agrees to increase manpower, increase work hours, and to increase equipment necessary to maintain the Project Construction Schedule, and when also requested by the Architect and the Owner, and shall be without additional cost or charge to the Owner.

§ 8.2.6 Work shall commence in accordance with the Notice to Proceed and shall proceed uninterrupted to Final Completion. The Contractor acknowledges and recognizes that the Owner is entitled to full and beneficial occupancy and use of all or part of the completed Work in accordance with the milestone dates set forth in other sections of the Contract Documents, as per approved Schedule, and that the Owner has made arrangements to discharge its public obligations based upon the Contractor's achieving Substantial Completion of all of the Work within the Contract Time. The Contractor further acknowledges and agrees that if the Contractor fails to complete substantially or cause the Substantial Completion of any portion of the Work as required by the Project Construction Schedule and/or within

the Contract Time, the Owner will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain. Therefore, the Owner and the Contractor agrees as set forth below:

.1 If the Contractor fails to achieve partial completion within the requirements of the milestone dates or the approved Schedule or to achieve Substantial Completion of all or part of the Work when and as required by the Project Construction Schedule and/or within the Contract Time, the Owner shall be entitled to retain or recover from the Contractor and its Surety, as liquidated damages and not as a penalty, the amounts indicated in other sections of the Contract Documents and commencing upon the first day following expiration of the Project Construction Schedule and/or the Contract Time, as the case may be, and continuing until the actual Date of Substantial Completion.

.2 Adherence to Schedule:

.a Monthly progress payments will only be released after the Contractor reaches the status of completion for that month contemplated by the construction schedule.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by 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.

§ 8.3.2 Claims relating to time shall be made as follows:

.1 Any claim for extension of time should 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; and

2 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. The Architect's 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 and Architect 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.

§ 8.3.4 The Contractor agrees that the Owner can deduct from the Contract Sum, any wages paid by the Owner to any Inspector, 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 only for unusually severe weather, 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.

§ 9.2 Schedule of Values

§ 9.2.1 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 the 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 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.

§ 9.2.2 Each Prime Contractor shall include the following separate items in their schedule of values:

- **.1** Punch List Work - Minimum of 1% of contract value.
- **.2** Value for testing.
- **.3** Value for Record Drawings and manuals.
- **.4** Value for final clean-up and monthly value for daily clean up by General Contractor.
- **.5** Value for equipment start-up and commissioning.
- **.6** Value for shop drawings.
- **.7** Safety protections.
- **.8** Project Schedule and monthly updates.
- **.9** Allowances.
- **.10** TAB coordination shiv, belts and modifications as required.
- **.11** Value for Owner's attic stock.
- **.12** Winter Protection.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values for their Contract on AIA Document G702 and G703 and the Contract Documents.

(Paragraphs deleted)

§ 9.3.2 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.

(Paragraph deleted)

§ 9.3.3 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 10% of the Project Cost for a period of two (2) years from the Date of Substantial Completion.

§ 9.3.4 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 9.3.3 without further withholding of any amounts for any purposes whatsoever, provided that the Contract has been satisfactorily completed.

§ 9.3.5 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 material supplier with whom the Contractor has entered into subcontracts, the amount of each such subcontract, the amount requested for any subcontractor and material supplier in the requested progress payment and the amount to be paid to the Contractor from such progress payment together with similar sworn statements from all such subcontractors and material supplier.

.2 Duly executed waivers of mechanics and material supplier's liens from all subcontractors and when appropriate, from material supplier and lower tier subcontractors establishing payment or satisfaction of payment of all amounts requested by the Contractor on behalf of such entities or persons in any previous application for payment.

.3 A Purchase Order or Voucher if required by the Owner.

.4 Payroll Verification Affidavit.

.5 Bill of Sale/Certification for Stored Materials.

.6 Monthly Project Workforce Report (AA-202).

§ 9.3.6 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 Paragraphs 9.3.1, 9.3.2, 9.3.3, 9.3.4 and 9.3.5 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.

§ 9.3.6.1 With each Application for Payment the Contractor shall submit to the Architect and Owner Section 012920 Bill of Sale/Certification for Stored Materials as found in the Project Manual 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. The Contractor shall also provide picture(s) of the stored material(s).

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

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

§ 9.3.6.4 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.

§ 9.3.7 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.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, after receipt of the Contractor's Application for Payment, and as indicated in the Form of Agreement Between Owner and Contractor 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 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.

§ 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 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;
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.
- .8 avoidable delay in the progress of the work;

.9 failure to cooperate with the Architect relative to the construction schedule, material storage, coordination with the Owner and/or other contractors, clean up and site safety;

.10 failure to submit shop drawings as required by the Contract Documents;

.11 failure of any Contractors 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;

.12 safety violations; or

.13 insurance lapses.

§ 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 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.

.1 If the Contractor disputes any determination by the Architect with regard to any Certificate of Payment, the Contractor nevertheless expeditiously shall continue to prosecute the Work.

.2 The failure of the Owner to retain any percentage payable to the Contractor or any change in or variation of the time, method or condition of payments to the Contractor shall not release or discharge to any extent whatsoever the Surety upon any bond given by Contractor hereunder. The Owner shall have the right, but not the duty, to disregard any schedule of items and costs that the Contractor may have furnished and defer or withhold in whole or in part any payment if it appears to the Owner, in its sole discretion, that the balance available in the Contract Sum as adjusted and less retained percentages, may be insufficient to complete the Work.

.3 Notwithstanding any provision of any law to the contrary, the Contractor agrees that the time and conditions for payment under the Contract for Construction shall be as stated in the Contract for Construction and in the Contract Documents. The Contractor specifically agrees that Owner's failure to give, or timely give, notice of:

.a Any error in an invoice or application for payment submitted by the Contractor for payment; or;

.b any deficiency or non-compliance with the Contract Documents with respect to any Work for which payment is requested, shall not waive or limit any of the Owner's rights or defenses under the Contract for Construction and the Contract Documents, or require the Owner to make a payment in advance of the time, or in an amount greater than, as provided by the Contract for Construction.

§ 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 9.5.1.13. 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 fourteen (14) 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 and suppliers (of any tier) within the same time.

§ 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 meetings. The vote on authorization for payments will be made at the first public meeting of the Owner, following the Owner's receipt of the Architect's authorization for payment, and paid during the subsequent payment cycle.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within fourteen days after receipt of the Contractor's Application for Payment, or if the Owner does not, for reasons other than a default of the Contract, including but not limited to those defaults set forth in Subparagraphs 9.5.1.1 through 9.5.1.12, 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 requires the use and occupancy of the Work by building's intended occupants without interruption and that any punch list 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":

.1 All required final inspections have been completed by the authority having jurisdiction resulting in a Temporary Certificate of Occupancy, Certificate of Occupancy or a Certificate of Approval.

2. Air Balancing Reports can be hand written 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 the Architect so that they can be tracked and approved and distributed to all applicable parties).

3. Equipment Start Up Reports can be hand written 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 the Architect 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.

§ 9.8.2 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 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 Punch List of all work prior to requesting Substantial Completion and a Punch List from the Architect. The Architect 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 from the Architect and Owner who may or may not choose to attend. The Architect shall record and distribute this Punch List to the Contractor for their use and who shall document the completion of the work and the date. After successful completion of the Punch List and all work, the Contractor shall request the Architect to perform a Punch List review walk thru. 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 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.

§ 9.8.5 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.

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

§ 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, who shall obtain all necessary modifications to its insurance coverage to permit such occupancy or use. In addition, Contractor shall obtain consent of those public

authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete pursuant to the terms of that Agreement.

§ 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 Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of any Work not complying with the requirements of the Contract Documents; and

.1 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.

§ 9.9.4 As portions of the Project are completed, and occupied, Contractor shall ensure the continuing construction activity will not unreasonably interfere with the use, occupancy and quiet enjoyment of the completed portions thereof.

.1 The Contractor agrees to coordinate the Work with the Architect and the Owner in order to minimize disturbance to occupied portions of the structure.

.2 In the event performances or scheduled events by the Owner are conducted in close proximity to the Work in progress, the Contractor agrees to cease all work which may disturb the Owner's occupants at the site.

§ 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 required close out documentation pursuant to the Contract Documents, shall be assembled and delivered by the Contractor to the Architect as part of the final Application for Payment. The Architect will not issue the final Application for Payment to the Owner until all required close out documentation has been received and approved by the Architect and accepted by the Owner.

§ 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) 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, 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 section 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, (f) delivery to the Architect all required "Attic Stock" and spare parts, and (g) 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 Project Manual shall be submitted to the Architect before approval of final payment. If a Subcontractor refuses to furnish a release or waiver

required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If a lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, 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 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/her work or fails to complete a portion of his/her work, he/she shall pay the Owner, as liquidated damages and not as a penalty, the sum as specified in sub-paragraphs 9.11.5. 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. Liquidated damages shall also apply to all Phased construction milestone dates as established by the Phasing Schedule.

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

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

§ 9.11.5 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 sums hereinafter stipulated and fixed, agreed as liquidated damages for each calendar day of delay as follows:

.1 ONE THOUSAND FIVE HUNDRED DOLLARS ($1,500.00) per calendar day of delay beyond the date of Substantial Completion.

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 and the following:

.1 The Contractor must 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 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. Each Contractor must comply with job Safety Requirements in addition to the

Federal Occupational Safety and Health Act (OSHA) and local agency requirements. Failure to comply with safety issues will be grounds for withholding of payments.

.3 Contractor will comply with all reasonable requests of the Owner 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 seven-day notice requirements of Article 14.

.4 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 Owner, the perimeter security fence.

.5 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.

.6 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.

.7 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.

.8 Contractor shall maintain all egress routes throughout building. Contractor shall post exit signs as coordinated with the Owner. Contractor shall provide wall hung fire extinguishers throughout building as deemed necessary by the fire officials.

.9 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.

.10 Contractor shall provide OSHA approved pedestrian walking bridges as required to protect against overhead hazards.

.11 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 complied 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.

.12 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 Owner shall be copied on all safety-related correspondence.

.13 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 OSHA or Authority having local jurisdiction.

.14 The Contractor shall provide, when requested by the Architect a copy of all licenses (welding, asbestos, etc.) as required by applicable agencies.

.15 The Contractor shall provide, when requested by the Architect a copy of all testing and inspection reports.

.16 Contractor shall have all required personal protective equipment and materials available for use by each employee as required by Federal, State and Local guidelines.

.17 Contractor shall supply proper equipment and crew sizes as necessary to safely complete the work.

.18 Notify Owner immediately upon arrival of OSHA to the site.

.19 Contractor shall submit to the Owner all Material Safety Data Sheets and shall cooperate in the posting of all required notifications relative to the use of hazardous substances on the property. Contractor shall comply with New Jersey Law regarding the use or storage of hazardous substances in Schools.

.20 For the safety of occupants, staff, and the public, the steel erection must be scheduled and coordinated with the Owner and Architect. 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.

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

.22 Contractor shall submit an acceptable OSHA compliant site specific written safety plan to the Owner for the project files within fourteen (14) days from the Notice to Proceed or prior to mobilizing on site, whichever comes first.

§ 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; and

.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 and further, the Contractor shall give immediate notice to the Owner and Architect of the onset of any hazardous conditions at the site which could require the implementation of safety programs or measures by personnel on site.

§ 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 Contractor shall comply with Construction and Environmental Standards contained in Federal and State Regulations and other applicable laws.

§ 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 consistent with applicable laws, statutes, ordinances, codes, rules and regulations and lawful orders of public authorities, and prevailing industry practice.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods not prohibited by the Contract Documents 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 will comply with all reasonable requests of the Owner with respect to additional security and protections required for work interfacing with Owner's operations. Safety is of utmost importance on this project and all issues relative to safety and protection of the building and its occupants will be treated as emergency needs and will not be subject to the seven-day notice requirements of Article 14.

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

§ 10.2.11 The Contractor shall take all precautions necessary to prevent loss and/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 or 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 Construction Safety Code of the State Department of Labor and other governing bodies having jurisdiction. The requirements of the New Jersey and Local Building Construction Codes shall apply where they 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 damage or any cause.

§ 10.2.15 The Contractor shall promptly report in writing to the Owner 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 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 their Contract:

- **.1** No use of alcoholic beverages prior to or during working hours. Anyone found impaired will be removed 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** Horseplay or rough-housing will not be allowed.
- **.4** Sexual, racial, or ethnic harassment, or similar conduct will not be tolerated.
- **.5** All employees shall use proper sanitation habits including use of toilet and trash facilities.
- **.6** All employees shall dress in clothing that identifies their company and is 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 property 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. This information is available from the Contractor using the product. The Contractor shall maintain a copy of all MSDS at the construction site for all personnel to review.

.9 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 restrictions, or being belligerent, will be subject to removal from the site. (Contractors shall post required signs).

§ 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 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 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 and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. 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.

§ 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.

(Paragraph deleted)

§ 10.4 Emergencies

(Paragraph deleted)

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

§ 10.4.2 – Emergency/Safety Plan

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

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

.3 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 Owner 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

§ 11.1.1 All insurance provisions shall be confirmed with Owner's Insurance Agent. 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 seven 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 Paragraph 11.1, Owner may, at its option, on notice to Contractor, suspend the Contract for cause until there is full compliance with this Paragraph 11.1 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 the Owner and Architect a copy of any and all applicable insurance policies.

.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless all parties or persons described in Section 3.18.

§ 11.1.2 The Contractor shall require all Subcontractors to carry similar insurance coverages and limits of liability as required under this Article 11, adjusted to the nature of Subcontractors' operations and submit same through Contractor to Owner and Architect for approval, before any personnel or equipment is brought onto the site and/or before any work commences.

§ 11.1.3 In the event Contractor fails to obtain the required certificates of insurance from the Subcontractor and a claim is made or suffered, the Contractor shall indemnify, defend and hold harmless all parties or persons described in Section 3.18 from any and all claims for which the required insurance would have provided coverage. This indemnity obligation is in addition to any other indemnity obligation provided in the Contract.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) all parties or persons described in Section 3.18 as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 Schedule of Insurance Coverages

§ 11.2.1

.1 **Commercial General Liability** of not less than $5,000,000, naming all parties or persons described in Section 3.18 as additional insureds on a primary and non-contributory basis.

.2 **Worker's Compensation** in the Statutory amount together with Employer's Liability Insurance of $500,000 for each accident.

.3 **Comprehensive Automobile Liability Insurance** of $1,000,000, naming all parties or persons described in Section 3.18 as additional insureds on a primary and non-contributory basis.

.4 **Sexual Harassment** of not less than $1,000,000, naming all parties or persons described in Section 3.18 as additional insureds on a primary and non-contributory basis.

§ 11.2.2 Contractors Pollution Liability Insurance including limits of $1,000,000 each Incident/$2,000,000 aggregate and including full coverage for mold, legionella, asbestos, and lead. All parties or persons described in Section 3.18 are to be included as additional insureds on a primary and non-contributory basis.

§ 11.2.3 Builder's Risk Insurance Contractor shall provide for all risk of physical loss or damage to the property described hereunder in an amount equal to the Total Project Value and furnished under Construction Contracts for the School Facilities Project; excepting excavations, foundations and other structures customarily excluded by such insurance. The Policy shall name all parties or persons described in Section 3.18 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 all parties or persons described in Section 3.18 as additional insureds on a primary and non-contributory basis. The contractor and all subcontractors are responsible for all policy deductibles and uninsured or underinsured losses.

§ 11.3 Bonds, Performance and Payment

§ 11.3.1 Contractor shall furnish a performance bond and labor and material payment 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 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 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;

.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 Any bond under this Paragraph 11.3.1 must display the surety's bond number. A rider including the following provisions shall be attached to each bond:

.a Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change or other modification of the Contract Documents which singularly or in the aggregate equals or is less than 20% of the Contract Sum. Except as to increases in the Contract Sum in excess of the percentage set forth in this clause 11.3.1.5.a. Any other alterations, change, extension of time or other modification of the Contract Documents or a forbearance on the part of either the Owner or the Contractor to the other shall not release the surety of its obligations hereunder and notice to surety of such matter is hereby waived.

.b Surety further agrees that in the event of any default by the Owner in the performance of the Owner's obligations to the Contractor under the Contract, the Contractor or surety shall cause written notice of such default (specifying said default in writing) to be given to the Owner, and the Owner shall have 30 days after receipt of such notice within which to cure such default of such additional reasonable time as may be required if the nature of such default is such that it cannot be cured within 30 days. Such notice of default shall be sent by certified or registered U.S. mail, return receipt requested, first class postage prepaid to the Owner.

§ 11.4 Maintenance of Insurance

§ 11.4.1 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 to the Architect with the Final Application for Payment.

§ 11.4.2 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.

§ 11.4.3 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 five 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.

(Paragraphs deleted)

§ 11.4.4 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.

§ 11.4.5 The Contractor shall cause each subcontractor to (1) procure insurance in the amounts set for in Paragraph 11.2 and (2) name the indemnities 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.

§ 11.4.6 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 11.4.6 shall include a waiver of subrogation.

§ 11.4.7 The Contractor may carry whatever additional insurance he/she deems necessary to protect him/herself 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, staging, towers and forms owned or rented by the Contractor, the capital value of which is not included in the cost of the Work.

§ 11.4.8 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 which coverage shall be maintained for no less than two (2) years following Substantial Completion.

§ 11.4.9 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.

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

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.

§ 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 or existing conditions, including without limitation, 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 two (2) years after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of 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 two-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 Paragraph 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 this Paragraph 12.2., the two-year correction period in connection with the work requiring correction shall be renewed and recommenced.

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

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

§ 12.2.3 The Contractor shall remove from the site portions of the Work 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 period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

§ 12.3.1 If the Owner prefers to accept Work 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 affected whether or not final payment has been made This Subparagraph 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.

§ 12.3.2 The Contractor and its Surety guaranty to make good, repair and/or correct, at no cost or expense to the Owner, any and all latent defects hereafter discovered, provided only that notice in writing, shall be given by the Owner to the Contractor within two years of the discovery of such defects.

.1 This obligation shall survive the termination of any or all other obligation or obligations under the contract Documents and it is agreed by the Contractor and its Surety that in the event the Owner is required to bring suit under this provision against the Contractor or its Surety to enforce this obligation, the contractor and its Surety hereby waive any defense of the status of limitations.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of New Jersey.

§ 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 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/her 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

§ 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.

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

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 45 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 within the time stated in the Contract Documents.

§ 14.1.2 If one of the above reasons exist, 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.

§ 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.

§ 14.1.4 If the Work is stopped for a period of 45 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 respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority;

.4 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;

.6 breaches any warranty made by the Contractor under or pursuant to the Contact 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; or

.9 otherwise does not fully comply with the Contract Documents.

§ 14.2.2 When

(Paragraphs deleted)

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.

§ 14.2.3 If the costs of finishing the Work, including compensation for the Architect's and any other Consultant's services and expenses made necessary thereby, and other costs and expenses identified hereinafter, exceed the unpaid balance of the Contract Sum, the Contractor and its Surety shall pay the difference to the Owner upon demand. The costs of finishing the Work include, without limitation, all reasonable attorney's fees, additional title costs, insurance, additional interest because of any delay in completing the Work, and all other direct and indirect consequential costs, including, without limitation, Liquidated Damages for untimely completion as specified in the Contract Documents, incurred by the Owner by reason of, or arising from, or relating to the termination of the Contractor as stated herein.

(Paragraph deleted)

§ 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 shall be entitled

to Owner payment for Work performed as of the date of termination in accordance with the contract Documents. The Contractor shall, as a condition of receiving the payments referred to herein, execute and deliver all such papers, turn over all plans, documents and files of whatsoever nature required by the Owner, and take all such steps, including the legal assignment of its contractual rights, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor. The Contractor warrants that it will enter into no subcontracts or other agreements that would adversely impact the Owner's rights or increase the Owner's obligations under this paragraph. In no event shall the Owner be liable to the Contractor for lost or anticipated profits or consequential damages, or for any amount in excess of the compensation due to the Contractor in accord with the Contract Documents for the Work performed as of the date of termination. The warranty and indemnity obligations of the Contractor and Surety shall survive and continue, notwithstanding any termination pursuant to this paragraph, with respect to the Work performed as of the date of termination.

§ 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

§ 15.1.2.1 Issues involving the applicable statute of limitations shall be governed by New Jersey Law.

§ 15.1.2.2 No act or omission by the Owner or Architect, or by anyone acting on behalf of either shall be deemed or construed as a waiver or limitation of ant right or remedy under the Contract Documents, or as an admission, acceptance, or approval with respect to any breech in the Contract for Construction or failure to comply with the Contract Documents by the Contractor, unless the Owner expressly agrees in writing.

§ 15.1.2.3 The Owner's exercise or failure to exercise any rights, claims or remedies it may have arising out of or relating to the Contract Documents shall not release, prejudice, or discharge the Owner's other rights and remedies, nor shall it give rise to any right, claim, remedy or defense by any other person, including the Contractor, its Surety, any Subcontractor, or any other person or entity.

§ 15.1.2.4 Whenever possible, each provision of the Contract Documents shall be interpreted in a manner as to be effective and valid under applicable law. If, however, any provision of the Contract Documents or portion thereof is prohibited or found invalid by law, only such invalid provision or portion thereof shall be ineffective and shall not invalidate or affect the remaining provision of the Contract Documents or valid portions of such provision, which shall be deemed severable. Further, if any provision of this Contract is deemed inconsistent with applicable law, applicable law shall control.

§ 15.1.2.5 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.

§ 15.1.2.6 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.

§ 15.1.3 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 days after occurrence of the event giving rise to such Claim or within five days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 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.

§ 15.1.3.3 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 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 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 decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given to the Owner and Architect before proceeding to execute the Work and within five 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 herein shall be given. Said notice shall itemize all claims and shall contain sufficient detail and substantiating data to permit evaluation of same by the 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 in writing.

§ 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 abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

(Paragraphs deleted)

§ 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 arising out of or relating to the Contract Documents or a breach thereof with regard to the Initial Decision Maker 's decision, shall be decided through suit in New Jersey Superior Court and Contractor consents to the jurisdiction of the New Jersey Superior Court. 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 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

(Paragraph deleted)
§ 15.2.7 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.

(Paragraphs deleted)
ARTICLE 16 NEW JERSEY REQUIREMENTS FOR PUBLIC WORK
(Paragraph deleted)
§ 16.1 Overtime
The Contractor or any subcontractor shall not employ any mechanic, worker or laborer engaged in the performance of the Work more than 8 hours in any one day in accordance with and subject to the exceptions named in Revised Statutes of New Jersey, Title 34, Chapter 10 and any and all revised statutes thereof.

(Paragraph deleted)
§ 16.2 Prevailing Wage

(Paragraph deleted)

§ 16.2.1 Pursuant to Revised Statutes of New Jersey, Title 34, Chapter 11, Article 28 as amended, wages for all laborers, workers and mechanics employed by the Contractor or any Subcontractor for the Work shall not be less than the prevailing wages for work of a similar nature in the vicinity of the Project Site as fixed by the Commissioner of Labor and Industry and made a part of Division 01 - Conditions of the Contract. Contractors are referred to Section 010001-PREVAILING WAGE RATES for wage determination.

(Paragraph deleted)

§ 16.2.2 The Contractor and Subcontractors shall do the following:

.1 Pay to all workers engaged in the performance of services directly upon the Work, the prevailing rate of wages specified in the Contract.

.2 Keep an accurate record showing the name, craft or trade and actual hourly rate of wages paid to each worker employed by him in connection with the Work. Records shall be preserved two years from the date of payment.

.3 Post the prevailing wage rates for each craft and classification involved, as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places at the site of the Work and at such place or places as are used by the employer to pay workers their wages.

.4 Before final payment, file written statements certifying to the amounts then due and owing to any and all workers for wages due on account of the Work. The statements shall set forth the names of the persons whose wages are unpaid and the amount due to each. The statement shall be verified by the oath of the Contractor or Subcontractor, as the case may be.

§ 16.3 Business Registration of Public Contractors

(Paragraph deleted)

§ 16.3.1 Pursuant to P.L. 2004, c.57, bidders shall include proof of its own business registration and proofs of business registration of those subcontractors required to be listed in the bidder's submission (i.e., "named subcontractors.") The proof of business registration shall be provided at the time the bid or proposal is officially received and opened by the contracting agency. If there are no subcontractors on a job, the Contractor must certify to that effect.

(Paragraphs deleted)

§ 16.3.2 After award of the contract, the Contractor shall obtain proof of business registration of subcontractors and suppliers through all tiers of a contract, when the value of the goods or services to be provided by the subcontractor or supplier exceeds 15% of the contracting agency's bid threshold.

(Paragraph deleted)

§ 16.3.3 The Contractor shall provide written notice to its subcontractors and suppliers of the responsibility to submit proof of business registration to the Contractor. The requirement of proof of business registration extends down through all levels (tiers) of the project.

§ 16.3.4 Before final payment on the Contract is made by the contracting agency, the Contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the Contract or shall attest that no subcontractors were used.

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

§ 16.3.6 A business organization that fails to provide a copy of a business registration as required pursuant to Section 1 of P.L.2001, c.134 (C.52:32-44 et al.) or subsection e. or f. of Section 92 of P.L.1977, c.110 (C.5:12-92), or that provides false business registration information under the requirements of either of those sections, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000 for each business registration copy not properly provided under a contract with a contracting agency."

§ 16.4 Workers and Community Right to Know Act

§ 16.4.1 Contractors shall be required to submit copies of all Material Safety Data Sheets to the Owner and shall

cooperate in the posting of all required notifications relative to the use of hazardous substances on Owner's property. Contractor shall comply with New Jersey Law regarding the use or storage of hazardous substances in Schools and as follows:

§ 16.4.2 New Jersey Administrative Code 8:59 - 6.5

.1 Subcontractors:

.a When a public or private subcontractor produces, uses or stores hazardous substances at a public employer's facility in such a way that the employees of the public employer are or may be exposed to the hazardous substances, the public employer shall find out the identity of the hazardous substances and provide health hazard and protective procedure information about the substances to exposed and potentially exposed employees during the annual education and training program or upon request of an employee or employee representative, whichever occurs sooner.

.b If not part of the annual training program, such information may be provided to exposed and potentially exposed employees in writing. The public employer shall provide exposed and potentially exposed employees with appropriate hazardous substance fact sheets or Material Safety Data Sheets, if requested.

.c Contractor shall retain a copy of the Material Safety Data Sheet and Hazardous Substance Fact Sheets on the job site.

§ 16.5 Meghan's Law

During the performance of this contract, neither the Contractor nor any Subcontractor, where applicable, shall knowingly allow any employee registered pursuant to N.J.S.A. 2C:7-1, et seq. "Meghan's Law", as a Tier 3 offender (sex offenders determined to pose a relatively high risk of re-offense") or a Tier 2 offender (sex offenders determined to pose a moderate risk of re-offense), upon the Owner's property or the Project site.

SECTION 010002 - PREVAILING WAGE RATES

NEW JERSEY DEPARTMENT OF LABOR & WORKFORCE DEVELOPMENT PREVAILING WAGE RATES:

The Prevailing Wage Rate Determination by the New Jersey Department of Labor and Workforce Development pursuant to Chapter 150 of the New Jersey Laws of 1963.

Website:

https://www.nj.gov/labor/wagehour/wagehour_index.html

Wage & Hour - General Information

Tel. (609) 292-2305

Tel. (609) 292-2337

Fax (609) 695-1174

Public Contracts – For information about prevailing wage rates on public works projects:

Tel. (609) 292-2259

Fax (609) 695-1174

Contractor Registration – For information about registering with the Department of Labor and Workforce Development in order to bid on or engage in the performance of any public works project:

Tel. (609) 292-9464

Fax (609) 633-8591

The Prevailing Wage Rates in the locality is for each craft or trade or classification of all workers needed to perform the contract during the anticipated term thereof are hereby made a part of each Contract to be performed under this Project Manual.

It is the responsibility of the Contractor and each Subcontractor to use the current Prevailing Wage Rates when bidding this Project and, if awarded the Contract, to pay their employees the minimum amounts mandated by such Prevailing Wage Rate Determination and to submit all certified payroll records to the Owner in accordance with the regulations.
In the event it is found that any worker employed by the contractor, or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wages required to be paid by such contract, the public body, the lessee to whom the public body is leasing a property or premises or the lessor from whom the public body is leasing or will be leasing a property or premises 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.

END OF SECTION 010002

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under separate contracts.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and Drawing conventions.
8. Miscellaneous provisions.

B. Related Requirements:

1. Section 000100 “Advertisement” for project information and work covered by the contract documents.
2. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

C. All specification divisions and drawings listed are part of the Contract Documents. It is ultimately the responsibility of the Contractor and their subcontractors to review all the Contract Documents and all field conditions to determine the full extent of work for this project.

D. The Contractor shall provide all labor, materials, equipment and services for the complete and proper installation and operation of the work as indicated, required or implied by the Contract Documents.

E. The submission of a proposal by the Contractor will be considered an indication that a thorough review of the conditions, materials, and the Contract Documents have been made by the Contractor and their subcontractors, and the results of such investigations have been included in their proposal and accepted.

1.3 PROJECT INFORMATION

A. Project Identification: Operations and Maintenance Building.

1. Project Location: 177 Main Street, Vincentown, New Jersey 08088.

B. Owner: Southampton Township Board of Education.

1. Owner's Representative: Casey DeJoseph.

C. Architect: Regan Young England Butera, P.C.

D. Architect's Consultants: Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Mechanical: Kelter & Gilligo, P.C.

E. Other Owner Consultants: Owner has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Sitework: Dante Guzzi Engineering Associates.

2. Environmental Consultant: Coastal Environmental Compliance.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

B. Concurrent Work: Owner will award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

1. Adjacent Well House and Well Construction.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and adjacent building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 3:30 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend Hours: Subject to Southampton Township ordinances and 72 hours notice and Owner approval.

2. Early Morning Hours: Subject to Southampton Township ordinances and 72 hours notice and Owner approval.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Architect not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted on the Owner’s property.

F. Restricted Substances: Use of tobacco products and other controlled substances on Owner’s property is not permitted.

G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

H. Contractor employees shall also be required to have company shirts and photographic identification clearly displayed at all times that indicates the employees name, current photograph and company of employment. Anyone on site without proper credentials visibly displayed at all times shall be asked to leave the project site.

I. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations and scheduled in Section 000030 - Abbreviations of the Project Manual.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.10 MISCELLANEOUS PROVISIONS

A. The Contractor shall not perform any work or provide any services materials or supplies until an executed Notice to Proceed and an approved Purchase Order has been received from the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012100 - ALLOWANCES

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Types of allowances include the following:

1. Contingency allowances.

1.3 DEFINITIONS

A. Allowance is a quantity of work or dollar amount established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances on forms in Section 012610 “Prime Contractor Change Order Request Summary” and Section 012620 “Subcontractor Request Summary.”

1.5 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

D. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.6 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.7 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

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. Refer to Section 002000 – Form of Bid, for Schedule of Allowances.

END OF SECTION 012100

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Execute accepted alternates under the same conditions as other work of the Contract.

C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Refer to Section 002000 – Form of Bid, for Schedule of Alternates.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 012100 "Allowances" for products selected under an allowance.
2. Section 012300 "Alternates" for products selected under an alternate.
3. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit one pdf copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use Section 012501 – Substitution Request form provided in Project Manual.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from current edition of the New Jersey Uniform Construction Code.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 10 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.

f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012501 – SUBSTITUTION REQUEST

Project: _____ Substitution Request Number: _____

_____ From: _____

To: _____ Date: _____

_____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone: _____

History: ☐ New product ☐ 2-5 years old ☐ 5-10 yrs old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

_____

_____

☐ Point-by-point comparative data attached - REQUIRED BY A/E

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

_____

Savings to Owner for accepting substitution: _____ ($ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution is compliant with the building code in effect for Project.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

Attachments: _____

_____

_____

_____

A/E's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 013300.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 013300.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: Date:

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ _____

_____

_____

_____

_____

_____

_____

_____

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710or similar.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Quotation Form: Use Section 012610 “Prime Contractor Change Order Request Summary” and Section 012620 “Subcontractor Change Order Request Summary.” These documents will be provided by the Architect, in digital format to the Contractor.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use Section 012610 “Prime Contractor Change Order Request Summary” and Section 012620 “Subcontractor Change Order Request Summary.” These documents will be provided by the Architect, in digital format to the Contractor.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 or similar.

1.7 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714 or similar. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012610 - PRIME CONTRACTOR CHANGE ORDER REQUEST SUMMARY

PRIME CONTRACTOR: _____ C.O.R. NO.: _____

NUMBER OF DAYS REQUESTED FOR CONTRACT EXTENTION: _____ DATE: _____

DESCRIPTION OF CHANGE: _____

PRIME CONTRACTOR DIRECT COSTS

ADDITIONS

A	Material & Equipment		
B	Labor		
C	Subtotal of Additive Cost		$0.00

DEDUCTIONS *(use minus sign for all deduct figures)*

D	Material & Equipment		
E	Labor		
F	Subtotal of Deductive Cost		$0.00
G	Contractor's Total Direct Cost (C+F)		$0.00
H	Prime Contractor's Mark-up		$0.00

Line "H" mark-up is calculated in accordance with Article 7 of the General Conditions of the Contract for Construction. Mark-up percentages applied to the line "G" subtotal are as follows: Not to exceed 15% on first $50,000, 10% on balance beyond $50,000, 6% for credits.

I	**Total Prime Contractor Direct Costs + Mark-up** (Line G + H)	$0.00
J	Total Subcontractor Direct Costs	
K	Subcontractor Mark-up	
L	General Contractor's Mark-up on Subcontractor Direct Costs	$0.00
M	**Total Prime Contractor Change Request** (Line I + J + K + L)	**$0.00**

(Note: If there are two or more subcontractors for this change item, then use a separate form for each subcontractor.)
Sum of Lines "I" and "L" from Subcontractor Change Order Request Summary 012620

Sum of Lines "J","M","N" and "O" from Subcontractor Change Order Request Summary 012620

Line "L" mark-up is calculated in accordance with Article 7 of the General Conditions of the Contract for Construction. Mark-up percentages applied to the line "J" subtotal are as follows: Not to exceed 5% on first $50,000, 3% on balance beyond $50,000, 4% for credits.

Note: Include detailed breakdown of material, labor and equipment cost for each trade using Sections 012611 and 012621. Refer to AIA Document A201 General Conditions of the Contract for Construction, Article 7.

To the best of my knowledge and belief, I certify that all costs listed above are correct.

_____ _____

Contractor Name *Date*

_____

Contractor Signature

SECTION 012610.1 - PRIME CONTRACTOR CHANGE ORDER REQUEST WORKSHEET

PRIME CONTRACTOR: _____ C.O.R. NO.: _____

DATE: _____

Complete and attached this Worksheet to Section 012610 - Prime Contractor Change Order Request Summary.

PRIME CONTRACTOR DIRECT COSTS

ADDITIONS

	DESCRIPTION	MATERIAL & EQUIPMENT			LABOR			TOTAL
		QTY	COST	SUBTOTAL	HRS	RATE/HR	SUBTOTAL	
1				$0.00			$0.00	$0.00
2				$0.00			$0.00	$0.00
3				$0.00			$0.00	$0.00
4				$0.00			$0.00	$0.00
5				$0.00			$0.00	$0.00
6				$0.00			$0.00	$0.00
7				$0.00			$0.00	$0.00
8				$0.00			$0.00	$0.00
9				$0.00			$0.00	$0.00
10				$0.00			$0.00	$0.00
	ADDITIONS TOTAL			$0.00			$0.00	$0.00

DEDUCTIONS

	DESCRIPTION (Use minus sign for all deduct dollar figures)	MATERIAL & EQUIPMENT			LABOR			TOTAL
		QTY	COST (-)	SUBTOTAL	HRS	RATE/HR (-)	SUBTOTAL	
1				$0.00			$0.00	$0.00
2				$0.00			$0.00	$0.00
3				$0.00			$0.00	$0.00
4				$0.00			$0.00	$0.00
5				$0.00			$0.00	$0.00
6				$0.00			$0.00	$0.00
7				$0.00			$0.00	$0.00
8				$0.00			$0.00	$0.00
9				$0.00			$0.00	$0.00
10				$0.00			$0.00	$0.00
	DEDUCTIONS TOTAL			$0.00			$0.00	$0.00

GRAND TOTAL (Additions & Deductions)	**$0.00**

SECTION 012620 - SUBCONTRACTOR CHANGE ORDER REQUEST SUMMARY

SUBCONTRACTOR: _____ C.O.R. NO.: _____

NUMBER OF DAYS REQUESTED FOR CONTRACT EXTENTION: _____ DATE: _____

DESCRIPTION OF CHANGE: _____

SUBCONTRACTOR DIRECT COSTS

ADDITIONS

A	Material & Equipment		
B	Labor		
C	Subtotal of Additive Cost		$0.00

DEDUCTIONS *(use minus sign for all deduct figures)*

D	Material & Equipment		
E	Labor		
F	Subtotal of Deductive Cost		$0.00
G	Subcontractor's Total Direct Cost (C+F)		$0.00
H	Subontractor's Mark-up		$0.00

Line "H" mark-up is calculated in accordance with Article 7 of the General Conditions of the Contract for Construction. Mark-up percentages applied to the line "G" subtotal are as follows: Not to exceed 15% on first $50,000, 10% on balance beyond $50,000, 6% for credits.

I	**Total Subontractor Direct Costs + Mark-up** (Line G + H)	$0.00
J	Total of all Sub-subcontractor Direct Costs	
K	Sub-subcontractor Mark-up	$0.00

Line "K" mark-up is calculated in accordance with Article 7 of the General Conditions of the Contract for Construction. Mark-up percentages applied to the line "J" subtotal are as follows: Not to exceed 15% on first $50,000, 10% on balance beyond $50,000, 6% for credits.

L	Subcontractor's Mark-up on Sub-subcontractor Direct Costs	$0.00

Line "L" mark-up is calculated in accordance with Article 7 of the General Conditions of the Contract for Construction. Mark-up percentages applied to the line "J" subtotal are as follows: Not to exceed 5% on first $50,000, 3% on balance beyond $50,000, 4% for credits.

M	**Total Subcontractor Change Request** (Line I + J + K + L)	**$0.00**

Note: Include detailed breakdown of material, labor and equipment cost for each trade using Section 012621. Refer to AIA Document A201 General Conditions of the Contract for Construction, Article 7.

To the best of my knowledge and belief, I certify that all costs listed above are correct.

Contractor Name _____ *Date* _____

Contractor Signature _____

SECTION 012620.1 - SUBCONTRACTOR CHANGE ORDER REQUEST WORKSHEET

SUBCONTRACTOR: _____ C.O.R. NO.: _____

DATE: _____

Complete and attached this Worksheet to Section 012620 - Subcontractor Change Order Request Summary.

SUBCONTRACTOR DIRECT COSTS

ADDITIONS

	DESCRIPTION	MATERIAL & EQUIPMENT			LABOR			TOTAL
		QTY	COST	SUBTOTAL	HRS	RATE/HR	SUBTOTAL	
1				$0.00			$0.00	$0.00
2				$0.00			$0.00	$0.00
3				$0.00			$0.00	$0.00
4				$0.00			$0.00	$0.00
5				$0.00			$0.00	$0.00
6				$0.00			$0.00	$0.00
7				$0.00			$0.00	$0.00
8				$0.00			$0.00	$0.00
9				$0.00			$0.00	$0.00
10				$0.00			$0.00	$0.00
	ADDITIONS TOTAL			$0.00			$0.00	$0.00

DEDUCTIONS

	DESCRIPTION (Use minus sign for all deduct dollar figures)	MATERIAL & EQUIPMENT			LABOR			TOTAL
		QTY	COST (-)	SUBTOTAL	HRS	RATE/HR (-)	SUBTOTAL	
1				$0.00			$0.00	$0.00
2				$0.00			$0.00	$0.00
3				$0.00			$0.00	$0.00
4				$0.00			$0.00	$0.00
5				$0.00			$0.00	$0.00
6				$0.00			$0.00	$0.00
7				$0.00			$0.00	$0.00
8				$0.00			$0.00	$0.00
9				$0.00			$0.00	$0.00
10				$0.00			$0.00	$0.00
	DEDUCTIONS TOTAL			$0.00			$0.00	$0.00

GRAND TOTAL (Additions & Deductions)	**$0.00**

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.
2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
3. Section 012910 “Payroll Verification Affidavit” to be completed and attached to each application for payment.
4. Section 012911 “Partial Release of Liens” to be completed and attached to each application for payment.
5. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's Project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.

        1) Labor.
        2) Materials.
        3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.

    a. Differentiate between items stored on-site and items stored off-site.
5. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
6. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
7. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Use Section 012911 – "Partial Release of Liens" of the Project Manual.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
5. Products list (preliminary if not final).
6. Sustainable design action plans, including preliminary project materials cost data.
7. Schedule of unit prices.
8. Submittal schedule (preliminary if not final).
9. List of Contractor's staff assignments.
10. List of Contractor's principal consultants.
11. Copies of building permits.
12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
13. Initial progress report.
14. Report of preconstruction conference.
15. Certificates of insurance and insurance policies.
16. Performance and payment bonds.
17. Data needed to acquire Owner's insurance.
18. Copies of Initial Project Workforce Report.
19. Copies of Monthly Workforce Tracking.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706.
5. AIA Document G706A.
6. AIA Document G707.
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.
10. Letter on Contractor’s letterhead stating that all Workforce Tracking forms and Weekly Certified Payroll Records have been submitted to the proper recipients.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 012910 - PAYROLL VERIFICATION AFFIDAVIT

State of New Jersey

County of _____

_____ being duly sworn, on its oath deposes and says:

I swear that the payroll on the Project indicated below,

under contract with _____ (Owner) and for the payroll period indicated, was fully paid and that nothing is due and owing to any worker thereunder, and that the wages paid were, in no case, less than the applicable wage rates contained in the wage determination decision of the Secretary of Labor of New Jersey, and that the job classification for each worker conformed to the actual work he/she performed.

In addition, I have submitted to the Owner for their files one copy of all weekly-certified payroll records for this pay period.

The above statement applies in full to all of the sub-contractors under this contract.

Project Name & Location: _____

_____

Pay Period: _____

Contract No._____-_____(Name)

Contractor _____

BY:_____

TITLE:_____

Subscribed and sworn to before me this

_____day of_____, 20_____.

State of _____

Notary Public:_____

My commission expires _____, 20_____.

END OF SECTION 012910

SECTION 012911 - PARTIAL RELEASE OF LIENS

STATE OF NEW JERSEY

I,_____of_____(Municipality)

in the County of _____ and the State of

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

I am _____(Title)

of the firm of _____

(strike two of the three options below, which do not apply)

1.(Prime Contractor_____)

2.(Subcontractor to _____)

3.(Material supplier to _____)

in connection with construction of the _____

_____.
(Project name and location)

To be completed by Prime Contractor
To the date hereof, all labor and/or material(s) installed, including all applicable sales or use taxes furnished for this project has been fully paid for, and there are no sums due or to become due therefore, except as follows: All labor directly employed by us for this project has been fully paid as of the date of our last payroll period _____(Date), except as follows:

To be completed by Prime Contractor

To the date hereof, all labor and/or material(s) installed, including all applicable sales or use taxes furnished for this project has been fully paid for, and there are no sums due or to become due therefore, except as follows:

To be completed by Subcontractor and/or Material Supplier

All labor directly employed by us for this project has been fully paid as of the date of our last payroll period

_____(Date), except as follows:

All withholding, Social Security, or Unemployment Taxes, all Union benefits and Welfare Funds, all Workman's Compensation, Public Liability, and accumulations of Withholding taxes are separately deposited in trust funds.

This affidavit is made with the full knowledge that _____

_____ (Owner)

relies hereon in making partial (final) payment $_
(Amount of payment) to us for labor and or material furnished and installed for the project named herein.

By: _____L.S.

*(SEAL IF BIDDER
IS A CORPORATION) _____

Subscribed and sworn to before me this

_____day of_____, 20_____.

State of _____

Notary Public:_____

My commission expires _____, 20_____.

END OF SECTION 012911

SECTION 012920-BILL OF SALE/CERTIFICATION FOR STORED MATERIAL

OWNER:_____

CONTRACTOR:_____

IN ACCORDANCE WITH THE CONTRACT DOCUMENTS on the above Project, the Owner has allowed the Contractor to purchase materials and/or equipment in advance of the time required for the installation of said materials and/or equipment and to requisition the Owner for payment of such material and/or equipment properly stored. The following is mutually agreed:

1. The Contractor certifies that he/she is the legal owner of the materials and/or equipment listed below and provides the Owner with a certificate of insurance naming the Owner as loss beneficiary for the full dollar amount representing the materials stored.

2. The Contractor agrees to transfer to the Owner the materials and/or equipment listed below and to transfer all rights, title and interest therein to the Owner.

3. The materials and/or equipment listed below has been properly stored where listed below and has been designated by a tag or other appropriate notice affixed thereto stating:

4. Nothing in these provisions shall be construed as relieving the Contractor from the sole responsibility for the care, custody and protection of such materials and/or equipment or as a waiver of the right of the Owner to require fulfillment of all terms and conditions of the Contract Documents.

5. When materials and/or equipment are stored off the Project Site, the Contractor certifies that such materials and/or equipment, listed below, are fully insured against the perils of fire, theft, extended coverage, vandalism and malicious mischief.

6. The Owner [**, Construction Manager**] and Architect reserve the right to inspect materials and/or equipment, wherever stored, at their convenience during normal working hours.

7. The cost and expense, if any, involved in the storage and/or delivery to the Project Site will be borne by the Contractor.

LIST OF MATERIALS AND/OR EQUIPMENT STORED:

ITEM	DESCRIPTION	QUANTITY	TOTAL VALUE
1.			
2.			
3.			
4.			
5.			

PLACE AND METHOD OF STORAGE:

LOCATION	STORED BY	PROTECTED BY
( )Warehouse	( )Contractor	( )Building Cover
( )Storage Yard	( )Distributor	( )Plastic Cover
( )On Project Site	( )Manufacturer	( )Not Required

NAME AND ADDRESS OF PARTY STORING MATERIALS AND/OR EQUIPMENT

NAME: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

BILL OF SALE:

In consideration of the sum or sums listed above in lawful money of the United States to be paid as provided in the Contract Documents, The Contractor does grant and convey unto the Owner title of ownership of all materials and/or equipment listed above to have and to hold the same unto the Owner forever.

The Contractor does, for himself/herself, his/her successors and assigns covenant and agree to warrant and defend the sale of the above listed materials and/or equipment hereby sold unto the Owner, against all claims or any claims or any person or persons whomsoever.

SWORN TO AND SUBSCRIBED

BEFORE ME THIS _____ DAY

OF _____, 20_____.

_____
Notary Public of the State of
New Jersey.

My Commission Expires:_____

_____
Contractor

By:_____
Name

_____
Title

_____
Date

Accepted for Project Owner:

_____
Signature Title Date

END OF SECTION 012920

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

    a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
    b. Coordinate the addition of trade-specific information to coordination drawings in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
    c. Indicate functional and spatial relationships of components of architectural, mechanical, and electrical systems.
    d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
    e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
    f. Indicate required installation sequences.
    g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:

    a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
    b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
    c. Fire-rated enclosures around ductwork.

7. Electrical Work: Show the following:

a. Runs of vertical and horizontal conduit 1-1/4 inches (32 mm) in diameter and larger.
b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
d. Location of pull boxes and junction boxes, dimensioned from column center lines.

8. Review: Architect will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
9. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."

C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Submittal Format: Submit or post coordination drawing files using PDF format.

2. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.

a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
b. Contractor shall execute a data licensing agreement in the form of that can be obtained from the Architect.

1.7 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Each Request for Information shall be limited to a single subject of inquiry.
2. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
3. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed and when it is needed. Contractor shall provide their own interpretation or understanding of the requirement along with their reasons for how they reached such an understanding. Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.

4. Name of Contractor.
5. Name of Architect[and Construction Manager].
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Potential cost impact & potential estimate.
14. Potential time impact & potential delay.
15. Change order required.
16. Date response needed.
17. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Use Contractor’s Request for Information included at end of Part 3.

1. Attachments shall be electronic files in PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action and shall not be entered into the RFI Log:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 working days of receipt of

the RFI response. Failure to provide such written notice shall waive the Contractor's right to seek additional time or cost.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Use of Architect's Digital Data Files: Digital data files of Architect's will be provided by Architect for Contractor's use during construction.

1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.
2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
3. Contractor shall execute a data licensing agreement in the form of Electronic Files Indemnification form provided by the Architect.

a. Subcontractors, and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of Electronic Files Indemnification form provided by the Architect.

1.9 PROJECT MEETINGS

A. General: Architect will schedule and conduct] meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Contractor(s) and Architect, within three days of the meeting.
4. Contractor Progress Status Report: Prime Contractors shall distribute their progress report at each meeting to all invited attendees. Copy of form is included at end of Part 3.

B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 5 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Responsibilities and personnel assignments.
    b. Tentative construction schedule.
    c. Permits.
    d. Phasing.
    e. Critical work sequencing and long lead items.
    f. Designation of key personnel and their duties.
    g. Lines of communications.
    h. Procedures for processing field decisions and Change Orders.
    i. Procedures for RFIs.
    j. Procedures for testing and inspecting.
    k. Procedures for processing Applications for Payment.
    l. Distribution of the Contract Documents.
    m. Submittal procedures.
    n. Preparation of Record Documents.
    o. Use of the premises and existing building]
    p. Work restrictions.
    q. Working hours.
    r. Owner's occupancy requirements.
    s. Responsibility for temporary facilities and controls.
    t. Procedures for moisture and mold control.
    u. Procedures for disruptions and shutdowns.
    v. Construction waste management and recycling.
    w. Parking availability.
    x. Office, work, and storage areas.
    y. Equipment deliveries and priorities.
    z. First aid.
    aa. Security.
    bb. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility requirements.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written instructions.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 10 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

    a. Preparation of Record Documents.
    b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    c. Procedures for completing and archiving web-based Project software site data files.
    d. Submittal of written warranties.
    e. Requirements for preparing operations and maintenance data.
    f. Requirements for delivery of material samples, attic stock, and spare parts.
    g. Requirements for demonstration and training.
    h. Preparation of Contractor's punch list.
    i. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    j. Submittal procedures.
    k. Coordination of separate contracts.
    l. Owner's partial occupancy requirements.
    m. Installation of Owner's furniture, fixtures, and equipment.
    n. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Architect will conduct progress meetings at bimonthly intervals or as deemed necessary by the Architect.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.

5) Off-site fabrication.
6) Access.
7) Site use.
8) Temporary facilities and controls.
9) Progress cleaning.
10) Quality and work standards.
11) Status of correction of deficient items.
12) Field observations.
13) Status of RFIs.
14) Status of Proposal Requests.
15) Pending changes.
16) Status of Change Orders.
17) Pending claims and disputes.
18) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.

4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site use.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.
11) Progress cleaning.
12) Quality and work standards.
13) Status of RFIs.
14) Proposal Requests.
15) Change Orders.
16) Pending changes.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

CONTRACTOR REQUEST FOR INFORMATION

FROM: _____

REQUEST DATE: _____ EMAIL _____

CONTRACTOR'S RFI NUMBER: _____

TO:
Scot Charles England, AIA
REGAN YOUNG ENGLAND BUTERA, PC
Fax: (609) 265-0333 Email: sce@ryebread.com

REFERENCES (List all applicable drawings & specifications):

PLEASE RESPOND TO THE FOLLOWING:

POTENTIAL COST IMPACT & POTENTIAL ESTIMATE: _____

POTENTIAL TIME IMPACT & POTENTIAL DELAY: _____

CHANGE ORDER REQUIRED: ☐ Yes ☐ No

DATE RESPONSE NEEDED: _____

DESIGN PROFESSONAL'S RESPONSE:

DATE OF RESPONSE: _____ BY: _____

DISTRIBUTION: _____

Note: This reply is not an authorization to proceed with work involving additional cost, time or both. If any reply requires a change to the Contract Documents, a Change Order, Construction Change Directive, or a Minor Change in the work must be executed in accordance with the Contract Documents.

CONTRACTOR PROJECT STATUS REPORT

(To be submitted at each Job Meeting)

CONTRACTOR: _____ DATE _____

EST. % OF COMPLETION: _____ CONFORMANCE W/ SCHED(+,=,-): _____

WORK IN PROGRESS: (List main work items and % completion for each item)

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

H. _____

PROJECTED WORK: (List only what you expect to perform in the next two weeks & include % of completion for each item)

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

POINTS OF RECORD: (be brief)

A. _____

B. _____

C. _____

D. _____

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Informational submittals.
2. Coordination.

3. Startup construction schedule.
4. Contractor's Construction Schedule.
5. Construction schedule updating reports.
6. Gantt-chart schedule requirements.
7. Reports.
8. Daily construction reports.
9. Material location reports.
10. Site condition reports.
11. Unusual event reports.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF file.

B. Startup construction schedule.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Maximum sheet size 8 1/2 x 11. Multiple sheets are acceptable.

D. Construction Schedule Updating Reports: Submit with Applications for Payment.

E. Daily Construction Reports: Submit at weekly intervals.

F. Material Location Reports: Submit at weekly intervals.

G. Site Condition Reports: Submit at time of discovery of differing conditions.

H. Unusual Event Reports: Submit at time of unusual event.

I. Qualification Data: For scheduling consultant.

1.4 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion and 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.

C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 2 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
4. Startup and Testing Time: Include no fewer than 5 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than 10 days for completion of punch list items and final completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use-of-premises restrictions.
    f. Provisions for future construction.
    g. Seasonal variations.
    h. Environmental control.

4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Fabrication.
    e. Sample testing.
    f. Deliveries.
    g. Installation.
    h. Tests and inspections.
    i. Adjusting.
    j. Curing.
    k. Startup and placement into final use and operation.

5. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

    a. Structural completion.
    b. Temporary enclosure and space conditioning.
    c. Permanent space enclosure.
    d. Completion of mechanical installation.
    e. Completion of electrical installation.
    f. Substantial Completion.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

F. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.

G. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

H. Contractor's Construction Schedule Updating: At monthly intervals, When requested by the Architect, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

I. Recovery Schedule: When periodic update indicates the Work is 5 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

J. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1.6 STARTUP CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1.7 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 7 days of date established for the Notice to Proceed.

1. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 5 percent increments within time bar.

1.8 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

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, including presence of rain or snow.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Construction Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. 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. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

D. Unusual Event Reports: 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, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

1. Submit unusual event reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs and/or videos.

B. Related Requirements:

1. Section 024116 "Structural Demolition" for photographic documentation before demolition operations commence.

1.3 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and/or video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs and/or Video Recordings: Submit image files within seven days of recording.

1. Submit photos on CD-ROM or thumb-drive. Include copy of key plan indicating each location and direction.
2. Identification: Provide the following information with each image description in file metadata tag:

a. Name of Project.
b. Name of Architect.
c. Name of Contractor.
d. Date photograph was taken.
e. Description of location, vantage point, and direction.
f. Unique sequential identifier keyed to accompanying key plan.

1.4 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by

2400 pixels, and with vibration-reduction technology. Use flash in low light levels or backlit conditions.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high-definition mode with vibration-reduction technology. Provide supplemental lighting in low light levels or backlit conditions.

C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

D. Metadata: Record accurate date and time from camera.

E. File Names: Name media files with date, Project area and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Preconstruction Photographs: Before Prior to the start of any work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.

1. Show existing conditions of all rooms, corridors, stair towers, elevators, restrooms and other spaces effected by the Work.

1.6 CONSTRUCTION VIDEO RECORDINGS

A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings.

B. Preconstruction Video Recording: Before starting Prior to the start of any work, record video recording of Project site and surrounding properties from different vantage points.

1. Show existing conditions of all rooms, corridors, stair towers, elevators, restrooms and other spaces effected by the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
5. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
6. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
7. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
8. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals 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.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
8. Category and type of submittal.
9. Submittal purpose and description.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.

15. Remarks.
16. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Paper Submittals *(Only for submittals that require an original signature and/or raised seal)*:

1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect, will return two copies.
4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
5. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
6. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using Submittal Transmittal Form found at the end of Part 3.

E. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1. Transmittal Form for Electronic Submittals: Use Submittal Transmittal Form found at the end of Part 3.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include an executed PDF of the Submittal Transmittal Form. Include information in email subject line as requested by Architect.

a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

    a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

a. Project name and submittal number.
b. Generic description of Sample.
c. Product name and name of manufacturer.
d. Sample source.
e. Number and title of applicable Specification Section.
f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
4. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Paper Transmittal: Include paper transmittal including complete submittal information indicated.
5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

6. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

7. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

1.8 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal by signing each Submittal Transmittal Form with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.9 ARCHITECT'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return it]

1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will return without review submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SUBMITTAL TRANSMITTAL FORM

PRIME CONTRACTOR'S SUBMITTAL NO. _____

DATE:

PRIME CONTRACTOR:

SUBCONTRACTOR:

SUPPLIER:

MANUFACTURER:

ITEM: (Be Specific)

SPEC SECTION: DRAWING NO.:

NO. OF COPIES:

As, the above named PRIME CONTRACTOR we affirm that we have checked this submission for conformance with the design concept of the Project and with the Contract Documents; that the Contract Document requirements have been met and that we have verified all dimensions, conditions, and quantities as shown and/or corrected on this submittal; that the submittal will not cause conflict with or increase cost to other Prime Contractors or the Owner; and that all previous applicable changes made in the Project by Change Orders or other directives have been properly shown on each submittal affected.

Architect/Engineer Action Stamp

By: _____

Title: _____

SECTION 013310 - PROJECT START-UP SUBMITTALS

Submit copies of the following to the Architect immediately after the issuance of the Contract. This form is an internal form used by REGAN YOUNG ENGLAND BUTERA and shall be used only as a guide for submissions by the Contractor. Additional items not included on this list may be required at the discretion of the Architect or as referenced in their individual sections.

CONTRACTOR: _____

ADDRESS: _____

_____

TELEPHONE NUMBER: _____

ITEM	DATE RECEIVED
O Contract	
O Performance Bond & Payment Bond	
P Insurance Certificate	
O Notice to Proceed	
P Contractor's Certification of Subcontractor(s) Insurance Coverage's	
P Copies of Permits	
P Schedule of Values	
P Initial Workforce Report (Affirmative Action)	
P Required Cuts (see indiv. spec sections)	
P Construction Schedule	
P List of Subcontractors	
P List of Manufacturers/Suppliers	
P List of Contractor's Staff Assignments	
Digital copy of preconstruction photographs and/or videos (disk or thumb drive)	

O – Three Original copies required.
P – PDF copy required.

END OF SECTION 013310

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of [five] <Insert number> previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

I. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect[or Construction Manager].

1.4 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits.

To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 ACTION SUBMITTALS

A. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.7 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee

payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.8 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed] and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including Subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.9 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.

2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.10 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products

from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.

d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.11 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.12 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.

4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014219.10 – REFERENCE STANDARDS FOR SITEWORK

PART 1 GENERAL

1.1 DESCRIPTION

A. Work included:

1. Throughout the Contract Documents, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics.

2. Where materials or workmanship are required by these Contract Documents to meet or exceed the specifically named code or standard, it is the CONTRACTOR's responsibility to provide materials and workmanship which meet or exceed the specifically named code or standard.

3. It is also the CONTRACTOR's responsibility, when so required by the Contract Documents or by written request from the ARCHITECT, to deliver to the ARCHITECT all required proof that the materials or workmanship, or both, meet or exceed the requirements of the specifically named code or standard. Such proof shall be in the form requested in writing by the ARCHITECT, and generally will be required to be copies of a certified report of tests conducted by a testing agency approved for that purpose by the ARCHITECT.

1.2 QUALITY ASSURANCE

A. Familiarity with pertinent codes and standards: In procuring all items used in this work, it is the CONTRACTOR's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements.

B. Rejection of noncomplying items: The ARCHITECT reserves the right to reject items incorporated into the work which fail to meet the specified minimum requirements.

C. Applicable standards listed in these specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. AASHTO - American Association of State Highway and Transportation Officials (Formerly AASHO)

2. ACI - American Concrete Institute

3. ACPA - American Concrete Pipe Association

4. AI - Asphalt Institute

5. ASTM - American Society for Testing and Materials

6. AWWA - American Water Works Association

7. CRSI - Concrete Reinforcing Steel Institute

8. CDC - Concrete Technology Corporation

9. DEP - Department of Environmental Protection

10. EJMA - Expansion Joint Manufacturers Association

11. EPA - Environmental Protection Agency

12. FHWA - Federal Highway Administration, U.S. Department of Transportation

13. ITE - Institute of Traffic Engineers

14. MUTCD - Manual on Uniform Traffic Control Devices

15. NJDEP - New Jersey Department of Environmental Protection

16. NJDOT - New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction dated 2007 (Standard Specifications). Terms used within the Standard Specifications shall be defined as follows:

    A. "Commissioner" as referenced in STANDARD SPECIFICATIONS shall be interpreted to mean the ARCHITECT.

    B. "Department" as referenced in STANDARD SPECIFICATIONS shall be interpreted to mean the ARCHITECT duly authorized by the OWNER to observe the construction of the improvements contemplated herein, or the duly appointed assistant or representative of said ARCHITECT.

    C. "Provide" to furnish and install complete.

    D. "Section" shall refer to either the specification section of these specifications in which case it will be followed by the term "of these specifications" or a specified section of the Standard Specifications in which case it will be followed by the term "of the STANDARD SPECIFICATIONS".

    E. "Standard Specification", the New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction, dated 2007, and all amendments thereto.

    F. "State" as referenced in STANDARD SPECIFICATIONS shall be interpreted to mean OWNER.

17. OSHA - Occupational Safety and Health Act

18. NRMCA - National Ready Mix Concrete Association

19. PCA - Portland Cement Association

20. PPI - Plastics Pipe Institute

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.
2. Section 312300.10 “Site Excavation, Filling and Grading” for disposal of ground water at Project site.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

D. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.

E. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste-handling procedures.
5. Other dust-control measures.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide galvanized-steel bases for supporting posts.

B. Signage: Provide signage attached at 50 feet intervals advising “Construction Area – Keep Out”.

C. Orange Safety Fencing: Provide around the entire area of any and all earthwork, excavations, etc. and shall be maintained until the work is complete.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

F. Telephone Service: Provide Job Forman with cell phone.

3.4 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Temporary storage shall not be located within 30 feet (9 m) of building lines.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

2. Maintain and touch up signs so they are legible at all times.

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

Comply with progress cleaning requirements in Section 017300 "Execution" and Sections 017419 "Construction Waste Management and Disposal."

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

C. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these

operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

3. Indicate methods to be used to avoid trapping water in finished work.
   a. eir manufactured moisture level within [48] <Insert time period> hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of 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.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been 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 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 property of Contractor. Owner reserves right to take possession of Project identification signs.
2. entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 015526 - MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 GENERAL

1.1 RELATED WORK

A. Section 017413: Cleaning and Restoration for Sitework.

B. Section 312300.10: Site Excavation Filling and Grading

1.2 DESCRIPTION

A. Provide for maintenance and protection of traffic as specified herein and in the Standard Specifications, latest revisions.

B. Before beginning work on any phase of the project, furnish and install all construction signs, barricades, traffic guides, lights and other devices necessary to protect the public during construction.

C. Do not occupy with equipment, materials or personnel any roadway or sidewalk areas within or adjacent to the project that is open to traffic except as necessary during actual working hours.

D. Repair any damage to newly constructed or existing pavements as directed by ARCHITECT, at CONTRACTOR's expense, or repair will be made by others and cost of such repairs will be charged against CONTRACTOR.

1.3 REFERENCE STANDARDS

A. U.S. Department of Transportation, Federal Highway Administration, Manual on Uniform Control Devices for Streets and Highways, current edition. (MUTCD)

1.4 SUBMITTALS

A. All submittals shall be submitted through the Architect.

B. Traffic Control Plan:

1. Within ten (10) days after Notice to proceed and before work on the project begins, submit a Traffic Control Plan for the maintenance and protection of traffic.

2. Show type and location of barricades, lights, cones, barrels, signs and other devices.

C. Copies of all notices as specified herein.

D. Name, address, phone number and contact person supplying traffic control devices.

1.5 PROJECT CONDITIONS

A. Except as necessary during actual working hours, and then only with the specified authorization of the ARCHITECT or jurisdictional authority, the CONTRACTOR shall not occupy with his equipment, materials or personnel any roadway or sidewalk area within or adjacent to the project that is open to traffic.

B. No equipment or machinery having caterpillar or other heavy treads that mar or damage pavements shall be permitted to move over or operate from newly constructed or existing pavements unless such equipment or machinery is moved on suitable pontoons or trailers or operated on heavy planking or other suitable platforms.

C. The CONTRACTOR shall provide for prompt removal from the existing roadways of all dirt and other materials that have been spilled, washed, tracked or otherwise deposited thereon by his hauling and other operations whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, damage pavements, create a traffic hazard or dust condition.

D. The CONTRACTOR shall cease work in existing roads when snow is imminent. The CONTRACTOR is responsible for snow removal within the limits of the construction fencing. The CONTRACTOR shall make suitable provisions to mark the location of equipment and all other obstructions in the event of deep snow.

E. The requirements of the agency having jurisdiction over the roadways in which the CONTRACTOR is working shall govern.

F. The CONTRACTOR may be required to provide, in addition to flagmen, uniformed traffic officers to fulfill the expressed needs of the owner, municipality, or any governmental agency having jurisdiction and shall contact the same to determine their requirements.

G. During any suspension of the work, the CONTRACTOR shall make passable and shall open to traffic such portions of the project and temporary roadways or portions thereof as may be agreed upon between the CONTRACTOR and the ARCHITECT and the jurisdictional authority for the temporary accommodation of necessary traffic during the anticipated period of suspension. When work is resumed, the CONTRACTOR shall replace or renew all work or materials lost or damaged because of such temporary use of the project in every respect as though its prosecution had been continuous and without interference.

PART 2 PRODUCTS

2.1 GENERAL

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

2.2 CONES

A. Cones shall conform to Part 6, Section 6F.59 of the MUTCD.

B. Cones shall be a minimum of 18" high and be reflectorized.

C. Cones shall be kept clean and bright for maximum target value. Cones shall be orange in color. Rubber cones shall be painted at the place of manufacture. Plastic cones shall be polyvinyl chloride with the color molded into the plastic.

2.3 DRUMS

A. Drums shall conform to Part 6, Section 6F.62of the MUTCD.

B. Drums shall be 36" high 18" diameter with horizontal, circumferential, orange and white reflectorized stripes, 4" to 8" wide.

2.4 BARRICADES

A. Barricades shall be Type I, Type II and Type III conforming to Part 6, Section C-8 with characteristics as follows:

BARRICADE CHARACTERISTICS			
TYPE*			
	I	II	III
Width of rail	8" min-12" max	8" min-12" max	8" min-12" max
Length of rail	2 ft. minimum	2 ft. minimum	4 ft. minimum
Width of stripes**	6 inches	6 inches	6 inches
Height	3 ft. minimum	3 ft. minimum	5 ft. minimum
Number of Reflectorized Rail Faces	2 (one each direction)	4 (two each direction)	3 if facing in one direction; 6 if facing in two directions

* For wooden barricades nominal lumber dimensions will be satisfactory
** For rails less than 3 feet long, 4 inch wide stripes shall be used

2.5 LIGHTING DEVICES

A. Lighting devices shall conform to Part 6, Section 6F.75 of the MUTCD and be as specified herein.

B. Batteries: Storage batteries or other bulk power sources, not part of a monolithic flasher unit shall be located as far as practicable from the traveled way and at ground level. Single flasher and steady burning units with self-contained batteries shall weigh not more than seven (7) pounds and when located on traffic control devices shall be securely fastened with the bottom tangent of the lens at 36 inches above the existing ground level. Battery powered dual alternate flashers located on advance warning signs shall have the battery power source located as far as practicable from the traveled way and at ground level.

C. Flashing Warning Lights

1. Low intensity flashing warning lights shall be installed on traffic control devices where specified elsewhere herein. Low intensity lights shall be battery operated yellow flashing lights with a one piece lens not less than seven inches in diameter. They shall flash at a rate of 55-75 flashes per minute and the flash duration shall be ten percent of each flash cycle. Light intensity shall not drop below ten candelas during the first 336 hours of continuous flashing as specified in ITE Standards Requirement 5.0, Paragraph 5.10, Section 1 of the ITE Standards for Flashing and Steady Burn Barricade Warning Lights. The lens shall be externally illuminated by reflex-reflection of the light from the headlights of the oncoming automotive traffic. Intensity when acting as a reflex-reflector shall be as in ITE Standard Requirement 5, Paragraph 5.30. If designed with a reflex reflector ring, the ring shall not be less than 1/2-inch in width around the periphery of the lens. Manufacturing design requirements shall conform to the ITE Standard as specified in the following requirements:

Lens requirements.....6.00
Head and Housing.....7.00
Photelectric Controls.....8.00
Testing, Quality and Marking.....9.00

2. Low intensity flashing warning lights when used where specified shall be kept lighted as specified for steady burning lights.

D. Steady Burning Warning Lights

1. Steady burning lights shall be installed on traffic control devices where specified elsewhere herein. Steady burning lights shall have low wattage yellow electric lamps having a minimum of ten beam candle power. They may be self-contained units with batteries or may be operated with a portable electric generator or from available utility lines. When a circuit in excess of fifty volts is used and such circuits including the light units are within reach of a person who can make contact with the ground, they shall be equipped with an UL approved ground-fault circuit interrupter. Steady burning lights when used where specified shall be kept lighted from one hour before sunset until one hour after sunrise, and through all hours of fog, smog, and other adverse atmospheric conditions affording insufficient visibility for the safe operation of traffic.

2.6 PAVEMENT MARKINGS

A. Temporary pavement markings shall be reflectorized plastic tape specifically designed for this purpose or traffic paint and glass beads conforming to the Standard Specifications. Color shall be yellow.

B. Painted temporary pavement markings shall be completely dry before opening roadway to traffic.

2.7 TEMPORARY CONSTRUCTION SIGNS

A. Temporary construction signs shall conform to Part 6, Section F of the MUTCD and be Regulatory, Warning or guide signs as appropriate as specified herein.

2.8 UNIFORMED TRAFFIC DIRECTORS

A. Uniformed traffic directors shall be trained and of average intelligence, good physical condition, including sight and hearing, having a mental alertness, a courteous but firm manner, neat appearance and sense of responsibility for the safety of the public. Traffic directors shall wear an orange vest. This garment shall be reflectorized for nighttime operations.

PART 3 EXECUTION

3.1 GENERAL

A. Keep the portion of the project being used by public traffic, whether it be through or local traffic, in such condition that pedestrian and vehicular traffic will be adequately and safely accommodated, both temporarily and permanently.

B. Erect, and/or maintain in substantial manner and good condition striping, barricades, signs, lights, traffic signals, cones, and other warning and danger signals and devices, including flagmen and uniformed traffic directors, appropriate and adequate for the specific needs.

C. Traffic control devices are to be provided at work site, closed roads, intersections, open excavations, locations of material storage, standing equipment and other obstructions, at points where usable traffic width of road is reduced, at points where traffic is diverted from its normal course or lanes, and other places of danger to vehicular or pedestrian traffic or to completed work.

D. Establish, repair, replace and relocate signs, lights, warning and protective services as required.

E. Do not permit equipment or machinery having Caterpillar or other heavy treads that mar or damage pavements to move over or to operate from newly constructed or existing pavement unless such equipment or machinery is moved on suitable pontoons or trailers.

3.2 EMERGENCY ACCESS

A. All streets and building access points shall be maintained such that Emergency Vehicles and Personnel shall have complete 24 hour access.

3.3 PRIVATE DRIVEWAYS

A. Notify owners of adjoining properties at least twenty-four (24) hours prior to beginning any work which will interfere with their passage.

B. Provide means of access for pedestrian and vehicular traffic at all private driveways and occupied buildings affected by the work of this contract.

C. During construction in the vicinity of driveways, access width at driveway entrance shall be plainly marked by lights and other devices as necessary.

3.4 DIVERSION OF TRAFFIC

A. Any restriction or diversion of traffic at any time shall be subject to approval of the Local Police Department.

B. Notify Municipal Police and Fire Departments at least twenty-four (24) hours prior to the closing of any roadway to traffic.

C. In accordance with the laws of 1983, c.84, the CONTRACTOR shall give seventy-two (72) hours notice (by the erection and maintenance of signs near the affected area) whenever a township road must be closed to vehicular traffic for a period of forty-eight (48) hours or more.

D. In case of an emergency, "every effort shall be made to notify the public as soon as possible of the closing."

3.5 APPLICATION

A. Barricades

1. Type I and Type II Barricades:

a. Type I and Type II barricades shall be used when traffic is maintained through the area being constructed and/or reconstructed.

b. Type II barricades shall be used singly or in groups to mark a specific hazard or they may be used in a series for channelizing traffic.

2. Type III Barricades

a. Type III barricades shall be erected at points of closure when a road section is closed to traffic.

b. Type III barricades may extend completely across a roadway and its shoulder or from curb to curb.

c. Type III barricades shall not be used on public thorofares without the written permission of the ARCHITECT and the authorities having jurisdiction.

B. Cones

1. Traffic cones shall be installed to channelize traffic during daylight hours only.

C. Drums

1. Drums shall be used to delineate the edge of a traveled way, lane changes, lane closures and other similar conditions such as to channelize traffic.

2. Drums may also be used to mark specific hazards.

3. Drums shall not be weighted with sand, water or other materials to the extent that would make them hazardous to motorists.

D. Lighting Devices

1. During hours of darkness a flashing warning light shall be placed on drums or barricades used singly.

2. Steady burn warning lights shall be used on drums or barricades used in a series for Traffic Channelization.

3.6 UNIFORMED TRAFFIC DIRECTORS

A. Uniformed traffic directors shall be provided when and where called for by the jurisdictional authority.

B. The CONTRACTOR may, with the permission of the respective police department, secure the services of uniformed police officers to direct traffic in those parts of the project under the jurisdiction of the respective municipality.

C. These directors shall be responsible and trained in their duties to direct pedestrian and vehicular traffic, shall act in conformance with the police department and while serving as traffic directors on this project, shall not be required to perform any other duties.

D. Flagmen who are normally hired to do other work on the project during the same work period shall not be considered as uniformed traffic directors.

E. When controlling traffic, uniformed traffic directors shall follow the procedures stipulated for flagmen in the MUTCD.

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012100 "Allowances" for products selected under an allowance.
2. Section 012500 "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
    b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

    a. Name of product and manufacturer.

b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

3. See MPE specifications on drawings for additional identification requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner for not less than two years.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: …"

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: …"

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated]

    a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: …"

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.

    a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: …"

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

    a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: …"

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.

    a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: …"

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

    a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require "match existing or Architect's sample," provide a product that complies with requirements and matches existing conditions or Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
2. Evidence that proposed product provides specified warranty.
3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
4. Samples, if requested.

B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017123 - FIELD ENGINEERING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Survey and field engineering.

B. Quality control.

C. Submittals.

D. Project record documents.

1.2 RELATED SECTIONS

A. General Conditions: Basic site engineering requirements.

B. Refer to Section 01 “Execution” for additional Field Engineering and Survey Requirements.

1.3 QUALITY ASSURANCE

A. Employ a Land Surveyor registered in the State of New Jersey and acceptable to Architect, to perform survey work of this section.

B. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate prior to commencement of survey.

1.4 SUBMITTALS FOR REVIEW

A. Submit name, address, and telephone number of Surveyor to ARCHITECT five (5) days prior to starting survey work.

B. On request, submit documentation verifying accuracy of survey work.

C. After completion of work, submit a certificate signed by the Land Surveyor to ARCHITECT, stating that the elevations and locations of the Work are in conformance with Contract Documents.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain a complete and accurate log of control and survey work as it progresses.

B. On completion of major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

C. Submit Record Documents under provisions of Division 1.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

3.1 EXAMINATION

A. Verify locations of survey control points prior to starting work.

B. Promptly notify ARCHITECT of any discrepancies discovered.

3.2 SURVEY REFERENCE POINTS

A. Owner will locate and protect survey control and reference points.

B. Control datum for survey is that indicated on Drawings.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to ARCHITECT the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to ARCHITECT.

3.3 SURVEY REQUIREMENTS

A. Provide field engineering services. Utilize recognized engineering survey practices.

B. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means.

C. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.

D. Grid or axis for structures.

E. Periodically verify layouts by same means.

3.4 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Perform control surveys to establish measurement reference lines. Notify ARCHITECT prior to starting work.

B. CONTRACTOR's Responsibilities: Sign surveyor's field notes or keep duplicate field notes, and calculate and certify quantities.

END OF SECTION

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 013300 "Submittal Procedures" for submitting surveys.
3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
4. Section 024116 "Structure Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.

1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

    a. Contractor's superintendent.
    b. Trade supervisor responsible for cutting operations.
    c. Trade supervisor(s) responsible for patching of each type of substrate.
    d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affecting by cutting and patching operations.

2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.6 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in

increased maintenance or decreased operational life or safety. Operational elements include the following:

a. Primary operational systems and equipment.
b. Fire separation assemblies.
c. Air or smoke barriers.
d. Plumbing piping systems.
e. Mechanical systems piping and ducts.
f. Control systems.
g. Communication systems.
h. Fire-detection and -alarm systems.
i. Electrical wiring systems.
j. Operating systems of special construction.
k. Access control and CCTV systems.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

a. Water, moisture, or vapor barriers.
b. Membranes and flashings.
c. Fire barriers, partitions and walls.
d. Equipment supports.
e. Piping, ductwork, vessels, and equipment.
f. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before

fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.

1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or

adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls".

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017413 - CLEANING AND RESTORATIONS FOR SITEWORK

PART 1 GENERAL

1.1 DESCRIPTION

A. Related work specified elsewhere:

1. General requirements for cleaning and restorations: See the General Conditions.

2. Cleaning for specific products or work: Specification Section for that work.

B. Maintain premises and public properties free from accumulations of waste, debris and rubbish caused by work operations.

C. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials; clean all sight exposed surfaces; leave project clean and ready for occupancy.

D. At completion of work, restore or replace, when and as directed by the ARCHITECT, any public or private property disturbed or damaged by CONTRACTOR's work operations to a condition at least equal to that existing prior to beginning work, or as otherwise specified. Materials shall be approved by the ARCHITECT.

PART 2 PRODUCTS

2.1 MATERIALS

A. For temporary and permanent vegetative restoration, use the following materials. All materials shall conform to the applicable Sections of the New Jersey Soil Conservation Service (NJSCS) Standards for Soil Erosion and Sediment Control, and the applicable Sections of the Standard Specifications.

B. Grass restorations: All grass restoration materials shall conform to the specification sections entitled, "Topsoiling," "Fertilizing and Seeding," and "Mulching."

C. Pavement restorations: All paving materials shall conform to the Standard Specifications.

D. Restoration of curbs and other concrete structures:

1. Concrete:

a. Shall conform to Section 903.03 of the Standard Specifications.

b. Compressive Strength shall conform to specification Section entitled “Concrete for Sitework”.

2. Joint fillers: Section 914.01, bituminous cellular type.

3. Curing compound: Section 903.10, white-pigmented liquid.

E. All other materials: As approved by the ARCHITECT or authorities having jurisdiction.

PART 3 EXECUTION

3.1 METHODS OF CONDUCTING WORK - CLEANING

A. Requirements of regulatory agencies: Dispose of all solid waste materials (including concrete, blacktop, trees, stumps, unacceptable backfill material including heavy clay soils, organic materials, silts, rock) in permanently established licensed OSWA (Office of Solid Waste Administration, New Jersey Department of Environmental Protection) landfills, or in temporary landfill sites approved by OWSA.

B. Safety requirements:

1. Hazards control:

a. Store volatile wastes in covered metal containers, and remove from premises daily.

b. Prevent accumulation of waste which create a hazardous condition.

c. Provide adequate ventilation during use of volatile or noxious substances.

2. Conduct cleaning and disposal operation to comply with local ordinances and anti-pollution laws:

a. Do not burn or bury rubbish and waste materials on project site.

b. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains.

c. Do not dispose of wastes into streams or waterways.

C. Cleaning during construction:

1. Execute periodic cleaning to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish and windblown debris resulting from construction operations.

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

3. Remove waste materials, debris and rubbish from site periodically and legally dispose at location provided by CONTRACTOR.

D. Dust control:

1. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

2. The CONTRACTOR shall employ construction methods and means that will keep flying dust to the minimum. He shall provide for the laying of water on the Project, and on roads, streets and other areas immediately adjacent to the Project limits, wherever traffic, or buildings that are occupied or in use, are affected by such dust caused by his hauling or other operations. The CONTRACTOR, shall control dust using calcium chloride, water or other materials approved by the ARCHITECT. If calcium chloride is used, the rate of application shall be approximately 1.5 pounds per square yard. The cost of carrying out the foregoing provisions shall be included in the prices bid for the various items in the Contracts.

   The CONTRACTOR shall provide for prompt removal from existing roadways of all dirt and other materials that have been spilled, washed, tracked or otherwise deposited thereon by his hauling and other operations whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, damage pavements or create a traffic hazard.

E. Final cleaning:

1. Employ skilled workmen for final cleaning.

2. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials form sight-exposed interior and exterior surfaces.

3. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

4. Remove all temporary buildings and structures built by CONTRACTOR, all temporary works; tools, machinery or other construction equipment furnished by him.

5. Clean insides of manholes, valve boxes, inlets or other structures constructed, reconstructed or reset during CONTRACTOR's operations to remove debris, excess mortar of foreign materials.

6. Prior to final acceptance, CONTRACTOR shall conduct an inspection of all work areas to verify that the entire work is clean.

3.2 METHODS OF CONDUCTING WORK - RESTORATIONS

A. General: All existing structures, unpaved areas and paved areas disturbed or damaged during the work under this Contract shall be restored or replaced to a condition at least equal to that existing prior to beginning work, or as otherwise specified. The methods of the following Sections of the Standard Specifications.

B. Grass restoration: All grass restorations shall comply with the specification sections entitled “Topsoiling,” “Fertilizing and Seeding,” and “Mulching.”

C. For pavement and concrete restorations, use the following methods. All methods shall conform to the applicable Sections of the Standard Specifications.

1. Bituminous pavement restoration: All methods shall conform to the Standard Specifications.

2. Concrete curb restoration: All methods shall conform to Specification Section entitled “Concrete for Sitework”.

D. For temporary and permanent vegetative restoration, use the following methods. All methods shall conform to the applicable Sections of the New Jersey Soil Conservation Service (NJSCS) Standards for Soil Erosion and Sediment Control, and the applicable Sections of the Standard Specifications.

1. Soil Erosion and Sediment Control Measures: All materials shall conform to Specification Section entitled "Temporary Soil Erosion and Sediment Control."

2. Topsoiling: All materials shall conform to Specification Sections entitled "Topsoiling."

3. Fertilizing and Seeding: All materials shall conform to Specification Section entitled "Fertilizing and Seeding."

4. Mulching: All materials shall conform to Specification Section entitled "Mulching."

E. Restorations of curbs and other concrete structures:

1. Curbs: Section 607 of the Standard Specifications.

2. Other concrete structures: Restore in accordance with applicable Articles of the Standard Specifications.

F. All other restorations: Restore in accordance with applicable Articles of the Standard Specifications, or as approved by the ARCHITECT or authorities having jurisdiction.

END OF SECTION

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner’s property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 INFORMATIONAL SUBMITTALS

A. 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.

B. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. 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. Hazardous Waste: Remove, package, transport and dispose of all mercury thermostats, fluorescent light fixture ballasts containing polychlorinated biphenyls (PCBs), fluorescent light bulbs and all items containing lead cadmium batteries (such as exit signs and emergency lighting fixtures) and any other items classified as universal waste in accordance with the provisions of the regulations promulgated by the United States Environmental Protection Agency (40 CFR 273) and the New Jersey Department of Environmental Protection (N. J. A. C. 7:26A-7).

3.2 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, 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. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas off Owner's property.

C. Burning: Do not burn waste materials.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Submittals.
2. Substantial Completion procedures.
3. Final completion procedures.
4. Punch lists.
5. Warranties.
6. Final cleaning.
7. Repair of the Work.

B. Related Requirements:

1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
3. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at final completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owner's signature for receipt of submittals.

5. Submit testing, adjusting, and balancing records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.
3. The Architect and their Consultants have in their Basic Scope of Services one punch list visit and one Final Completion inspection. If all outstanding work is not completed at the time of the Final Completion inspection, the Owner has the right to back charge the Contractor for their Professionals additional time.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.
5. Submit final completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
2. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

3. Submit list of incomplete items in the following format:

    a. PDF electronic file. Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1. Submit by email to Architect.

D. Warranties in Paper Form:

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark 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 Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

E. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

1) Clean HVAC system in compliance with NADCA ACR. Provide written report on completion of cleaning.

p. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
q. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 017710 - PROJECT CLOSEOUT SUBMITTALS

Submit one copy of the following to the Architect prior to Project closeout. This form is an internal form used by REGAN YOUNG ENGLAND BUTERA and shall be used only as a guide for submissions by the Contractor. Additional items not included on this list may be required at the discretion of the Architect or as referenced in their individual sections.

CONTRACTOR: _____

ADDRESS: _____

_____

TELEPHONE NUMBER: _____

ITEM	DATE RECEIVED
1. P Cert. of Substantial Completion (G704)	_____
2. O/P Final App. For Payments (G702 & G703)	_____
3. O/P Affid. of Paymts. of Debts & Claims (G706)	_____
4. O/P Affid. of Release of Liens (G706A)	_____
5. O/P Consent of Surety to Final Payment (G707)	_____
6. O/P Maintenance Bond (Section 017721)	_____
7. O/P Subcontractor Guaranty (Section 017722). One for every sub-Contractor used on the Project	_____
8. O/P Statement on Business letterhead that all Monthly Workforce Tracking Reports and Weekly-Certified Payroll Records have been submitted to the Owner and the proper agencies	_____
9. O/P Certificate of Compliance on Business letterhead stating that materials and products meet specified standards or that work was done in compliance with approved construction documents	_____
10. P Operation & Maintenance Manuals. Manuals for each Trade, i.e. GC, Plumbing, HVAC, etc. shall have its own folder. Within that folder each Manual shall be titled w/ the "Item Name" and Manufacturer's Name. Also provide an O&M Index, listing the Trade folder and what is in it by spec Division No. & item name	_____
11. P Copies of All Manufacturer Warranties (Refer to spec sections). Warranties for each Trade, i.e. GC, Plumbing, HVAC, etc. shall have its own folder. Within that folder each Warranty shall be titled w/ the "Item Name" & Manufacturers Name. Also provide an	

O&M Index, listing the Trade folder & what is in it by spec Division No. and item name..... _____

12. P Extra "Attic Stock" Provide copy of transmittal to Owner (see Project Manual Sections with ● adjacent to page # ..... _____

13. P Certificate of Occupancy/Certificate of Approval..... _____

14. P Resolution of Punch List Items ..... _____

O – Original paper copy required: These items shall be submitted together at one time.
P – PDF copy required: Submit one pdf copy of all closeout documentation as per the Section 017700 of the Project Manual on either a CD or thumb drive. Each item listed above shall be a separate pdf using the titles above.

Provide separate folders for each of the following on the CD or thumb drive:

a. Close Out documents: 01 thru 09 of the attached Section 017710;
b. Architectural O&Ms, warranties & record documents;
c. HVAC O&Ms, warranties & record documents;
d. Plumbing O&Ms, warranties & record documents; and
e. Electrical O&Ms, warranties & record documents.

Final payment will not be made until all required closeout submittals have been received.

END OF SECTION 017710

SECTION 017721 - MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned

_____

as principal, and a _____

Corporation organized and existing under the laws of the

State of _____and duly authorized to do business in the State of New Jersey, as Surety, are held and firmly bound unto the

_____

as Owner, in the penal sum of _____

_____
(10%) of the Final Contract Amount)

for payment of which, well and truly to be made, we hereby, jointly, and severally, bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, That whereas

the above named principal did on the_____day of,_____

20_____, enter into a Contract with the Owner for

_____

_____
(Project Name)

which said Contract is made a part of this bond the same as though set forth herein.

NOW, if the said principal shall remedy without cost to the Owner any defects which may develop during the TWO (2) year(s) guarantee period of the work performed under the said Contract, provided such defects, in the judgment of the Owner are caused by defective or inferior materials or workmanship, then this obligation shall be void, otherwise it shall be and remain in full force and effect.

IT IS FURTHER AGREED that any alterations which may be made in the terms of the Contract or in the work to be done or materials to be furnished or labor to be supplied or performed under it, or the giving by the Owner of any extension of time for the performance of the Contract, or any other forbearance on the part of either the Owner or the Principal to the other, shall not in any way release the Principal and the Surety or Sureties, or either or any of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder, notice to the Surety or Sureties of any such alterations, extension or forbearance being hereby waived.

IN WITNESS WHEREOF, the said Principal and Surety have duly executed this bond under seal the day and year written below.

BOND NUMBER:_____

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

_____
(Principal) (Seal)

_____
(Witness)

_____
(Title)

_____
(Surety) (Seal)

_____
(Witness)

_____
(Title)

END OF SECTION 017721

SECTION 017722 – SUBCONTRACTOR GUARANTY

WHEREAS:
The Contractor, _____

has entered into a Contract with the Owner, _____

_____ for the construction of _____

_____ at _____

_____

_____,

the Work.

AND WHEREAS:
The Subcontractor, _____
has entered into an agreement with the Contractor for the performance of a portion of said work.

NOW THEREFORE:
Pursuant to the terms of the Contract, the Contractor and the Subcontractor, for their heirs, executors, administrators, successors and assigns, jointly and severally guaranty

_____, the Item, as

described in the Specifications, Page(s)_____through_____for TWO (2) year(s), the

period, starting from_____(date indicated in the Certificate of Substantial Completion).

FURTHERMORE:
In addition to the requirements of the Conditions of the Contract requiring correction of the work within a period of TWO (2) year(s) from Date of Substantial Completion, the Contractor and the Subcontractor do hereby guaranty and warrant that they will make good and replace, at their own cost and expense, all defects appearing in the Item during the Period and be responsible for all damage caused to the Owner by such defects or by the work required to remedy such defects. All corrections to defective work shall be made at the convenience of the Owner and shall be performed in a good workmanlike manner.

IT IS UNDERSTOOD THAT:
This Guaranty shall in no way be construed to affect, in any manner, any of the provisions of the Contract or to modify or limit any of the obligations, liabilities or duties of the Contractor or Subcontractor.

IT IS FURTHER UNDERSTOOD THAT:
This Guaranty shall remain binding and irrevocable during the Period and that the Contractor and the Subcontractor shall not contest the validity of, or in any way attempt to revoke or withdraw from this Guaranty for any cause whatsoever, whether arising before or after the execution of the Contract or this Guaranty.

IN WITNESS WHEREOF:
The undersigned Contractor and Subcontractor have caused this

Instrument to be signed and executed this _____day

Of _____,20_____.

_____
Subcontractor

WITNESS: BY:_____

TITLE:_____

_____
Contractor

WITNESS: BY:_____

TITLE:_____

END OF SECTION 017722

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory manuals.
2. Emergency manuals.
3. Systems and equipment operation manuals.
4. Systems and equipment maintenance manuals.
5. Product maintenance manuals.

B. Related Requirements:

1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:

1. Submit by email to Architect. Enable reviewer comments on draft submittals.
2. Submit three paper copies. Architect will return two copies.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

E. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:

1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.

9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.

C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format,

identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

E. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Product Data.
3. Miscellaneous record submittals.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for general closeout procedures.
2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up record prints.
2. Number of Copies: Submit copies of record Drawings as follows:

a. Initial Submittal:

1) Submit PDF electronic files of scanned record prints and one of file prints.
2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit PDF electronic files of scanned record prints and three set(s) of prints.
2) Print each drawing, whether or not changes and additional information were recorded.

c. Final Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.
2) Submit record digital data files and three set(s) of record digital data file plots.
3) Plot each drawing file, whether or not changes and additional information were recorded.

B. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

C. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

D. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.

m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect.

C. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Annotated PDF electronic file with comment function enabled.
2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
3. Refer instances of uncertainty to Architect for resolution.
4. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.

a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
b. Architect will provide data file layer information. Record markups in separate layers.

D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

C. Format: Submit record Product Data as scanned PDF electronic file(s) of marked-up paper copy of Product Data.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.6 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as scanned PDF electronic file(s) of marked-up miscellaneous record submittals.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.7 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Instruction in operation and maintenance of systems, subsystems, and equipment.

1.3 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Attendance Record: For each training module, submit list of participants and length of instruction time.

C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

1.5 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.6 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.

2. Documentation: Review the following items in detail:

    a. Emergency manuals.
    b. Systems and equipment operation manuals.
    c. Systems and equipment maintenance manuals.
    d. Product maintenance manuals.
    e. Project Record Documents.
    f. Identification systems.
    g. Warranties and bonds.
    h. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

    a. Instructions on meaning of warnings, trouble indications, and error messages.
    b. Instructions on stopping.
    c. Shutdown instructions for each type of emergency.

d. Operating instructions for conditions outside of normal operating limits.
e. Sequences for electric or electronic systems.
f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

a. Startup procedures.
b. Equipment or system break-in procedures.
c. Routine and normal operating instructions.
d. Regulation and control procedures.
e. Control sequences.
f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning.
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

1.7 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.8 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner will furnish an instructor to describe Owner's operational philosophy.
2. Owner will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner, through Architect, with at least seven days' advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900

SECTION 023000 - SUBSURFACE INVESTIGATION

PART 1 GENERAL

1.1 DESCRIPTION

A. Subsurface investigation includes the excavation of test pits to ascertain the location of buried utilities or surface conditions.

B. Before laying pipes or constructing any structure, the CONTRACTOR shall ascertain the location and grade of utility pipes and other subsurface structures which may interfere with such construction. Test pits shall be excavated wherever necessary to obtain the required information, subject to the approval of the ARCHITECT.

PART 2 PRODUCTS

No products are involved.

PART 3 EXECUTION

3.1 METHODS OF WORK

A. The approximate location of known utility structures and facilities that may be encountered within and adjacent to the limits of the work are shown on the plans. The accuracy and completeness of this information is not guaranteed by the ARCHITECT, and the bidder is advised to ascertain for himself all the facts concerning the location of these utilities.

B. The CONTRACTOR shall adhere to Section 105.07, Cooperation with Utilities, of the Standard Specifications regarding location of and construction around public utilities.

C. All tests pits shall be backfilled with the material excavated. All backfill shall be thoroughly compacted in accordance with Specification Section entitled Site Excavation, Filling and Grading.

D. The CONTRACTOR shall permit the owners of the utilities of their agents, access to the site of the work at all times, in order to relocate or protect their facilities, and he shall cooperate with them in performing this work.

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

F. The CONTRACTOR shall call 1-800-272-1000 for a utility mark-out prior to any excavation activities.

END OF SECTION

SECTION 024113 - SELECTIVE SITE DEMOLITION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this section.

B. Refer to Division 02 section “Selective Site Demolition” for demolition and removal of selected site improvements.

C. Refer to Division 31 section “Selective Site Clearing” for site clearing and removal of above and below grade improvements.

1.2 DESCRIPTION

A. The work of this section includes:

1. Demolition, removal and/or disposal of selected site elements as shown on the Plans including, but not limited to, buildings, bituminous and concrete pavement, concrete curb, structures and all other obstructions .

2. Patching and repairs.

1.3 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the OWNER's property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the OWNER's property. Remove, clean, and pack or create items to protect against damage. Identify contents of containers and deliver to OWNER's designated storage area.

C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the ARCHITECT, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in the original and/or new locations.

1.4 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the OWNER's property, demolished materials shall become the CONTRACTOR's property and shall be removed from the site with further disposition at the CONTRACTOR's option.

B. Historical items indicated remain the OWNER's property. Carefully remove and salvage each item in a manner to prevent damage and deliver promptly to the OWNER.

C. Historical items, relics, and similar objects including, but not limited to, cornerstones, and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the OWNER, which may be encountered during selective demolition, remain the OWNER's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the OWNER.

1.5 QUALITY ASSURANCE

A. Engage an experienced firm that has successfully completed selective demolition work similar to that indicated for this project.

B. Comply with governing NJDEP notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.6 PROJECT CONDITIONS

A. The OWNER and the ARCHITECT assumed no responsibility for actual condition of site elements to be selectively demolished.

B. Storage or sale of removed items or materials on-site will not be permitted.

1.7 SCHEDULING

A. Arrange demolition schedule so as not to interfere with OWNER's on-site operations. Coordinate with schedule and phasing indicated elsewhere.

PART 2 PRODUCTS

2.1 REPAIR MATERIALS

A. Use repair materials identical to existing materials.

1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

2. Use materials whose installed performance equals or surpasses that of existing materials.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

3.2 UTILITY SERVICES

A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

B. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by OWNER and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to OWNER and to governing authorities. Provide not less than 48 hours' notice to OWNER if shutdown of service is required during changeover.

C. Locate, identify, disconnect, and seal or cap off indicated utility services to be selectively demolished.

1. Arrange to shut off indicated utilities with utility companies.

2. Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.

3.3 PREPARATION

A. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.

1. Erect temporary protection, such as walks, fences, railing, canopies, and covered passageways, where required by authorities having jurisdiction.

2. Protect existing site improvement, appurtenances, and landscaping to remain.

3. Erect a plainly visible fence around drip line of individual trees of around perimeter drip line of groups of trees to remain.

3.4 POLLUTION CONTROLS

A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.

B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.5 SELECTIVE DEMOLITION

A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete work within limitation of governing regulation and as follows:

1. Proceed with selective demolition systematically.

2. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.

3. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.

B. Demolish concrete and masonry in smaller sections. Cut concrete and masonry at juncture with construction to remain, using power-driven saw or hand tools; do not use power-driven impact tools.

C. Break up and remove concrete slabs on grade, unless otherwise shown to remain.

D. Saw cut asphalt paving at juncture with construction to remain, using power driven asphalt saw.

3.6 PATCHING AND REPAIRS

A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.

B. Where repairs to existing surface are required, patch to produce surfaces suitable for new materials.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Do not burn demolished materials.

C. Transport demolished materials off OWNER's property and legally dispose of them.

END OF SECTION

SECTION 024116 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings and site improvements.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and removing site utilities.
4. Asbestos abatement.

B. Related Requirements:

1. Section 011000 "Summary" for use of the premises.
2. Section 013200 "Construction Progress Documentation" for preconstruction photographs taken before building demolition.
3. Comply with asbestos abatement specification.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be demolished.
2. Review structural load limitations of existing structures.
3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for noise control and dust control.
6. Review procedures for protection of adjacent buildings.
7. Review items to be salvaged and returned to Owner.

1.6 INFORMATIONAL SUBMITTALS

A. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.
2. Temporary interruption of utility services.
3. Shutoff and capping or re-routing of utility services.
4. HAZMAT removal and disposal.

B. Predemolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before the Work begins.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 FIELD CONDITIONS

A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.

B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.

    a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

C. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before building demolition, Owner will remove the following items:

a. Stored Equipment.

D. OSHA Respirable Crystalline Silica Standard for Construction: Contractor shall fully comply with OSHA Standard 29 CFR 1926.1153, which requires employer to limit worker exposure to respirable crystalline silica and to take other steps to protect workers.

E. Hazardous Materials: Present in buildings and structures to be demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present. Hazardous materials are to be remediated and disposed of as part of this Contract.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

F. On-site storage or sale of removed items or materials is not permitted.

1.9 COORDINATION

A. Arrange demolition schedule so as not to interfere with Owner's on-site operations or operations of adjacent occupied buildings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting demolition operations.

B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.

C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Utilities to be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.

1. Owner will arrange to shut off utilities when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
4. Cut off pipe or conduit a minimum of 24 inches (610 mm) below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
5. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PROTECTION

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

    a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.

D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways.

1. Protect adjacent buildings and facilities from damage due to demolition activities.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.

4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 DEMOLITION, GENERAL

A. General: Demolish indicated buildings, all foundations and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least hours after flame-cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
5. Follow asbestos abatement specification.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

3.5 DEMOLITION BY MECHANICAL MEANS

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Below-Grade Construction: Demolish foundation walls and other below-grade construction.

1. Remove below-grade construction, including basements, foundation walls, and footings, completely.

D. Existing Utilities: Demolish existing utilities and below-grade utility structures that are within 5 feet (1.5 m) outside footprint indicated for new construction. Abandon utilities outside this area.

1. Fill abandoned utility structures with satisfactory soil materials.

E. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.

3.6 SITE RESTORATION

A. Fill below grade areas with suitable bearing materials in lifts not to exceed 6-inched per lift and compact each lift to beet soil bearing capacity of new facility.

B. Below-Grade Areas: Rough grade below-grade areas ready for further excavation or new construction.

C. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements in Section 312000 "Earth Moving."

D. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.7 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

3.9 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

    1. Clean roadways of debris caused by debris transport.

END OF SECTION 024116

SECTION 031100 - CONCRETE FORMWORK FOR SITEWORK

PART 1 GENERAL

1.1 SUMMARY

A. Provide formwork in accordance with provisions of this section for cast-in -place concrete shown on the Drawings or required by other sections of these Specifications.

1.2 SUBMITTALS

A. Product Data: Within 15 calendar days after the CONTRACTOR has received the OWNER'S Notice to Proceed, submit manufacturer's data and installation instructions for proprietary materials including form coatings, ties, and accessories, and manufactured form systems if used.

1.3 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

B. Design of formwork is the CONTRACTOR's responsibility.

C. Standards: In addition to complying with pertinent regulations of governmental agencies having jurisdiction, comply with pertinent provisions of ACI 347.

PART 2 PRODUCTS

2.1 FORM MATERIALS

A. Except for metal forms, use new materials. Materials may be reused during progress of the work, provided they are completely cleaned and reconditioned, recoated for each use, and capable of producing formwork of the required quality.

B. For footings and foundations, use Douglas Fir boards or planks secured to wood or steel stakes, substantially constructed to shapes indicated and to support the required loads.

C. For studs, wales, and supports, use standard grade or better Douglas Fir, dimensions as required to support the loads but not less than 2" x 4".

D. Wall forms:

1. Exposed concrete surfaces:

a. Use 3/4" minimum thickness Douglas Fir plywood, Grade B/B, Class I or II, exterior, sanded both sides, complying with PS-1.

b. Seal edges and coat both faces with colorless coating which will not affect application of applied finishes.

2. Unexposed concrete surfaces:

a. Use 1" x 6" shiplap Douglas Fir boards, surfaced one side and two edges, or 3/4" minimum thickness Douglas Fir plywood, Grade B/B plyform Class I or II, sanded both sides, mill-oiled.

E. Column forms, if required:

1. For square or rectangular columns, use 2" thick Douglas Fir planks or joists, surfaced one side and two edges, or use metal forms.

2. For round columns, use metal forms or patented paper tube forms approved by the ARCHITECT.

3. Construct column forms with tight joints and securely clamped together with steel clamps.

2.2 FORM TIES

A. Hold inner and outer forms of vertical concrete together with combination steel ties and spreaders approved by the ARCHITECT.

1. Space ties symmetrically in tiers and rows, each tier plumb from top to bottom and each row level.

2. At horizontal pour lines, locate ties not more than 6" below the pour lines. Tighten after concrete has set and before the next pour is made.

3. For exposed concrete surfaces, provide form ties of removable type with she-bolts equipped with permanent plugs and a system approved by the ARCHITECT for fixing the plugs in place.

2.3 DESIGN OF FORMWORK

A. General:

1. Design, erect, support, brace, and maintain formwork so it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure.

2. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose.

3. Construct formwork so concrete members and structures are or correct size, shape, alignment elevation, and position.

4. Design forms and falsework to include assumed values of live load, dead load, weight of moving equipment operated on the framework, concrete mix height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of the structure during construction.

5. Provide shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof.

6. Provide trussed supports when adequate foundations for shores and struts cannot be secured.

7. Support form materials by structural members spaced sufficiently close to prevent objectionable deflection.

8. Fit forms of continuous surfaces to provide accurate alignment, free from irregularities, and within the allowable tolerances.

9. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints, and provide backup material at joints as required to prevent leakage and prevent fins.

10. Provide camber in formwork as required for anticipated deflections due to weight and pressures of fresh concrete and construction loads.

2.4 EARTH FORMS

A. Side forms for footing may be omitted, and concrete may be placed directly against excavation, only when requested by the CONTRACTOR and approved by the ARCHITECT.

B. When omission of forms is accepted, provide additional concrete 1" on each side of the minimum design profiles and dimensions shown on the Drawings.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this sections will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FORM CONSTRUCTION

A. General:

1. Construct forms complying with ACI 347 to the exact sizes, shapes, lines, and dimensions shown, and as required to obtain accurate alignment, location, grades, and level and plumb work in the finished structure.

2. Provide for openings, offsets, keyways, recesses, moldings, reglets, chamfers, blocking, screeds, bulkheads, anchorages, inserts, and other features as required.

3. Tolerances shall be in accordance with the Section 3.3.1 of ACI 347.

B. Fabrication:

1. Fabricate forms for easy removal without hammering or prying against concrete surfaces.

2. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.

3. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.

4. Provide top forms for inclined surfaces where so directed by the ARCHITECT.

C. Forms for exposed concrete:

1. Drill forms to suit ties being used, and to prevent leakage of cement paste around tie holes. Do not splinter forms by driving ties through improperly prepared holes.

2. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back the joints with extra studs or girts to maintain true, square intersections.

3. Use extra studs, wales, and bracing to prevent objectionable bowing of forms between studs, and to avoid bowed appearance in concrete. Do not use narrow strips of form material which will produce bow.

D. Corner treatment:

1. Unless shown otherwise, form chamfers with 1" x 1" strips, accurately formed and surfaced to produce uniformly straight lines and tight edges.

2. Extend terminal edges to required limit, and miter the chamfer strips at changes in direction.

E. Locate control joints as indicated on the Drawings and, where required but not shown on the Drawings, as approved by the ARCHITECT.

F. Provisions for other trades:

1. Provide openings in concrete formwork to accommodate work of other trades.

2. Verify size and location of openings, recesses, and chases with the trade requiring such items.

3. Accurately place and securely support items to be built into the concrete.

3.3 FORM COATINGS

A. Coat form contact surfaces with form coating compound before reinforcement is placed.

1. Do not allow excess form coating material to accumulate in the forms or to come in contact with surfaces which will bond to fresh concrete.

2. Apply the form coating material in strict accordance with its manufacturer's recommendations.

3.4 REMOVAL OF FORMS

A. General:

1. Do not disturb or remove forms until the concrete has hardened sufficiently to permit form removal with complete safety.

2. Do not remove shoring until the member has acquired sufficient strength to support its own weight, the load upon it, and the added load of construction.

3. Do not strip floor slabs in less than two days.

4. Do not strip wall concrete in less than 24 hours. Do not backfill until concrete has cured seven days.

5. When stripping time is less than specified curing time, measures shall be taken to provide adequate curing and thermal protection of the stripped concrete.

B. Finished surfaces:

1. Exercise care in removing forms from finished concrete surfaces so that surfaces are not marred or gouged, and that corners are true, sharp, and unbroken.

2. Release sleeve nuts or clamps, and pull the form ties neatly.

3. Do not permit steel spreaders, form ties, or other metal to project from, or be visible on, any concrete surface except where so shown on the Drawings.

4. Solidly pack form tie holes, rod holes, and similar holes in the concrete. For packing, use the cement grout specified in Specification Section entitled “Concrete for Sitework”. The holes shall be flushed with water before packing, screeding off flush, and grinding to match adjacent surfaces.

END OF SECTION

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

1. Section 072100 "Thermal Insulation" for foam board insulation used under slab-on - grade.
2. Section 071355 “Under Slab Vapor Retarder”, for vapor retarders under concrete slabs.
3. Section 312300.10 “Site Excavation, Filling & Grading” for drainage fill under slabs-on-grade.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete Subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, cold- and hot-weather concreting procedures and concrete protection.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

C. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

D. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

F. Samples: For vapor retarder retarder.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

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

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Fiber reinforcement.
6. Waterstops.
7. Curing compounds.
8. Floor and slab treatments.
9. Bonding agents.
10. Adhesives.
11. Repair materials.

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

1. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

D. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer, detailing fabrication, assembly, and support of formwork.

1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal.

E. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

F. Field quality-control reports.

G. Minutes of preinstallation conference.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: Contractor to provide an independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

1.10 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301 (ACI 301M).
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

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

1. ACI 301 (ACI 301M).
2. ACI 117 (ACI 117M).

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

2. Overlaid Finnish birch plywood.

B. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.

C. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

D. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
2. Furnish ties that, when removed, leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60, deformed bars, assembled with clips.

2.4 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.5 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M.

C. Normal-Weight Aggregates: ASTM C 33/C 33M, coarse aggregate or better, graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 3/4 inch (19 mm) nominal.

D. Air-Entraining Admixture: ASTM C 260/C 260M.

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

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

F. Water: ASTM C 94/C 94M and potable.

2.6 LIQUID FLOOR TREATMENTS

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

2.7 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.8 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork]

B. Bonding Agent: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

C. Reglets: Fabricate reglets of not less than 0.022-inch- (0.55-mm-) thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

2.9 REPAIR MATERIALS

A. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6.4 mm) and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than [5000 psi (34.5 MPa)] <Insert strength> at 28 days when tested according to ASTM C 109/C 109M.

2.10 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301 (ACI 301M) and as shown on the structural drawings.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

2.11 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Normal-weight concrete.

1. Minimum Compressive Strength: 3,000 psi at 28 days.
2. Slump Limit: 4 inches.

B. Slabs-on-Grade: Normal-weight concrete.

1. Minimum Compressive Strength: 3,000 psi (31 MPa) at 28 days.
2. Slump Limit: 4 inches.

2.12 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.13 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
2. Class C, 1/2 inch (13 mm) for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Do not chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of walls, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.

1. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR-RETARDER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

3.5 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
5. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301 (ACI 301M).

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301 (ACI 301M).
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.8 FINISHING SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Finish surfaces to the following tolerances, according to ASTM E 1155 (ASTM E 1155M), for a randomly trafficked floor surface:

a. Specified overall values of flatness, F(F) 45; and of levelness, F(L) 35; with minimum local values of flatness, F(F) 30; and of levelness, F(L) 24.

2. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch (6 mm).

3.9 MISCELLANEOUS CONCRETE ITEM INSTALLATION

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

3.10 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 (ACI 301M) for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.

2. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial

application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.11 LIQUID FLOOR TREATMENT APPLICATION

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than 14 days' old unless otherwise recommended by the manufacturer.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.12 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

3.13 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.14 FIELD QUALITY CONTROL

A. Testing Agency: Contractor shall engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

B. Inspections:

1. Steel reinforcement placement.
2. Verification of use of required design mixture.
3. Concrete placement, including conveying and depositing.
4. Curing procedures and maintenance of curing temperature.
5. Verification of concrete strength before removal of shores and forms from slabs.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below or 80 deg F (27 deg C) and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31/C 31M.

    a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

    a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
    b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive

strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) within 48 hours of finishing.

3.15 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 033000

SECTION 033053 - CONCRETE FOR SITEWORK

PART 1 GENERAL

1.1 DESCRIPTION

A. Provide all non-reinforced and reinforced cast-in-place concrete, complete in place as indicated on the Plans and Specifications.

PART 2 PRODUCTS

2.1 MATERIALS

A. Cement used shall conform to the following requirements of the ASTM as amended and revised to date.

B. Standard Portland Cement ASTM Designation C-150, Type 3.

C. High Early Strength Portland Cement ASTM Designation C-150, Type 3.

D. Air Entraining Portland Cement ASTM Designation C-150, Type 1A.

E. Air Entraining Admixtures ASTM Designation C-260.

F. Water Reducing Admixtures ASTM Designation C-494, Type A, shall be proportioned in accordance with A.G.I. 211.1-77 in order to obtain the requirements of ASTM Designation C-494. Use shall be in accordance with A.C.I. recommendations for water reducing agents, and shall be as manufactured by Masterbuilders, Euclid, Sika or approved equal.

G. Curing Compounds ASTM Designation C-390 for Liquid Membrane-forming Compounds.

H. Joint Material ASTM Designation D-994 for Bituminous Type material or ASTM Designation D-1751 for Non-extruding and Resilient Bituminous Type material.

I. Aggregates, both fine and coarse, shall conform to the requirements therefore of ASTM Designation C-33. Standard size number of the coarse aggregate shall be in conformance with Article 4.1.2 of Addenda A, and aggregate gradation requirements therefore shall conform to ASTM Designation C-33. The maximum coarse aggregate shall be not more than one-fourth the smallest clearance between forms, reinforcement or any exposed surfaces, in any combination thereon.

J. Water shall be clean, fresh and free of oils, acids, salts, organic matter or other injurious substances.

K. Unless otherwise provided, all concrete shall be air entrained having 6% of entrained air with a tolerance of ±1½%, and shall be produced by using Standard Portland Cement with additive or Air Entraining Portland Cement with or without additional additive as may be required.

L. Except where otherwise specifically provided or indicated on Plans, concrete shall be Class 4000 PSI for all surface structures, and Class 3000 PSI for all subsurface structures, and have a three inch (3") slump with a tolerance of ±1".

1. Concrete curb at driveways shall attain a strength of not less than 3000 PSI in 3 days.

M. Cement, aggregates, water and air entrainment methods and materials shall also conform to Section 903 of the Standard Specifications.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Reference standards included in this section:

1. Section 405 of the Standard Specifications: Concrete Surface Course

2. Section 607 of the Standard Specifications: Curbs

3. Section 903.10 of the Standard Specifications: Curing Materials for Concrete

4. Section 914 of the Standard Specifications: Joint Filler, Preformed

B. Submittals:

Certificates: All deliveries of concrete shall be accomplished by delivery slips, copies of which shall be provided to ARCHITECT by the CONTRACTOR.

C. Environmental requirements:

1. Allowable concrete temperatures:

a. Cold weather: 60 degrees F Fahrenheit (60^{O}F) when discharged from the mixer.

b. Hot weather: Maximum concrete temperature is 80 degrees Fahrenheit (80^{O}F).

2. Do not place concrete during rain, when atmospheric temperature is at or below 40 degrees Fahrenheit (40^{O}F), or when conditions are otherwise unfavorable as determined by the ARCHITECT.

D. Protection:

1. When directed by ARCHITECT, protect new concrete curb from traffic for a minimum of seven (7) days.

2. Method of protection shall be approved by ARCHITECT prior to beginning work.

E. Only enough water shall be added to make concrete workable for its intended use. The ARCHITECT will determine the slump ranges within which the CONTRACTOR must work. Ready mix or transit mix concrete may be used if obtained from sources approved by the ARCHITECT. Equipment used to proportion and mix concrete on the job shall be subject to the approval of the ARCHITECT.

F. Forms shall conform to the shapes, lines, dimensions, and grades shown on the Plans. They shall be firmly braced, tight and sufficiently substantial to prevent movement, bulging, or mortar leakage. Wherever concrete will be exposed to view the form therefore shall be smooth and clean. Forms for footings may be omitted wherever soil conditions and workmanship permit accurate excavation to size & is approved by the ARCHITECT. All forms shall be completely removed.

G. Reinforcement shall be accurately cut, bent and placed in accordance with the Plans. It shall be free of excessive scale or any foreign material that would tend to reduce bond. It shall be securely supported, tied and fastened to prevent movement while concrete is being placed.

H. Subgrades, excavations and soil bases for all concrete work shall be properly finished to the prescribed lines, grades and dimensions, and shall be approved by the ARCHITECT before concrete is placed. All areas to receive concrete shall be free of frost, foreign matter and excessive water, provided however, that forms and soil surfaces shall be uniformly damp when the concrete is placed.

I. Concrete shall be handled and placed so as to avoid any segregation. Concrete which has begun to set or which has been contaminated with foreign materials or to which too much water has been added shall not be used. Pouring of concrete shall generally be a continuous operation until the placing of individual section has been completed. Concrete shall be thoroughly compacted with vibrators or by other suitable means. Ready mixed concrete hauled in truck mixers or truck agitators shall be placed within ninety (90) minutes from the time water was added.

J. Concrete shall not be poured when the atmospheric temperature is below forty degrees (40^{O}F) or when there is any precipitation, unless precautions satisfactory to the ARCHITECT have been taken to prevent any damage to the work; however, this shall not, in any way, relax the performance and appearance requirements of the work.

1. When the ambient temperature is expected to fall below 40 degrees Fahrenheit (40^{O}F), the concrete shall be cured and protected in accordance with Subsection 504.03.02, Subpart (b), of the Standard Specifications.

K. All concrete shall be finished, and the CONTRACTOR shall provide a curing environment as directed by the ARCHITECT. Curing shall be by keeping the concrete surfaces wetted for a period not less than three (3) days. When directed to do so by the ARCHITECT, the CONTRACTOR shall apply a curing compound. No additional compensation shall be made when a curing compound is required.

L. Expansion joints, dummy joints, construction joints and other appurtenances shall be provided as shown on the Plans or otherwise specified. Expansion joints shall be joint filler of the thickness indicated which shall conform to the requirements of these Specifications.

M. After removal of forms all permanently exposed surfaces shall be cleaned of stains and dirt, and all surface defects which do not impair structural strength shall be repaired by cutting and patching in a manner satisfactory to the ARCHITECT.

END OF SECTION

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Mortar and grout.
3. Steel reinforcing bars.
4. Masonry-joint reinforcement.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete.

1.3 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 INFORMATIONAL SUBMITTALS

A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Receipt of list does not constitute approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.

B. Material Certificates: For each type and size of the following:

1. Masonry units.

a. Include data on material properties and material test reports substantiating compliance with requirement..

b. For masonry units used in structural masonry include data and calculations establishing average net-area compressive strength of units.

2. Cementitious materials. Include name of manufacturer, brand name, and type.
3. Mortar admixtures.
4. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
5. Grout mixes. Include description of type and proportions of ingredients.
6. Reinforcing bars.
7. Joint reinforcement.
8. Anchors, ties, and metal accessories.

C. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

D. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.

E. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 FIELD CONDITIONS

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

1. Extend cover a minimum of 24 inches (600 mm) down both sides of walls, and hold cover securely in place.
2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches (600 mm) down face next to unconstructed wythe, and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 PERFORMANCE REQUIREMENTS

A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.

1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.
2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

2.3 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated.

2.4 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside corners unless otherwise indicated.

B. CMUs: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi (19.3 MPa).
2. Density Classification: Normal weight unless otherwise indicated.
3. Size (Width): Manufactured to dimensions 3/8 inch (10 mm) less than nominal dimensions.

2.5 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Masonry Cement: ASTM C 91/C 91M.

D. Mortar Cement: ASTM C 1329/C 1329M.

E. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
3. White-Mortar Aggregates: Natural white sand or crushed white stone.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Aggregate for Grout: ASTM C 404.

G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

H. Water: Potable.

2.6 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420).

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

C. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.

1. Foundation Walls: Hot-dip galvanized carbon steel.
2. Wire Size for Side Rods: 9 gage.
3. Wire Size for Cross Rods: 9 gage.
4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches (407 mm) o.c.
5. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.

D. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder or truss type with single pair of side rods.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.
4. Verify that substrates are free of substances that impair mortar bond.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

3.4 LAYING MASONRY WALLS

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

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less 4 inches (100 mm). Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

G. Fill cores in hollow CMUs with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING

A. Lay CMUs as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses of piers, columns, and pilasters.
3. Bed webs in mortar in grouted masonry, including starting course on footings.
4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.

3.6 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcement a minimum of 6 inches (150 mm).

1. Space reinforcement not more than 16 inches (406 mm) o.c.
2. Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

E. Cut and bend reinforcing units as directed by manufacturer for continuity at[corners,] returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 CONTROL AND EXPANSION JOINTS

A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

3.8 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

3.9 PARGING

A. Parge exterior faces of below-grade masonry walls, where indicated, in two uniform coats to a total thickness of 3/4 inch (19 mm). Dampen wall before applying first coat, and scarify first coat to ensure full bond to subsequent coat.

B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot (3 mm per 300 mm). Form a wash at top of parging and a cove at bottom.

C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.10 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

3.11 MASONRY WASTE DISPOSAL

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

B. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 054000 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Load-bearing wall framing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

C. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

D. Delegated-Design Submittal: For cold-formed steel framing.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Welding certificates.

C. Product Certificates: For each type of code-compliance certification for studs and tracks.

D. Product Test Reports: For each listed product, for tests performed by manufacturer and witnessed by a qualified testing agency.

1. Steel sheet.
2. Expansion anchors.
3. Power-actuated anchors.
4. Mechanical fasteners.
5. Miscellaneous structural clips and accessories.

E. Evaluation Reports: For nonstandard cold-formed steel framing post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association or the Steel Stud Manufacturers Association.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads: As indicated on Drawings.
2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:

    a. Exterior Load-Bearing Wall Framing: Horizontal deflection of 1/360.

3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F (67 deg C).

B. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:

1. Floor and Roof Systems: AISI S210.
2. Wall Studs: AISI S211.
3. Headers: AISI S212.
4. Lateral Design: AISI S213.

2.2 COLD-FORMED STEEL FRAMING MATERIALS

A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:

1. Grade: ST50H (ST340H).
2. Coating: G60 (Z180).

2.3 LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0538 inch (1.37 mm).
2. Flange Width: 1-5/8 inches (41 mm).
3. Section Properties: Sx=1.43 in3, Ix=5.74 in4.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0677 inch (1.72 mm) or 0.0966 inch (2.45 mm).
2. Flange Width: 1-1/4 inches (32 mm).

C. Steel Box or Back-to-Back Headers: Manufacturer's standard C-shapes used to form header beams, of web depths indicated, unpunched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0538 inch (1.37 mm).
2. Flange Width: 2 inches (51 mm).
3. Section Properties: Sx=2.26 in3, Ix=11.3 in4.

2.4 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0538 inch (1.37 mm.
2. Flange Width: 1-5/8 inches (41 mm).
3. Section Properties: Sx=1.43 in3, Ix=5.74 in 4.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0538 inch (1.37 mm).
2. Flange Width: 1-1/4 inches (32 mm).

2.5 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:

1. Supplementary framing.
2. Bracing, bridging, and solid blocking.
3. Web stiffeners.
4. Anchor clips.
5. End clips.
6. Foundation clips.
7. Gusset plates.
8. Stud kickers and knee braces.
9. Joist hangers and end closures.
10. Hole-reinforcing plates.
11. Backer plates.

2.6 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.

B. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel hex-headed bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc .

2.7 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: ASTM A 780/A 780M.

B. Cement Grout: Portland cement, ASTM C 150/C 150M, Type I; and clean, natural sand, ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

C. Nonmetallic, Nonshrink Grout: Factory-packaged, nonmetallic, noncorrosive, nonstaining grout, complying with ASTM C 1107/C 1107M, and with a fluid consistency and 30-minute working time.

D. Shims: Load-bearing, high-density, multimonomer, nonleaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.

E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

2.8 FABRICATION

A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.

1. Fabricate framing assemblies using jigs or templates.
2. Cut framing members by sawing or shearing; do not torch cut.
3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.

    a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners and install according to Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.

4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.

C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Install load-bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch (6 mm) to ensure a uniform bearing surface on supporting concrete or masonry construction.

B. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.

1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch (1.6 mm).

D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.

1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.

a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

H. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

3.4 LOAD-BEARING WALL INSTALLATION

A. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners and ends, and at spacings as follows:

1. Anchor Spacing: 16 inches (406 mm).

B. Squarely seat studs against top and bottom tracks, with gap not exceeding 1/8 inch (3 mm) between the end of wall-framing member and the web of track. Fasten both flanges of studs to top and bottom tracks. Space studs as follows:

1. Stud Spacing: 16 inches (406 mm).

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar configurations.

D. Align studs vertically where floor framing interrupts wall-framing continuity. Where studs cannot be aligned, continuously reinforce track to transfer loads.

E. Align floor and roof framing over studs according to AISI S200, Section C1. Where framing cannot be aligned, continuously reinforce track to transfer loads.

F. Anchor studs abutting structural columns or walls, including masonry walls, to supporting structure.

G. Install headers over wall openings wider than stud spacing. Locate headers above openings. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners, or gusset plates.

1. Frame wall openings with not less than a double stud at each jamb of frame. Fasten jamb members together to uniformly distribute loads.
2. Install tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding, and space jack studs same as full-height wall studs.

H. Install supplementary framing, blocking, and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings, and similar work requiring attachment to framing.

1. If type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.

I. Install horizontal bridging in stud system, spaced vertically 48 inches (1220 mm). Fasten at each stud intersection.

1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs with a minimum of two screws into each flange of the clip angle for framing members up to 6 inches (150 mm) deep.
2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges, and secure solid blocking to stud webs or flanges.
3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

J. Install steel sheet diagonal bracing straps to both stud flanges; terminate at and fasten to reinforced top and bottom tracks. Fasten clip-angle connectors to multiple studs at ends of bracing and anchor to structure.

K. Install miscellaneous framing and connections, including supplementary framing, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:

1. Stud Spacing: 16 inches (406 mm).

C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

D. Install horizontal bridging in wall studs, spaced vertically in rows indicated, but not more than 48 inches (1220 mm) apart. Fasten at each stud intersection.

1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

E. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.6 ERECTION TOLERANCES

A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.7 FIELD QUALITY CONTROL

A. Testing: Contractor will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

D. Cold-formed steel framing will be considered defective if it does not pass tests and inspections.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 054000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Related Requirements:

1. Section 061600 "Sheathing" for sheathing.
2. Section 061753 "Shop-Fabricated Wood Trusses" for wood trusses made from dimension lumber.
3. Section 313116 "Termite Control" for site application for termite control.

1.3 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal (38 mm actual) size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) size or greater but less than 5 inches nominal (114 mm actual) size in least dimension.

C. Exposed Framing: Framing not concealed by other construction.

D. OSB: Oriented strand board.

E. Timber: Lumber of 5 inches nominal (114 mm actual) size or greater in least dimension.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Engineered wood products.
3. Shear panels.
4. Power-driven fasteners.
5. Post-installed anchors.
6. Metal framing anchors.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.

B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

C. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable design stresses, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, and similar concealed members in contact with concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 DIMENSION LUMBER FRAMING

A. Load-Bearing Partitions: No. 2 grade.

1. Application: Exterior walls.
2. Species:

a. Hem-fir#2 or better.

B. Load-Bearing Partitions: Any species and grade with a modulus of elasticity of at least 1,400,000 psi for 2-inch nominal (38-mm actual) thickness and 12-inch nominal (286-mm actual) width for single-member use.

1. Application: Exterior walls.

2.4 ENGINEERED WOOD PRODUCTS

A. Composite Wood Products: Products shall be made without urea formaldehyde.

B. Composite Wood Products: Products shall comply with the testing and product requirements of Source Limitations: Obtain each type of engineered wood product from single source from a single manufacturer.

C. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.

1. As manufactured by Truss Joist Macmillan or approved equivalent.
2. Extreme Fiber Stress in Bending, Edgewise: 2900 psi (20 MPa) for 12-inch nominal- (286-mm actual-) depth members.
3. Modulus of Elasticity, Edgewise: 2,000,000 psi.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: Plywood, DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, not less than 3/4-inch (19-mm) nominal thickness.

2.7 FASTENERS

A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction.

1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.8 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to suit width of sill members indicated.

B. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.

E. Install shear wall panels to comply with manufacturer's written instructions.

F. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

G. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.

H. Do not splice structural members between supports unless otherwise indicated.

I. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

J. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

K. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
2. ICC-ES evaluation report for fastener.

L. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions and for load-bearing partitions where framing members bearing on partition are located directly over studs. Fasten plates to supporting construction unless otherwise indicated.

1. For exterior walls, provide 2-by-8-inch nominal-size wood studs spaced 16 inches (406 mm) o.c. unless otherwise indicated.
2. Provide continuous horizontal blocking at midheight of partitions more than 96 inches (2438 mm) high, using members of 2-inch nominal (38-mm actual) thickness and of same width as wall or partitions.

B. Construct corners and intersections with three or more studs unless shown otherwise on the structural drawings.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

D. Provide diagonal bracing in exterior walls, at both walls of each external corner, at 45-degree angle, full-story height unless otherwise indicated. Use 1-by-4-inch nominal- (19-by-89-mm actual-) size boards, let-in flush with faces of studs or metal wall bracing, let into studs in saw kerf].

3.4 PROTECTION

A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Wall sheathing.
2. Roof sheathing.

B. Related Requirements:

1. Section 072500 "Weather Barriers" for water-resistive barrier applied over wall sheathing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

A. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

B. Factory mark panels to indicate compliance with applicable standard.

2.2 WALL SHEATHING

A. Plywood Sheathing: Exterior sheathing.

1. Span Rating: For studs not more than 16-inches on center.
2. Nominal Thickness: Not less than 1/2 inch thick.

2.3 ROOF SHEATHING

A. Plywood Sheathing: Exterior, Structural I sheathing.

1. Span Rating: For roof structure not more than 16-inches on center
2. Nominal Thickness: Not less than 5/8-inch thick.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Screws for Fastening Sheathing to Wood Framing: ASTM C 1002.

E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

2.5 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Wood Framing: Formulation complying with ASTM D 3498 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
2. ICC-ES evaluation report for fastener.

D. Penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate wall and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

END OF SECTION 061600

SECTION 061753 - SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Wood roof trusses.

1.3 DEFINITIONS

A. Metal-Plate-Connected Wood Trusses: Planar structural units consisting of metal-plate-connected members fabricated from dimension lumber and cut and assembled before delivery to Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.

B. Shop Drawings: Show fabrication and installation details for trusses.

1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
2. Indicate sizes, stress grades, and species of lumber.
3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.
4. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
5. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
6. Show splice details and bearing details.

C. Delegated-Design Submittal: For metal-plate-connected wood trusses indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For professional engineer and fabricator.

B. Material Certificates: For dimension lumber specified to comply with minimum specific gravity. Indicate species and grade selected for each use and specific gravity.

C. Product Certificates: For metal-plate-connected wood trusses, signed by officer of truss-fabricating firm.

D. Evaluation Reports: For the following, from ICC-ES:

1. Metal-plate connectors.
2. Metal truss accessories.

1.6 QUALITY ASSURANCE

A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.

1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program, complies with quality-control procedures in TPI 1, and involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Handle and store trusses to comply with recommendations in SBCA BCSI, "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."

1. Store trusses flat, off of ground, and adequately supported to prevent lateral bending.
2. Protect trusses from weather by covering with waterproof sheeting, securely anchored.
3. Provide for air circulation around stacks and under coverings.

B. Inspect trusses showing discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal-plate-connected wood trusses.

B. Structural Performance: Metal-plate-connected wood trusses shall be capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1 unless more stringent requirements are specified below.

1. Design Loads: As indicated.
2. Maximum Deflection under Design Loads:

    a. Roof Trusses: Vertical deflection of 1/240 of span.

C. Comply with applicable requirements and recommendations of TPI 1, TPI DSB, and SBCA BCSI.

D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

2.2 DIMENSION LUMBER

A. Lumber: DOC PS 20 and applicable rules of any rules-writing agency certified by the American Lumber Standard Committee (ALSC) Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Provide dressed lumber, S4S.
3. Provide dry lumber with **15** percent maximum moisture content at time of dressing.

B. Permanent Bracing: Provide wood bracing that complies engineer’-approved drawings.

2.3 METAL CONNECTOR PLATES

A. General: Fabricate connector plates to comply with TPI 1.

B. Stainless-Steel Sheet: ASTM A 666, Type 304 and not less than 0.035 inch (0.88 mm) thick.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Provide fasteners for use with metal framing anchors that comply with written recommendations of metal framing manufacturer.

B. Nails, Brads, and Staples: ASTM F 1667.

2.5 METAL FRAMING ANCHORS AND ACCESSORIES

A. Allowable design loads, as published by manufacturer, shall comply with or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.

B. Truss Tie-Downs, Clips and Spacers: Shall be designed by the shop-fabricated wood truss Engineer.

2.6 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: SSPC-Paint 20, with dry film containing a minimum of 92 percent zinc dust by weight.

2.7 FABRICATION

A. Factory-construct truss members to accurate lengths, angles, and sizes to produce close-fitting joints.

B. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.

C. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly, with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

1. Fabricate wood trusses within manufacturing tolerances in TPI 1.

D. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install wood trusses only after supporting construction is in place and is braced and secured.

B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.

C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.

D. Install and brace trusses according to TPI recommendations and as indicated.

E. Install trusses plumb, square, and true to line and securely fasten to supporting construction.

F. Space trusses 24 inches (610 mm) o.c. or as indicated; adjust and align trusses in location before permanently fastening.

G. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in metal framing anchors according to manufacturer's fastening schedules and written instructions.

H. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.

1. Install bracing to comply with Section 061000 "Rough Carpentry.

I. Install wood trusses within installation tolerances in TPI 1.

J. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.

K. Replace wood trusses that are damaged or do not comply with requirements.

1. Damaged trusses may be repaired according to truss repair details signed and sealed by the qualified professional engineer responsible for truss design, when approved by Architect.

3.2 REPAIRS AND PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect wood trusses from weather. If, despite protection, wood trusses become wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

C. Repair damaged galvanized coatings on exposed surfaces according to ASTM A 780/A 780M and manufacturer's written instructions.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Contractor will engage a qualified special inspector to perform special inspections to verify that temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the approved truss submittal package.

END OF SECTION 061753

SECTION 071113 - BITUMINOUS DAMPPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Unit Masonry,

2. Cold-applied, emulsified-asphalt dampproofing.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete”.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 FIELD CONDITIONS

A. Weather Limitations: Proceed with application only when existing and forecasted weather conditions permit dampproofing to be performed according to manufacturers' written instructions.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Source Limitations: Obtain primary dampproofing materials and primers from single source from single manufacturer. Provide protection and auxiliary materials recommended in writing by manufacturer of primary materials.

2.2 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

A. Trowel Coats: ASTM D 1227, Type II, Class 1.

B. Fibered Brush and Spray Coats: ASTM D 1227, Type II, Class 1.

C. Brush and Spray Coats: ASTM D 1227, Type III, Class 1.

2.3 AUXILIARY MATERIALS

A. General: Furnish auxiliary materials recommended in writing by dampproofing manufacturer for intended use and compatible with bituminous dampproofing.

B. Protection Course: ASTM D 6506, 1/8-inch- (3-mm-) thick, semirigid sheets of fiberglass or mineral-reinforced-asphaltic core, pressure laminated between two asphalt-saturated fibrous liners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions with Applicator present, for compliance with requirements for surface smoothness, surface moisture, and other conditions affecting performance of bituminous dampproofing work.

B. Proceed with application only after substrate construction and penetrating work have been completed and unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Mask or otherwise protect adjoining exposed surfaces from being stained, spotted, or coated with dampproofing. Prevent dampproofing materials from entering and clogging weep holes and drains.

B. Clean substrates of projections and substances detrimental to the dampproofing work; fill voids, seal joints, and remove bond breakers if any, as recommended in writing by prime material manufacturer.

C. Apply patching compound to patch and fill tie holes, honeycombs, reveals, and other imperfections; cover with asphalt-coated glass fabric.

3.3 APPLICATION, GENERAL

A. Comply with manufacturer's written instructions for dampproofing application, cure time between coats, and drying time before backfilling unless more stringent requirements are indicated.

1. Apply dampproofing to provide continuous plane of protection.
2. Apply additional coats if recommended in writing by manufacturer or to achieve a smooth surface and uninterrupted coverage.

B. Where dampproofing footings and foundation walls, apply from finished-grade line to top of footing; extend over top of footing and down a minimum of 6 inches (150 mm) over outside face of footing.

3.4 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

A. Concrete Foundations: Apply two brush or spray coats at not less than 1.5 gal./100 sq. ft. (0.6 L/sq. m) for first coat and 1 gal./100 sq. ft. (0.4 L/sq. m) for second coat, one fibered brush or spray coat at not less than 3 gal./100 sq. ft. (1.2 L/sq. m) or one trowel coat at not less than 4 gal./100 sq. ft. (1.6 L/sq. m).

3.5 INSTALLATION OF PROTECTION COURSE

A. Where indicated, install protection course over completed-and-cured dampproofing. Comply with dampproofing-material and protection-course manufacturers' written instructions for attaching protection course.

3.6 CLEANING

A. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 071113

SECTION 071355 - UNDER-SLAB VAPOR RETARDER

PART 1 – GENERAL

1.1 SUMMARY

A. Products Supplied Under This Section

1. Vapor Retarder, seam tape, pipe boots, detail strip for installation under concrete slabs.

B. RELATED SECTIONS

1. Division 3 Section for slabs-on-grade.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM E 1745-97 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil
   Or Granular Fill Under Concrete Slabs
2. ASTM E 154-88 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
3. ASTM E 96-95 Standard Test Methods for Water Vapor Transmission of Materials
4. ASTM E 1643-98 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

B. American Concrete Institute (ACI)

1. ACI 302.1R-96 Vapor Retarder Component (plastic membrane) is not less than 10 mils thick

1.3 SUBMITTALS

A. Quality Control/Assurance

1. Independent laboratory test results showing compliance with ASTM & ACI Standards.
2. Manufacturer’s samples, literature.
3. Manufacturer’s installation instructions for placement, seaming and pipe boot installation.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Extremely low permeance vapor retarders for critically sensitive, low permeance floor coverings. Includes floor coverings of rubber, vinyl, urethane, epoxy and methyl methacrylate, as well as linoleum and wood.

1. Vapor Retarder must have the following qualities:

a. Minimum WVTR as tested by ASTM E96 of 0.008
b. Water Vapor Retarder: ASTM E-1745; Meets or exceeds Class A

2. Acceptable Manufacturers: Subject to compliance with the requirements, products, include, but are not limited to ,one of the following.

a. Stego Wrap (15 mil) Vapor Retarder by Stego Industries.
b. W.R. Meadows Premoulded Membrane with Plasmatic Core.
c. Zero-Perm by Alumiseal.

2.2 ACCESSORIES

A. Seam Tape

1. High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width 4 inches.

B. Pipe Boots

1. Construct pipe boots from vapor retarder material and pressure sensitive tape per manufacturer's instructions.

PART 3 – EXECUTION

3.1 PREPARATION

A. Level and tamp or roll aggregate, sand or tamped earth base.

3.2 INSTALLATION

A. Install Vapor Retarder:

1. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643–98.

a. Sub-grade shall be graded, leveled and tamped firm.
b. Unroll Vapor Retarder with the longest dimension parallel with the direction of the pour.
c. Lap Vapor Retarder over footings and seal to foundation walls.
d. Overlap joints 6 inches and seal with manufacturer's tape.
e. Seal all penetrations (including pipes) with manufacturer's pipe boot.

f. No penetration of the vapor retarder is allowed except for reinforcing steel and permanent utilities.
g. Repair damaged areas by cutting patches of vapor retarder, overlapping damaged area 6 inches and taping all four sides with tape.

END OF SECTION 071355

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Extruded polystyrene foam-plastic board.
2. Glass-fiber blanket.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each product, for tests performed by a qualified testing agency.

B. Evaluation Reports: For foam-plastic insulation, from ICC-ES.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

B. Protect foam-plastic board insulation as follows:

1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.

3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD

A. Extruded Polystyrene Board, Type IV, ASTM C 578, Type IV, 25-psi (173-kPa) minimum compressive strength; R-value of 5.0 per inch, unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84; fabricated with tongue and grooved edges.

1. Formular 250, Owens Corning or approved equivalent.

2.2 GLASS-FIBER BLANKET

A. Glass-Fiber Blanket, Foil Faced Batt Insulation: ASTM C 665, Type III (reflective faced), Class B (faced surface with a flame-propagation resistance of 0.12 W/sq. cm); Category 1 (membrane is a vapor barrier), faced with foil scrim, foil-scrim kraft, or foil-scrim polyethylene.

1. EcoTouch PINK Insulation, Owens Corning or approved equivalent.

2.3 INSULATION FASTENERS

A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.

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 inch (2.67 mm) in diameter; length to suit depth of insulation.

B. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates without damaging insulation, fasteners, or substrates.

2.4 ACCESSORIES

A. Eave Ventilation Troughs: Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide ventilation between insulated attic spaces and vented eaves.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF SLAB INSULATION

A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.

1. If not otherwise indicated, extend insulation a minimum of 36 inches (915 mm) below exterior grade line.

3.4 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. Attics: Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
4. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:

    a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

5. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.

B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).
2. Install insulation to fit snugly without bowing.

3.5 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 072500 - WEATHER BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Building wrap.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For building wrap, include data on air and water-vapor permeance based on testing according to referenced standards.

B. Shop Drawings: Show details of building wrap at terminations, openings, and penetrations. Show details of flexible flashing applications.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For water-resistive barrier, from ICC-ES.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE BARRIER

A. Building Wrap: ASTM E 1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.

1. Water-Vapor Permeance: Not less than 20 perms (1150 ng/Pa x s x sq. m) per ASTM E 96/E 96M, Desiccant Method (Procedure A).
2. Air Permeance: Not more than 0.004 cfm/sq. ft. at 0.3-inch wg (0.02 L/s x sq. m at 75 Pa) when tested according to ASTM E 2178.
3. Allowable UV Exposure Time: Not less than three months.

4. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.

B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

A. Cover exposed exterior surface of sheathing with water-resistive barrier securely fastened to framing immediately after sheathing is installed.

B. Cover sheathing with water-resistive barrier as follows:

1. Cut back barrier 1/2 inch (13 mm) on each side of the break in supporting members at expansion- or control-joint locations.
2. Apply barrier to cover vertical flashing with a minimum 4-inch (100-mm) overlap unless otherwise indicated.

C. Building Wrap: Comply with manufacturer's written instructions and warranty requirements.

1. Seal seams, edges, fasteners, and penetrations with tape.
2. Extend into jambs of openings and seal corners with tape.

END OF SECTION 072500

SECTION 073113 - ASPHALT SHINGLES **Base Bid**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Asphalt shingles.
2. Underlayment.
3. Ridge vents.
4. Metal flashing and trim.

1.3 DEFINITION

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

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

1. Asphalt Shingles: Full size.
2. Ridge and Hip Cap Shingles: Full size.
3. Ridge Vent: 12-inch- (300-mm-) long Sample.

C. Samples for Initial Selection: For each type of asphalt shingle indicated.

1. Include similar Samples of accessories involving color selection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each type of asphalt shingle and underlayment product indicated, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.

C. Evaluation Reports: For underlayment, from ICC-ES or other testing and inspecting agency acceptable to authorities having jurisdiction, indicating that product is suitable for intended use under applicable building codes.

D. Sample Warranty: For manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For asphalt shingles to include in maintenance manuals.

1.8 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Asphalt Shingles: 100 sq. ft. (9.3 sq. m) of each type, in unbroken bundles.

1.9 QUALITY ASSURANCE

A. Master Installer Qualifications: An authorized representative who is trained and approved by manufacturer and is approved to provide the specified project warrantees.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture according to manufacturer's written instructions.

B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double stack rolls.

C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.11 FIELD CONDITIONS

A. Environmental Limitations: Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance according to UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

B. DIMENSIONAL ASPHALT SHINGLES

Asphalt Shingles: Self sealing, granule surfaced, asphalt shingle with a strong fiberglass reinforced Micro Weave® core and StainGuard® protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Architectural laminate styling provides a wood shake appearance with a 5-5/8 inch exposure. Features the classic Natural Shadow™ effect. UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1; ASTM D 3018, Type 1; ASTM D 3462; AC438; CSA A123.5-98;

1. Basis-of-Design Product: Subject to compliance with requirements, provide Timberline Ultra; GAF Materials Corporation or comparable product acceptable to the Architect, Owner and Southampton Historical Commission.

2. Algae Resistance: Granules treated to resist algae discoloration.

3. Color and Blends: Weathered Wood (Historical Commission mandate-no substitutions).

4. Manufacturer's Total Systems Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period. Contractor must be certified by the roofing manufacturer to provide an installation that meets the project requirements.

5. Failures include, but are not limited to, the following:

   a. Manufacturing defects and workmanship errors.

6. Material Warranty Period: Manufacturer’s standard 40-year warranty from date of Substantial Completion, prorated, with not less than the first 5 years non-prorated.
7. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 130 mph for not less than 10 years from date of Substantial Completion.
8. Total Systems Warranty: Provide manufacturer’s total system warranty including labor and non-prorated systems warranty for not less than 20 years from date of Substantial Completion.

9. Algae-Resistance Warranty Period: Manufacturer's standard limited 10-year warranty against algae discoloration.

11 Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of asphalt-shingle roofing that fail in materials or workmanship within specified warranty period.

a. Warranty Period: Five years from date of Substantial Completion.

2.2 UNDERLAYMENT MATERIALS

A. Underlayment: Underlayment materials shall be type as required and approved by, the shingle manufacturer. All underlayment must meet manufacturer's requirement for the complete system warranty as specified in Section 073113, Asphalt Shingles.

2.3 RIDGE VENTS

A. Rigid Ridge Vent: Manufacturer's standard, rigid section high-density polypropylene or other UV-stabilized plastic ridge vent for use under ridge shingles and required for the total systems roofing warranty.

2.4 ACCESSORIES

A. Asphalt Roofing Cement: ASTM D 4586, Type II, asbestos free.

B. Roofing Nails: ASTM F 1667; aluminum, stainless-steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum 0.120-inch- (3-mm-) diameter, sharp-pointed, with a minimum 3/8-inch- (9.5-mm-) diameter flat head and of sufficient length to penetrate 3/4 inch (19 mm) into solid wood decking or extend at least 1/8 inch (3 mm) through OSB or plywood sheathing.

1. Shank: Barbed.
2. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

C. Synthetic-Underlayment Fasteners: As recommended in writing by synthetic-underlayment manufacturer for application indicated.

2.5 METAL FLASHING AND TRIM

A. General: Comply with shingle manufacturer's requirements.

1. Sheet Metal: Unless recommended otherwise by the manufacturer, zinc-tin alloy-coated stainless steel. Manufacturer's requirements necessary to provide specified warrantees shall govern.

B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item.

1. Apron Flashings: Unless recommended otherwise by the manufacturer, fabricate with lower flange a minimum of 5 inches (125 mm) over and 4 inches (100 mm) beyond each side of downslope asphalt shingles and 6 inches (150 mm) up the vertical surface. Manufacturer’s requirements necessary to provide specified warrantees shall govern.

2. Step Flashings: Unless recommended otherwise by the manufacturer, fabricate with a headlap of 2 inches (50 mm) and a minimum extension of 5 inches (125 mm)] over the underlying asphalt shingle and up the vertical surface. Manufacturer’s requirements necessary to provide specified warrantees shall govern.

3. Cricket or Backer Flashings: Unless recommended otherwise by the manufacturer, fabricate with concealed flange extending a minimum of 24 inches (600 mm) beneath upslope asphalt shingles and 6 inches (150 mm) beyond each side of chimney and 6 inches (150 mm) above the roof plane. Manufacturer’s requirements necessary to provide specified warrantees shall govern.

4. Drip Edges: Fabricate in lengths not exceeding 10 feet (3 m) with 2-inch (50-mm) roof-deck flange and 1-1/2-inch (38-mm) fascia flange with 3/8-inch (9.5-mm) drip at lower edge.

C. Vent Pipe Flashings: ASTM B 749, Type L51121, at least 1/16 inch (1.6 mm) thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof, and extending at least 4 inches (100 mm) from pipe onto roof.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provisions have been made for flashings and penetrations through asphalt shingles.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply, and install materials as required by the manufacturer to comply with the specified project warrantees.

B. Underlayment: Install on roof deck parallel with and starting at the eaves. Lap sides and ends and treat laps as recommended in writing by manufacturer. Stagger end laps between succeeding courses at interval recommended in writing by manufacturer. Fasten according to manufacturer's written instructions. Cover underlayment within period recommended in writing by manufacturer.

1. Install in single layer on roofs sloped at 4:12 and greater.
2. Install in double layer on roofs sloped at less than 4:12.

C. Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install lapped in direction that sheds water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Roll laps with roller. Cover underlayment within seven days.

1. Eaves: Extend from edges of eaves a minimum of 36 inches (914 mm) (or more as required to meet the specified manufacturer’s warranty requirements), beyond interior face of exterior wall.
2. Rakes: Extend from edges of rake a minimum of 36 inches (914 mm) (or more as required to meet the specified manufacturer’s warranty requirements), beyond interior face of exterior wall.
3. Valleys: Extend from lowest to highest point a minimum of 18 inches (450 mm) (or more as required to meet the specified manufacturer’s warranty requirements), on each side.
4. Hips: Extend a minimum of 18 inches (450 mm) (or more as required to meet the specified manufacturer’s warranty requirements), on each side.
5. Ridges: Extend a minimum of 36 inches (914 mm) (or more as required to meet the specified manufacturer’s warranty requirements), on each side without obstructing continuous ridge vent slot.
6. Sidewalls: Extend beyond sidewall a minimum of 18 inches (450 mm) (or more as required to meet the specified manufacturer’s warranty requirements), and return vertically against sidewall not less than 4 inches (100 mm) (or more as required to meet the specified manufacturer’s warranty requirements),
7. Roof Slope Transitions: Extend a minimum of 18 inches (450 mm) (or more as required to meet the specified manufacturer’s warranty requirements), on each roof slope.

3.3 METAL FLASHING INSTALLATION

A. General: Install metal flashings and other sheet metal to comply with requirements in Section 076200 "Sheet Metal Flashing and Trim."

1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."

B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.

C. Step Flashings: Install with a headlap of 2 inches (50 mm) and extend over the underlying asphalt shingle and up the vertical surface. Fasten to roof deck only.

D. Rake Drip Edges: Install rake drip-edge flashings over underlayment and fasten to roof deck.

E. Eave Drip Edges: Install eave drip-edge flashings below underlayment and fasten to roof sheathing.

F. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.4 ASPHALT-SHINGLE INSTALLATION

A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."

B. Install starter strip along lowest roof edge, consisting of an asphalt-shingle strip at least 7 inches (175 mm) wide with self-sealing strip face up at roof edge.

1. Extend asphalt shingles 3/4 inch (19 mm) over fasciae at eaves and rakes.
2. Install starter strip along rake edge.

C. Install first and remaining courses of asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.

D. Install asphalt shingles by single-strip column or racking method, maintaining uniform exposure. Install full-length first course followed by cut second course, repeating alternating pattern in succeeding courses.

E. Fasten asphalt-shingle strips with roofing nails of sufficient quantity to meet the specified wind speed requirements in accordance with the roofing manufacturer’s requirements and located according to manufacturer's written instructions.

F. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.

G. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.

3.5 Manufacturer Roof Inspection: The roof manufacturer shall provide all required inspections as necessary to issue the specified warrantees as project completion. Contractor shall fully comply with the roofing manufacturer's installation requirements in order to obtain the specified warrantees.

END OF SECTION 073113

SECTION 074633 - PLASTIC SIDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes vinyl siding and soffit.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, grounds, nailers, and blocking.
2. Section 072500 "Weather Barriers" for weather-resistive barriers.

1.3 COORDINATION

A. Coordinate siding installation with flashings and other adjoining construction to ensure proper sequencing.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1. For vinyl siding, include VSI's official certification logo printed on Product Data.

B. Samples for Initial Selection: For vinyl siding and soffit including related accessories.

C. Samples for Verification: For each type, color, texture, and pattern required.

1. 12-inch- (300-mm-) long-by-actual-width Sample of siding.
2. 24-inch- (600-mm-) wide-by-36-inch- (900-mm-) high Sample panel of siding assembled on plywood backing.
3. 12-inch- (300-mm-) long-by-actual-width Sample of soffit.
4. 12-inch- (300-mm-) long-by-actual-width Samples of trim and accessories.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For vinyl siding Installer.

B. Product Certificates: For each type of vinyl siding and soffit.

C. Research/Evaluation Reports: For each type of vinyl siding required, from ICC-ES.

D. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.

1.8 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish full lengths of vinyl siding and soffit including related accessories, in a quantity equal to 2 percent of amount installed.

1.9 QUALITY ASSURANCE

A. Vinyl Siding Installer Qualifications: A qualified installer who employs a VSI-certified Installer on Project.

B. Single Source-Manufacturer: Vertical and horizontal siding shall be manufactured by the same manufacturer.

C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.

1. Build mockups for vinyl siding and soffit including accessories.

a. Size: 60 inches (1800 mm) long by 60 inches (1800 mm) high.
b. Include outside corner on one end of mockup and inside corner on other end.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with labels intact until time of use.

B. Store materials under cover.

1.11 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including cracking**,** fading, and deforming.
b. Deterioration of materials beyond normal weathering.

2. Fading is defined as loss of color, after cleaning with product recommended by manufacturer, of more than 4 Hunter color-difference units as measured according to ASTM D 2244.Verify available warranties and warranty periods for vinyl siding and soffit.
3. Warranty Period: 50 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain products, including related accessories, from single source from single manufacturer.

2.2 VINYL SIDING

A. Vinyl Siding: Integrally colored product complying with ASTM D 3679.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Alside
b. CertainTeed Corporation (Basis of Design)
c. Gentek Building Products, Inc.
d. Royal Building Products

B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.

C. Horizontal Pattern: 8-inch (203-mm) exposure single clapboard style, .042-inch wall thickness .

D. Single Vertical Board and Batten Pattern: 8-inch (203-mm) exposure, ½-inch batten height, .048-inch wall thickness.

E. Texture: Wood grain.

F. Nailing Hem: Double thickness.

G. Finish: Wood-grain print with clear protective coating containing not less than 70 percent PVDF.

1. Colors: As selected by Architect from manufacturer's full range of colors.

2.3 VINYL SOFFIT

A. Vinyl Soffit: Integrally colored product complying with ASTM D 4477.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Alside
b. CertainTeed Corporation (Basis of Design)
c. Gentek Building Products, Inc.
d. Royal Building Products

B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.

C. Pattern: 12-inch (300-mm) exposure in V-grooved, double, 6-inch (152-mm) board style.

D. Texture: Smooth.

E. Ventilation: Provide perforated soffit.

F. Nominal Thickness: 0.044 inch (1.1 mm).

G. Minimum Profile Depth: 5/8 inch (16 mm).

H. Colors: As selected by Architect from manufacturer's full range of colors.

2.4 ACCESSORIES

A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.

1. Provide accessories made from same material as and matching color and texture of adjacent siding unless otherwise indicated.

B. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D 3679 except for wind-load resistance.

1. Texture: Smooth.

C. Decorative Accessories: Provide the following vinyl decorative accessories as indicated:

1. Corner posts.
2. Door and window casings .
3. Moldings and trim.

D. Colors for Decorative Accessories: As selected by Architect from manufacturer's full range of colors.

E. Flashing: Provide aluminum flashing at window and door heads and where indicated.

1. Finish for Aluminum Flashing: Siliconized polyester coating, same color as siding.

F. Fasteners:

1. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of 1 inch (25 mm) into substrate.
2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch (6 mm), or three screw-threads, into substrate.
3. For fastening vinyl, use aluminum fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of vinyl siding and soffit and related accessories.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.

B. Install vinyl siding and soffit]and related accessories according to ASTM D 4756.

1. Install fasteners for horizontal vinyl siding no more than 16 inches (400 mm) o.c.
2. Install fasteners for vertical vinyl siding no more than 12 inches (300 mm) o.c.

C. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.4 ADJUSTING AND CLEANING

A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074633

SECTION 07610 – SHEET METAL ROOFING **Add Alternate - 02**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes custom-fabricated, standing-seam sheet metal roofing and snow guards.

B. Related Requirements:

1. Section 061600 "Sheathing”.
2. Section 0746333 "Plastic Siding" for manufactured soffit panels.
3. Section 077100 "Roof Specialties.
4. Section 079200 "Joint Sealants" for field-applied sealants adjoining sheet metal roofing and not otherwise specified in this Section.

1.3 COORDINATION

A. Coordinate sheet metal roofing layout and seams with sizes and locations of roof curbs, equipment supports, equipment provided, and roof penetrations.

B. Coordinate sheet metal roofing installation with rain drainage work, flashing, trim, and construction of roofing substrate, parapets, walls, and other adjoining work to provide leakproof, secure, and noncorrosive installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each of the following:

1. Roofing sheet metal.
2. Underlayment materials.
3. Fasteners.
4. Sealant tape.
5. Elastomeric sealant.
6. Butyl sealant.
7. Snow guards.

B. Shop Drawings:

1. Include plans, elevations, sections, and attachment details.

2. Detail fabrication and panel installation layouts, expansion joint locations, points of fixity, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include details for forming, including seams and dimensions.
4. Include details for joining and securing, including layout and spacing of fasteners, cleats, and other attachments. Include pattern of seams.
5. Include details of expansion joints, including showing direction of expansion and contraction from points of fixity.
6. Include details of roof penetrations.
7. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, corners, flashings, counterflashings and snow guards.
8. Include details of special conditions.
9. Include details of connections to adjoining work.
10. Detail the following accessory items, at scale of not less than 1-1/2 inches per 12 inches (1:10).

    a. Flashing and trim.
    b. Roof curbs.

C. Samples: For each exposed product and for each color and texture specified, 12 inches (300 mm) long by actual width.

D. Samples for Initial Selection: For each type of sheet metal with factory-applied finishes.

1. Include Samples of trim and accessories involving finish or color selection.

E. Samples for Verification: For each type of exposed finish.

1. Sheet Metal Roofing: 12 inches (300 mm) long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, and other attachments.
2. Trim and Metal Closures: 12 inches (300 mm) long and in required profile. Include fasteners and other exposed accessories.
3. Other Accessories: 12-inch- (300-mm-) long Samples for each type of other accessory.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Roof plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Sheet metal roofing, seam locations, and attachments.
2. Equipment supports, pipe supports, and penetrations.
3. Lighting fixtures and cable runs.
4. Items mounted on roof curbs.
5. Details for penetrations.

B. Qualification Data: For Installer.

1. Include listing of completed projects of comparable scale of this Project, including name, address, telephone, and contact person for Architect, and name, address, telephone number, and contact person for building Owner.

C. Evaluation Reports: For self-adhering, high-temperature sheet underlayment, from ICC-ES.

D. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing sheet metals and accessories to include in maintenance manuals.

B. Special warranties.

1.7 QUALITY ASSURANCE

A. Sheet Metal Roofing Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal roofing similar to that required for this Project and whose products have a record of successful in-service performance.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal roofing materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal roofing materials away from uncured concrete and masonry.
2. Protect stored sheet metal roofing materials from contact with water.

B. Protect strippable protective covering on sheet metal roofing from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal roofing installation.

1.9 WARRANTY

A. Special Warranty: Warranty form at end of this Section in which Installer agrees to repair or replace components of sheet metal roofing that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures, including, but not limited to, rupturing, cracking, or puncturing.
b. Wrinkling or buckling.
c. Loose parts.
d. Failure to remain weathertight, including uncontrolled water leakage.
e. Deterioration of metals, metal finishes, and other materials beyond normal weathering, including nonuniformity of color or finish.
f. Galvanic action between sheet metal roofing and dissimilar materials.

2. Warranty Period: Twenty years from date of Substantial Completion.

B. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal roofing that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Craftsman Series - Small Batten Roofing, by MBCI, an NCI Building Systems company, or comparable product by architect-approved equivalent.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Sheet metal roofing system, including, but not limited to, metal roof panels, cleats, anchors and fasteners, sheet metal flashing integral with sheet metal roofing, fascia panels, trim, underlayment, and accessories, shall comply with requirements without failure due to defective manufacture, fabrication, or installation, or due to other defects in construction. Sheet metal roofing shall remain watertight.

B. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or indicated on Drawings.

C. Energy Performance: Provide sheet metal roofing according to one of the following when tested according to CRRC-1:

1. Three-year, aged, solar reflectance of not less than 0.55 and emissivity of not less than 0.75.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.3 ROOFING SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide aluminum-zinc alloy-coated steel sheet according to ASTM A 792/A 792M, Class AZ50 (Class AZM150) coating designation, Grade 40 (Grade 275) for factory painted finish & ASTM A792-83-AZ55 for Galvalume finish; with smooth, flat surface.

1. Thickness: 22 gauge unless otherwise indicated.
2. Exposed Coil-Coated Finish Options:

    a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

    b. Manufacturer’s Galvalume Finish.

3. Color: As selected by Architect from manufacturer's full range of standard colors.

4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester-backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil (0.013 mm).

2.4 UNDERLAYMENT MATERIALS

A. Felts: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felts.

B. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils (0.76 mm) thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

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

    a. Carlisle WIP Products; a brand of Carlisle Construction Materials.
    b. Henry Company.
    c. Metal-Fab Manufacturing, a Drexel Metals Company.
    d. Owens Corning.

2. Thermal Stability: ASTM D 1970/D 1970M; stable after testing at 240 deg F (116 deg C) or higher.
3. Low-Temperature Flexibility: ASTM D 1970/D 1970M; passes after testing at minus 20 deg F (29 deg C) or lower.

2.5 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete roofing system and as recommended by primary sheet metal manufacturer unless otherwise indicated.

B. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.

1. General:

a. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed; with hex-washer head.
b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.

2. Fasteners for Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B 32, [Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead] [with maximum lead content of 0.2 percent].

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick approved by the metal roof system manufacturer.

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

2.6 ACCESSORIES

A. Sheet Metal Accessories: Provide components required for complete sheet metal roofing assembly, including trim, fasciae, corner units, clips, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items. Match material and finish of sheet metal roofing unless otherwise indicated.

1. Cleats: Intermittent and continuous attachment devices for mechanically seaming into joints and formed from the following materials and thicknesses unless otherwise indicated:

2. Expansion-Type Cleats: Cleats of a design that allows longitudinal movement of roof panels without stressing panel seams; of same material as other cleats.
3. Backing Plates: Plates at roofing splices, fabricated from material recommended by SMACNA's "Architectural Sheet Metal Manual."
4. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible-closure

strips; cut or premolded to match sheet metal roofing profile. Provide closure strips where necessary to ensure weathertight construction.

5. Flashing and Trim: Formed from same material and with same finish as sheet metal roofing, minimum 0.018 (0.46) thick.

B. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

2.7 FABRICATION

A. Custom fabricate sheet metal roofing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions (panel width and seam height), geometry, metal thickness, and other characteristics of installation. Fabricate sheet metal roofing and accessories in shop to greatest extent possible.

1. Standing-Seam Roofing: Form standing-seam panels with finished seam height of 1 inch (25 mm).

B. Fabrication Tolerances: Fabricate sheet metal roofing that is capable of installation to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

C. Fabrication Tolerances: Fabricate sheet metal roofing that is capable of installation to tolerances specified in MCA's "Metal Roof Installation Manual."

D. Form exposed sheet metal work to fit substrates with little oil canning; free of buckling and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.

1. Lay out sheet metal roofing, so transverse seams, if required, are made in direction of flow, with higher panels overlapping lower panels.
2. Offset transverse seams from each other 12 inches (300 mm) inches (mm)minimum.
3. Fold and cleat eaves and transverse seams in shop.
4. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of metal roofing to profiles, patterns, and drainage arrangements indicated on Drawings and as required for leakproof construction.

E. Expansion Provisions: Fabricate sheet metal roofing to allow for expansion in running work sufficient to prevent leakage, damage, and deterioration of the Work.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

F. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to SMACNA's "Architectural Sheet Metal Manual."

G. Sheet Metal Accessories: Custom fabricate flashings and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item required. Obtain field measurements for accurate fit before shop fabrication.

1. Form exposed sheet metal accessories without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
2. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces of accessories exposed to view.
3. Fabricate cleats and attachment devices of sizes recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.

H. Do not use graphite pencils to mark metal surfaces.

2.8 SNOW GUARDS

A. Snow Guards: Prefabricated, noncorrosive units designed to be installed without penetrating metal roof panels, and complete with predrilled holes, clamps, or hooks for anchoring. Snow guard design and compatibility shall be acceptable to the metal roof panel manufacturer.

1. Snow guard design and compatibility shall be acceptable to the metal roof panel manufacturer.

2. Seam-Mounted, Bar-Type Snow Guards: Aluminum rods or bars held in place by stainless-steel clamps attached to vertical ribs of standing-seam metal roof panels.

a. Aluminum Finish: Mill.
b. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1) Metal Roof Innovations, Ltd.; Model S-5 with ColorGard Snow Retention System.
2) Architect’s approved equal.

c. Color: As selected by Architect from manufacturers standard colors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking, that tops of fasteners are flush with surface, and that installation is within flatness tolerances required for finished roofing installation.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored, and that provision has been made for drainage, flashings, and penetrations through sheet metal roofing.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating sheet metal roofing to verify actual locations of penetrations relative to seam locations of sheet metal roofing before installation.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal roofing.

1. Install in shingle fashion to shed water, with lapped joints of not less than 4 inches (100 mm).
2. Apply from eave to ridge.
3. Apply on roof not covered by self-adhering sheet underlayment.

B. Self-Adhering High-Temperature Sheet Underlayment:

1. Install self-adhering high-temperature sheet underlayment, wrinkle free.
2. Prime substrate if recommended by underlayment manufacturer.
3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
4. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses.
5. Overlap side edges not less than 3-1/2 inches (90 mm).
6. Roll laps and edges with roller.
7. Cover underlayment within 14 days of installation.
8. Install self-adhering high-temperature underlayment at the following locations:

    a. As shown of the drawings.

3.3 INSTALLATION, GENERAL

A. Install sheet metal roofing to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required for complete roofing system.
2. Install sheet metal roofing true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.
3. Anchor sheet metal roofing and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Do not field cut sheet metal roofing by torch.
5. Provide metal closures at peaks, rake edges, eaves and each side of ridge caps.

6. Flash and seal sheet metal roofing with closure strips at eaves, rakes, and perimeter of all openings. Fasten with self-tapping screws.
7. Locate and space fastenings in uniform vertical and horizontal alignment. Predrill panels for fasteners.
8. Install ridge caps as sheet metal roofing work proceeds.
9. Lap metal flashing over sheet metal roofing to direct moisture to run over and off roofing.
10. Do not use graphite pencils to mark metal surfaces.

B. Thermal Movement: Rigidly fasten metal roof panels to structure at only one location for each panel.

1. Allow remainder of panel to move freely for thermal expansion and contraction.
2. Point of Fixity: Fasten each panel along a single common line of fixing located at eave.
3. Avoid attaching accessories through roof panels in manner that inhibits thermal movement.

C. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

D. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating, by applying self-adhering sheet underlayment to each contact surface, or by other permanent separation as recommended in SMACNA's "Architectural Sheet Metal Manual."

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Fasciae:

1. Align bottom of sheet metal roofing and fasten with blind rivets, bolts, or self-tapping screws.
2. Flash and seal sheet metal roofing with closure strips where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 ACCESSORY INSTALLATION

A. Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion.

1. Coordinate installation with flashings and other components.
2. Install components required for complete sheet metal roofing assembly, including trim, seam covers, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items.
3. Install accessories integral to sheet metal roofing that are specified in Section 076200 "Sheet Metal Flashing and Trim" to comply with that Section's requirements.

B. Flashing and Trim: Comply with performance requirements and SMACNA's "Architectural Sheet Metal Manual."

1. Provide concealed fasteners where possible, and install units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
3. Install flashing and trim as required to seal against weather and to provide finished appearance, including, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.
4. Install continuous strip of self-adhering underlayment at edge of continuous flashing overlapping self-adhering underlayment, where "continuous seal strip" is indicated in SMACNA's "Architectural Sheet Metal Manual" and on Drawings.
5. Install exposed flashing and trim without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
6. Install sheet metal flashing and trim to fit substrates, and to result in waterproof and weather-resistant performance.
7. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

    a. Space expansion joints at maximum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.

C. Pipe Flashing: Form flashing around pipe penetration and sheet metal roofing. Fasten and seal to sheet metal roofing as recommended in SMACNA's "Architectural Sheet Metal Manual."

D. Roof Curbs: Install flashing around bases where curbs meet sheet metal roofing.

3.5 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal roofing within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

B. Installation Tolerances: Shim and align sheet metal roofing within installed tolerances specified in MCA's "Metal Roof Installation Manual."

3.6 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. On completion of sheet metal roofing installation, clean finished surfaces as recommended by sheet metal roofing manufacturer.

C. Clean off excess sealants.

3.7 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal roofing is installed unless otherwise indicated in manufacturer's written installation instructions.

B. Prohibit traffic of any kind on installed sheet metal roofing.

C. Maintain sheet metal roofing in clean condition during construction.

D. Replace sheet metal roofing components that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076100

SECTION 077100 - ROOF SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Roof-edge specialties.
2. Roof-edge drainage systems.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For roof specialties.

1. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.
2. Include details for expansion and contraction; locations of expansion joints, including direction of expansion and contraction.
3. Indicate profile and pattern of seams and layout of fasteners, cleats, clips, and other attachments.
4. Detail termination points and assemblies, including fixed points.
5. Include details of special conditions.

C. Samples: For each type of roof specialty and for each color and texture specified.

D. Samples for Initial Selection: For each type of roof specialty indicated with factory-applied color finishes.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer.

B. Product Certificates: For each type of roof specialty.

C. Sample Warranty: For manufacturer's special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing specialties to include in maintenance manuals.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete.

B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof-specialty installation.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication, and indicate measurements on Shop Drawings.

B. Coordination: Coordinate roof specialties with flashing, trim, and construction of parapets, roof deck, roof and wall panels, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.8 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 ROOF-EDGE SPECIALTIES

A. Roof-Edge and Fascia: Manufactured, two-piece, roof-edge fascia consisting of metal fascia cover in section lengths not exceeding 12 feet (3.6 m).

1. Formed Aluminum Sheet Fascia Covers: Aluminum sheet, 0.040 inch (1.02 mm) thick.

a. Surface: Embossed finish.
b. Finish: Two-coat fluoropolymer.
c. Color: As selected by Architect from manufacturer's full range.

2. Corners: Factory mitered and mechanically clinched and sealed watertight.
3. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.
4. Fascia Accessories: Soffit trim.

2.3 ROOF-EDGE DRAINAGE SYSTEMS

A. Gutters: Manufactured in uniform section lengths not exceeding 12 feet (3.6 m), with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch (25 mm) above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.

1. Aluminum Sheet: 0.040 inch (1.02mm) thick.
2. Gutter Profile: Style K according to SMACNA's "Architectural Sheet Metal Manual."
3. Embossed Surface: Embossed with design As selected by Architect from manufacturer's full range.
4. Corners: Factory mitered and mechanically clinched and sealed watertight.
5. Gutter Supports: Manufacturer's standard supports as selected by Architect with finish matching the gutters.
6. Gutter Accessories: Continuous snap-in plastic leaf guard.

B. Downspouts: Corrugated rectangular complete with smooth-curve elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.

1. Formed Aluminum: 0.040 inch (1.02 mm) thick.

C. Aluminum Finish: Two-coat fluoropolymer.

1. Color: As selected by Architect from manufacturer's full range.

2.4 MATERIALS

A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.

2.5 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils (0.76 to 1.0 mm) thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: ASTM D 1970/D 1970M; stable after testing at 240 deg F (116 deg C).
2. Low-Temperature Flexibility: ASTM D 1970/D 1970M; passes after testing at minus 20 deg F (29 deg C).

B. Felt: ASTM D 226/D 226M, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

2.6 MISCELLANEOUS MATERIALS

A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:

1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
2. Fasteners for Aluminum: Aluminum or Series 300 stainless steel.

B. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.

C. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Coil-Coated Aluminum Sheet Finishes:

1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
b. Concealed Surface Finish: Apply pretreatment and manufacturer's standard acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.

B. Examine walls, roof edges, and parapets for suitable conditions for roof specialties.

C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.

1. Apply continuously under roof-edge specialties and as shown on the drawings.
2. Coordinate application of self-adhering sheet underlayment under roof specialties with requirements for continuity with adjacent air barrier materials.

B. Felt Underlayment: Install with adhesive for temporary anchorage to minimize use of mechanical fasteners under roof specialties. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm).

3.3 INSTALLATION, GENERAL

A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.

1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
2. Provide uniform, neat seams with minimum exposure of solder and sealant.
3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
4. Torch cutting of roof specialties is not permitted.
5. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
2. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.

C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.

1. Space movement joints at a maximum of 12 feet (3.6 m) with no joints within 18 inches (450 mm) of corners or intersections unless otherwise indicated on Drawings.
2. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.

D. Fastener Sizes: Use fasteners of sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Seal concealed joints with butyl sealant as required by roofing-specialty manufacturer.

F. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F (4 deg C).

3.4 ROOF-EDGE SPECIALITIES INSTALLATION

A. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

3.5 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.

B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 12 inches (305 mm) apart. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.

1. Install continuous leaf guards on gutters with noncorrosive fasteners, removable for cleaning gutters.

C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c.

1. Provide elbows at base of downspouts at grade on concrete splash blocks to direct water away from building.

3.6 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.

D. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077100

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Silicone joint sealants.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.

B. Preconstruction Laboratory Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.

C. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

C. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.6 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, 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 joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Nonstaining, S, NS, 100/50, NT: Nonstaining, single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

2.3 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330,[Type C (closed-cell material with a surface skin or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

2.4 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 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean nonporous joint substrate 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 by joint-sealant manufacturer or as indicated by 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 or primer 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.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind 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.

D. 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.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs 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.

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.

3.4 CLEANING

A. 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.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Perimeter joints between materials listed above and frames of doors and louvers.
b. Other joints as indicated on Drawings.

2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

DOOR SCHEDULE

DOOR							FRAME									REMARKS
NUMBER	TYPE	WIDE	HEIGHT	THICKNESS	MATERIAL	GLAZING	TYPE	WIDE	HEIGHT	MATERIAL	GLAZING	JAMB/HEAD (B)	RATING (MIN)	THRESHOLD	HDW SET	
100.1	D-1	3'-0"	7'-0"	1 3/4"	IM	IGU-1	F-1	3'-4"	7'-2"	PHM	N/A	02/03	N/A	AL	01	HINGED DOOR
100.2	D-3	12'-0"	12'-0"	2"	IM	MANUF	N/A	12'-4"	12'-2"	MANUF	N/A	04/05	N/A	N/A	(A)	SECTIONAL DOOR
100.3	D-4	10'-0"	10'-0"	2"	IM	MANUF	N/A	10'-4"	10'-2"	MANUF	N/A	04/05	N/A	N/A	(A)	SECTIONAL DOOR
100.4	D-4	10'-0"	10'-0"	2"	IM	MANUF	N/A	10'-4"	10'-2"	MANUF	N/A	04/05	N/A	N/A	(A)	SECTIONAL DOOR
100.5	D-2	3'-0"	7'-0"	1 3/4"	IM	N/A	F-1	3'-4"	7'-2"	PHM	N/A	02/03	N/A	AL	01	HINGED DOOR

DOOR SCHEDULE KEY

IM: Insulated Metal
N/A: Not Applicable
PHM: Painted Hollow Metal
MANUF: Sectional Door Manufacturer Frame & Trims

NOTES:
(A) Refer to Spec Section 083613
(B) Jamb/Head details located on sheet A1.0

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes hollow-metal work.

B. Related Requirements:

1. Refer to Section 087100 “Door Hardware” for door hardware for hollow-metal doors.

1.3 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 COORDINATION

A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.
7. Details of accessories.

C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- (102-mm-) high wood blocking. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Curries Company; ASSA ABLOY.
2. Custom Metal Products.
3. Hollow Metal Inc.
4. Pioneer Industries.
5. Republic Doors and Frames.
6. Steelcraft; an Allegion brand.

B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Commercial Laminated Doors and Frames: NAAMM-HMMA 867.

1. Physical Performance: Level A according to SDI A250.4.
2. Doors:

a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: 1-3/4 inches (44.5 mm.)
c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum G60 (Z180) coating.

d. Edge Construction: Continuously welded with no visible seam.
e. Core: Polyurethane.

1) Thermal-Rated Doors: Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.

3. Frames:

a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch (1.3 mm), with minimum A60 (ZF180) coating.
b. Construction: Full profile welded.

4. Exposed Finish: Prime.

2.3 FRAME ANCHORS

A. Jamb Anchors:

1. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (1.0 mm), and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.4 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

C. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

D. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

2.5 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Insulated Hollow-Metal Doors:

1. Vertical Edges for Single-Acting Doors: Provide beveled or square edges at manufacturer's discretion.
2. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets.
3. Bottom Edge Closures: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets.
4. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
2. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
3. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.6 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

B. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, borrowed lites, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
3. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.

c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

C. Insulated Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:

a. Between Door and Frame Jambs and Head: 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).
b. At Bottom of Door: As required for threshold.
c. Between Door Face and Stop: 1/16 inch (1.6 mm) to 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 083613 - SECTIONAL DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes factory finished, electrically-operated, insulated commercial sectional doors.

1.3 ACTION SUBMITTALS

A. Product Data: For each type and size of sectional door and accessory.

1. Include construction details, material descriptions, dimensions of individual components, profile door sections, and finishes.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
4. Include diagrams for power, signal, and control wiring.

C. Samples for Initial Selection: For units with factory-applied finishes.

1. Include Samples of accessories involving color selection.

D. Samples for Verification: For each type of exposed finish on the following components, in manufacturer's standard sizes:

1. Flat door sections with sensor edge on bottom section.
2. Frame for paneled door sections; of each width of stile and rail required.
3. Panel for raised-panel door sections; not smaller than required to show raised-panel profile.

1.4 INFORMATIONAL SUBMITTALS

A. Submit manufacturer's certificate that products meet or exceed specified requirements.

B. Qualification Data: For Installer.

C. Installation to be performed by and accredited dealership by the Institute of Door Dealer Education and Accreditation.

D. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sectional doors to include in maintenance manuals.

B. Wiring Diagrams.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.

B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC A117.1.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Failure of components or operators before reaching required number of operation cycles.
c. Faulty operation of hardware.
d. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use; rust through.
e. Delamination of exterior or interior facing materials.

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

a. No component shall be warranted for less than 2 years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer agrees to repair or replace components that show evidence of deterioration of factory-applied finishes within specified warranty period.

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS, GENERAL

A. Source Limitations: Obtain sectional doors from single source from single manufacturer.

1. Obtain operators and controls from sectional door manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Sectional doors shall comply with performance requirements specified without failure due to defective manufacture, fabrication, installation, or other defects in construction and without requiring temporary installation of reinforcing components.

B. Structural Performance, Exterior Doors: Capable of withstanding the design wind loads.

1. Design Wind Load: Uniform pressure (velocity pressure) of 20 lbf/sq. ft., acting inward and outward.
2. Testing: According to ASTM E 330.
3. Deflection Limits: Design sectional doors to withstand design wind loads without evidencing permanent deformation or disengagement of door components.

a. Deflection of door sections in horizontal position (open) shall not exceed 1/120 of the door width.

4. Operability under Wind Load: Design overhead coiling doors to remain operable under uniform pressure (velocity pressure) of 20 lbf/sq. ft. wind load, acting inward and outward.

2.3 DOOR ASSEMBLY

A. Steel Sectional Door: Sectional door formed with hinged sections and fabricated according to DASMA 102 unless otherwise indicated.

1. Basis-of-Design: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Series TC200 sectional door as manufactured by Raynor.

2. Other Manufacturers: Subject to compliance with the specifications, other manufacturers include, but are not limited to:

    a. Overhead Door Corporation
    b. Clopay Building Products.
    c. Wayne Dalton.
    d. Architect-approved equivalent.

B. Operation Cycles: Door components and operators capable of operating for not less than 10,000. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.

C. Air Infiltration: Maximum rate of 0.4 cfm/sq. ft. at 15 and 25 mph (24.1 and 40.2 km/h) when tested according to ASTM E 283.

D. Installed R-Value: 10.25 deg F x h x sq. ft./Btu.

E. Locking Devices: Equip door with slide bolt for padlock.

F. Steel Sections: Zinc-coated (galvanized) steel sheet with G40 zinc coating.

1. Section Thickness: 2 inches (51 mm).
2. Exterior-Face, Steel Sheet Thickness: 0.019 inch nominal coated thickness.

    a. Surface: Flat or embossed stucco texture.

3. Insulation: Board.
4. Interior Facing Material: Zinc-coated (galvanized) steel sheet with a nominal coated thickness of 0.019 inch.

G. Track Configuration: Standard-lift.

H. Weatherseals: Fitted to bottom and top and around entire perimeter of door. Provide combination bottom weatherseal and sensor edge.

I. Counterbalance Type: Torsion spring.

J. Electric Door Operator:

1. Usage Classification: Heavy duty, 30 or more cycles per hour and more than 300 cycles per day.
2. Operator Type: Trolley.
3. Safety: Listed according to UL 325 by a qualified testing agency for commercial or industrial use.
4. Motor Exposure: Interior, clean, and dry.
5. Emergency Manual Operation: Push-up type.
6. Obstruction-Detection Device: Automatic electric sensor edge on bottom section.

    a. Sensor Edge Bulb Color: As selected by Architect from manufacturer's full range.

7. Control Station: Interior-side mounted where indicated on Drawings.

8. Other Equipment: Lock bar sensor.

K. Factory-Installed Glazing: Manufacturer's standard code-compliant insulated glazing with safety glazing. Follow drawings for additional information.

L. Door Finish:

1. Baked-Enamel or Powder-Coat Finish: Color and gloss as selected by Architect from manufacturer's full range.
2. Finish of Interior Facing Material: Manufactures standard baked-enamel or powder-coat finish.

a. Color: As selected by Architect from Manufacturer's standard colors.

2.4 MATERIALS, GENERAL

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.5 STEEL DOOR SECTIONS

A. Exterior Section Faces and Frames: Zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet, complying with ASTM A 653/A 653M, with indicated zinc coating and thickness.

1. Fabricate section faces from single sheets to provide sections not more than 24 inches (610 mm) high and of indicated thickness. Roll horizontal meeting edges to a continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weather-resistant seal, with a reinforcing flange return.
2. For insulated doors, provide sections with continuous thermal-break construction, separating the exterior and interior faces of door.

B. Section Ends and Intermediate Stiles: Enclose open ends of sections with channel end stiles formed from galvanized-steel sheet not less than 0.064-inch- (1.63-mm-) nominal coated thickness and welded to door section. Provide intermediate stiles formed from not less than 0.064-inch- (1.63-mm-) thick galvanized-steel sheet, cut to door section profile, and welded in place. Space stiles not more than 48 inches (1219 mm) apart.

C. Reinforce bottom section with a continuous channel or angle conforming to bottom-section profile.

D. Reinforce sections with continuous horizontal and diagonal reinforcement, as required to stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel, formed to depth and bolted or welded in place. Ensure that reinforcement does not obstruct vision lites.

E. Provide reinforcement for hardware attachment.

F. Board Thermal Insulation: Insulate interior of steel sections with door manufacturer's standard CFC-free polystyrene or polyurethane board insulation, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E 84. Secure

insulation to exterior face sheet. Enclose insulation completely within steel sections and the interior facing material, with no exposed insulation.

G. Interior Facing Material: Zinc-coated (galvanized), cold-rolled, commercial steel (CS) sheet, complying with ASTM A 653/A 653M, with indicated thickness.

H. Fabricate sections so finished door assembly is rigid and aligned, with tight hairline joints and free of warp, twist, and deformation.

2.6 TRACKS, SUPPORTS, AND ACCESSORIES

A. Tracks: Manufacturer's standard, galvanized-steel track system of configuration indicated, sized for door size and weight, designed for lift type indicated and clearances indicated on Drawings, Provide complete system including brackets, bracing, and reinforcement to ensure rigid support of ball-bearing roller guides for required door type, size, weight, and loading.

1. Galvanized Steel: ASTM A 653/A 653M, minimum G60 (Z180) zinc coating.
2. Slope tracks at an angle from vertical or design tracks to ensure tight closure at jambs when door unit is closed.
3. Track Reinforcement and Supports: Galvanized-steel members to support track without sag, sway, and vibration during opening and closing of doors. Slot vertical sections of track spaced 2 inches (51 mm) apart for door-drop safety device.

    a. For Vertical Track: Continuous reinforcing angle attached to track and attached to wall with jamb brackets.
    b. For Horizontal Track: Continuous reinforcing angle from curve in track to end of track, attached to track and supported at points by laterally braced attachments to overhead structural members.

B. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom and top of sectional door unless otherwise indicated.

2.7 HARDWARE

A. General: Heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-steel, or other corrosion-resistant fasteners, to suit door type.

B. Hinges: Heavy-duty, galvanized-steel hinges of not less than 0.079-inch- (2.01-mm-) nominal coated thickness at each end stile and at each intermediate stile, according to manufacturer's written recommendations for door size. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is impossible.

C. Rollers: Heavy-duty rollers with steel ball-bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide 2-inch- (51-mm-) diameter roller tires for 2-inch- (51-mm-) wide track.

D. Push/Pull Handles: Equip each push-up operated or emergency-operated door with galvanized-steel lifting handles on each side of door, finished to match door.

2.8 LOCKING DEVICES

A. Slide Bolt: Fabricate with side-locking bolts to engage through slots in tracks for locking by padlock, located on single-jamb side, operable from inside only.

B. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.

2.9 COUNTERBALANCE MECHANISM

A. Torsion Spring: Counterbalance mechanism consisting of adjustable-tension torsion springs fabricated from steel-spring wire complying with ASTM A 229/A 229M, mounted on torsion shaft made of steel tube or solid steel. Provide springs designed for number of operation cycles indicated.

B. Cables: Galvanized-steel, multistrand, lifting cables with cable safety factor of at least 5 to 1.

C. Cable Safety Device: Include a spring-loaded steel or spring-loaded bronze cam mounted to bottom door roller assembly on each side and designed to automatically stop door if either lifting cable breaks.

D. Bracket: Provide anchor support bracket as required to connect stationary end of spring to the wall and to level the shaft and prevent sag.

E. Bumper: Provide spring bumper at each horizontal track to cushion door at end of opening operation.

2.10 ELECTRIC DOOR OPERATORS

A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and "operation cycles" requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.

1. Comply with NFPA 70.

B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.

C. Door-Operator Type: Unit consisting of electric motor, gears, pulleys, belts, sprockets, chains, and controls needed to operate door and meet required usage classification.

1. Trolley: Trolley operator mounted to ceiling above and to rear of door in raised position and directly connected to door with drawbar.

D. Motors: Reversible-type motor for motor exposure indicated.

1. Electrical Characteristics:

a. Phase: Single phase.
b. Volts: 115 V.
c. Hertz: 60.

2. Motor Size: Minimum size as indicated. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. (203 mm/s) and not more than 12 in./sec. (305 mm/s), without exceeding nameplate ratings or service factor.
3. Operating Controls, Controllers (Disconnect Switches), Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.
4. Coordinate wiring requirements and electrical characteristics of motors and other electrical devices with building electrical system and each location where installed.
5. Use adjustable motor-mounting bases for belt-driven operators.

E. Limit Switches: Equip motorized door with adjustable switches interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.

F. Obstruction Detection Device: External entrapment protection consisting of indicated automatic safety sensor capable of protecting full width of door opening. Activation of device immediately stops and reverses downward door travel.

1. Electric Sensor Edge: Automatic safety sensor edge, located within astragal or weather stripping mounted to bottom section. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.

a. Self-Monitoring Type: Four-wire configured device designed to interface with door-operator control circuit to detect damage to or disconnection of sensor edge.

G. Control Station: Three-button control station in fixed location with momentary-contact push-button controls labeled "Open" and "Stop" and "Close."

1. Interior-Mounted Units: Full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.

H. Emergency Manual Operation: Equip electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed 25 lbf.

I. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.

J. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

2.11 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM/NOMMA's "Metal Finishes Manual for Architectural and Metal Products (AMP 500-06)" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.12 STEEL AND GALVANIZED-STEEL FINISHES

A. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.

B. Examine locations of electrical connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install sectional doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.

B. Tracks:

1. Fasten vertical track assembly to opening jambs and framing, spaced not more than 24 inches (610 mm) apart.
2. Hang horizontal track assembly from structural overhead framing with angles or channel hangers attached to framing by welding or bolting, or both. Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment.

C. Accessibility: Install sectional doors, switches, and controls along accessible routes in compliance with regulatory requirements for accessibility.

D. Power-Operated Doors: Install according to UL 325.

3.3 STARTUP SERVICES

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.
2. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.

B. Lubricate bearings and sliding parts as recommended by manufacturer.

C. Adjust doors and seals to provide weather-resistant fit around entire perimeter.

D. Touch-up Painting: Immediately after welding galvanized materials, clean welds and abraded galvanized surfaces and repair galvanizing to comply with ASTM A 780/A 780M.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional doors.

END OF SECTION 083613

SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

D. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.2 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door

hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

B. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

C. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

D. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

E. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

1.6 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: Two-years from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Five years for exit hardware.
3. Twenty five years for manual surface door closer bodies.
4. Five years for motorized electric latch retraction exit devices.
5. Two years for electromechanical door hardware.

1.7 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

C. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity, unless otherwise indicated:

    a. Two Hinges: For doors with heights up to 60 inches.
    b. Three Hinges: For doors with heights 61 to 90 inches.
    c. Four Hinges: For doors with heights 91 to 120 inches.
    d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

    a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
    b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

    a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.

4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:

    a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Acceptable Manufacturers:

    a. Bommer Industries (BO).
    b. Hager Companies (HA).
    c. McKinney Products (MK).

2.3 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

1. Acceptable Manufacturers:

    a. Stanley Best (BE).
    b. No Substitution.

C. Cylinders: Original manufacturer cylinders complying with the following:

1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
5. Keyway: Match Facility Standard.

D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:

1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.

E. Keying System: Each type of lock and cylinders to be factory keyed.

1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Key locks to Owner's existing system.

F. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Three (3).
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).
4. Construction Control Keys (where required): Two (2).
5. Permanent Control Keys (where required): Two (2).

G. Construction Keying: Provide temporary keyed construction cores.

H. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.4 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.

1. Acceptable Manufacturers:

a. Corbin Russwin Hardware (RU) – ML2000 Series.
b. Sargent Manufacturing (SA) – 8200 Series.

2.5 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
3. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.5.
4. Dustproof Strikes: BHMA A156.16.

2.6 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.

4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Acceptable Manufacturers:

a. Sargent Manufacturing (SA) - 351 Series.
b. Corbin Russwin (RU) – DC6000 Series.
c. Norton – 7500 Series.

2.7 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:

a. Stainless Steel: 300 grade, 050-inch thick.

4. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

5. Acceptable Manufacturers:

a. Burns Manufacturing (BU).
b. Rockwood Manufacturing (RO).
c. Trimco (TC).

2.8 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor

stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Acceptable Manufacturers:

    a. Burns Manufacturing (BU).
    b. Rockwood Manufacturing (RO).
    c. Trimco (TC).

2.9 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

C. Acceptable Manufacturers:

1. National Guard Products (NG).
2. Pemko Manufacturing (PE).
3. Reese Enterprises, Inc. (RE).

2.10 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.11 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Insulated Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
3. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant.

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

A. Initial Adjustment: 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.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. The supplier is responsible for handing and sizing all products as listed in the door hardware sets. Quantities listed are for each pair of doors, or for each single door.

C. Manufacturer’s Abbreviations:

1. MK - McKinney
2. RO - Rockwood
3. RU - Corbin Russwin

4. BE - Stanley Security Solutions Inc (BE)

Hardware Schedule

Set: 1.0

Doors: 100.1, 100.5

3 Hinge	TA2314 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Mortise Lock (storeroom)	64 8204 LNL	US26D	SA
1 Core	1C (to suit)	626	BE
1 Closer (surface)	351 CPS	EN	SA
1 Kick Plate	K1050 10" x 34” 4BE CSK	US32D	RO
1 Threshold	279x224AFGT MSES25SS		PE
1 Gasketing	S773BL		PE
1 Rain Guard	346C		PE
1 Sweep	3452CNB		PE

END OF SECTION 087100

SECTION 101453 - REGULATORY SIGNS

PART 1 GENERAL

1.1 SUMMARY

A. Provide and install regulatory signs, including handicap parking signs, as specified herein and shown on the Drawings.

1.2 REFERENCES

A. Standard Specifications:

1. Signs: Section 612

2. Sign Materials: Section 911

3. Breakaway Sign Supports: Subsection 911.02.02

B. New Jersey Administrative Code.

1. N.J.A.C. 5:23-7.86 Signs.

1.3 SUBMITTALS

A. Submit six (6) copies of product data describing signs and posts.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

PART 2 PRODUCTS

2.1 MATERIALS

A. Signs and posts: Materials shall conform to Section 911 of the Standard Specifications or as modified herein.

B. Posts: Steel or aluminum conforming to subsection 911.02.03-1 of the Standard Specifications.

PART 3 EXECUTION

3.1 EXISTING CONDITIONS

A. Inspection:

1. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

2. Verify that the work of this section may be installed in accordance with all pertinent codes and regulations, the original design, and the referenced standards.

3.2 INSTALLATION

A. General: Install the work of this section in strict accordance with the manufacturer's recommendations as approved by the ARCHITECT.

B. Install signs in accordance with Section 612 of the Standard Specifications.

3.3 CLEANING

A. Before final inspection, all sign faces and support surfaces shall be cleaned of all foreign matter. Necessary measures shall be taken to ensure that all signs, sign supports, and signs will be in good condition and appearance.

END OF SECTION

SECTION 312300.10 - SITE EXCAVATION, FILLING AND GRADING

PART 1 GENERAL

1.1 DESCRIPTION

A. Description of work:

B. Excavation, filing and grading includes but is not limited to:

1. Excavating for pavement and foundations.

2. Filling and backfilling to attain indicated grades.

3. Trenching and trench backfilling, if and where directed by the ARCHITECT.

4. Rough and finish grading of site; furnishing and installing broken stone subbase for slabs, foundations and structures.

5. Furnishing and installing quarry blend stone subbase material for pavements and other structures.

6. Any additional work as may be specified in the Statement of Work.

C. Definitions:

1. Excavation: Removal and disposal of all material encountered when establishing required grade elevations, including pavements and other obstructions visible on the ground surface, and underground structures and utilities indicated to be demolished and removed.

2. Unauthorized excavation: Removal of material beyond specified subgrade elevations without approval of ARCHITECT.

PART 2 PRODUCTS

2.1 MATERIALS

A. General: All fill and backfill materials shall be subject to the approval of the ARCHITECT.

B. Notifications: For approval of borrow materials, notify the ARCHITECT at least five (5) working days in advance of intention to import material, designate the proposed borrow area, and perform sampling and testing at CONTRACTOR'S expense, if directed by the ARCHITECT, to prove the quality and suitability of the material.

C. On-Site Fill:

1. All on-site materials used for fill shall be subject to the approval of the ARCHITECT, and to the following requirements:

    a. Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay.

    b. Free of large rocks of lumps that, in the opinion of the ARCHITECT, may create voids or prevent proper compaction.

D. Borrow fill materials:

Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay, and shall conform to the Standard Specifications, except as modified by the supplemental requirements below:

1. Containing no rocks or lumps over one inch (1") in greatest dimension.

2. Composed of soil aggregate, or soil aggregate and rock. The portion passing the four inch sieve shall contain not more than fifteen percent (15%) by weight of material passing the number 200 sieve. When composed of soil aggregate and rock, the proportion of soil aggregate shall not be less than that required to fill all the rock voids.

E. Trench and structural backfill material:

1. Shall conform to the requirements specified for on-site fill material except as modified by the supplemental requirements below:

2. Backfill to a height of two feet above the top of pipes, culverts and other structures and immediately adjacent to structures with material free from stones or rock fragments larger than two inches in greatest dimension.

3. Select backfill material shall be soil aggregate I-13. Soil aggregate select backfill materials, when designated, shall conform to Section 901.11 of the Standard Specifications.

F. Broken stone material:

1. Broken stone subbase material under slabs, foundations and structures shall conform to Section 901.03.01 of the Standard Specifications, and meeting the gradations specified in Table 901-1.03.01-1. Size shall be 3/8".

2. Trench stabilization material for bedding shall conform to the above requirements. Size shall be as shown on the Plans.

G. Subbase Material: Quarry blend stone subbase for bituminous and concrete pavements and other structures shall be Type I-5 conforming to the requirements for Dense Graded Aggregate Base Course in Section 302 of the Standard Specifications.

H. Other materials: All other materials, not specifically described for a complete and proper installation, shall be as selected by the CONTRACTOR and approved by the ARCHITECT.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Requirements of regulatory agencies:

1. All excavations shall be in compliance with Federal Occupational Safety and Health Act and Rules and Regulations of State of New Jersey Department of Labor and Industry, Bureau of Engineering and Safety, N.J.A.C. 12:180.

2. Excavation work shall be in compliance with applicable requirements of other governing authorities having jurisdiction.

B. Reference standards included in this Specification section:

1. Standard Specifications:

a. Section 202: Excavation

b. Section 301: Subbase

c. Subsection 302: Aggregate Base Coarse

d. Subsection 901: Aggregates

2. American Society for Testing and Materials (ASTM):

a. D-1556-64 (Reapproved 1974): Density of Soil in Place by the Sand-Cone Method

b. D-1557-78: Moisture Density Relations of Soils and Soil Aggregate Mixtures Using 10 lb. Rammer and 18-Inch Drop

c. D-2049-69: Relative Density of Cohesionless Soils

d. D-2166-66 (Reapproved 1979): Unconfined Compressive Strength of Cohesive Soil

e. D-2922-78: Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).

C. Existing utilities:

1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the Utility Owner immediately for directions. Cooperate with owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of Utility Owner.

2. Do not interrupt existing utilities serving facilities occupied and used by OWNER or others, except when permitted in writing by ARCHITECT and then only after acceptable temporary utility services have been provided.

3. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

D. Use of explosives: The use of explosives is not permitted.

E. Protection of persons and property:

1. Barricade open excavations occurring as part of this work and post with warning lights as required to protect persons on the site. Operate warning lights as recommended by authorities having jurisdiction.

2. Protect trees, shrubs, lawns, and other features remaining as part of final landscaping.

3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

4. Refer to paragraphs of General Conditions regarding protection of vegetation and structures.

5. In the event of damage, immediately make all repairs and replacements to the approval of the ARCHITECT at no cost to the OWNER.

F. Dust control:

1. Use all means necessary to control dust on and near the work if such dust is caused by the CONTRACTOR'S operations during performance of the work or if resulting form the conditions in which the CONTRACTOR leaves the site.

2. Thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the site.

G. Weather conditions: Do not place, spread, roll or fill material during freezing, raining, or otherwise unfavorable weather conditions. Do not resume work until conditions are favorable as determined by the ARCHITECT.

H. Inspection by Contractor: Examine the areas and conditions under which excavating, filling and grading are to be performed and notify the ARCHITECT, in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

I. Preparation:

1. Prior to commencement of work, establish location and extent of all utilities in the work areas. Maintain, protect as required existing utilities which pass through the work area.

2. Prior to excavation in pavement areas, cut existing pavement vertically with sharp tool on a straight line to the limits of excavation shown on Plans or as directed by the ARCHITECT. Maintain cut straight and neat, or recut and dress as directed by the ARCHITECT.

J. Excavation:

1. Unauthorized excavation: Unauthorized excavation, including remedial work directed by the ARCHITECT, shall be at the CONTRACTOR'S expense. Lean concrete fill may be used to bring subgrade elevations to proper positions when acceptable to the ARCHITECT.

2. Additional excavation:

a. When excavation has reached required subgrade elevations, notify the ARCHITECT who will make an inspection of conditions.

b. If unsuitable bearing materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material as directed by the ARCHITECT.

c. Removal of unsuitable material and its replacement as directed will be paid on the basis of contract conditions relative to changes in work if payment has not been provided for in the Proposal.

3. Dewatering:

a. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

b. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

c. Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

4. Material storage:

a. Stockpile satisfactory excavated materials where directed until required for use as backfill or fill. Place, grade and shape stockpiles for proper drainage.

b. Locate and retain soil materials away from edge of excavations.

c. Dispose of excess soil material and waste materials as herein specified. Excavated material unsuitable for backfilling shall be kept separate from other materials excavated, and disposed of. Materials suitable for backfilling shall not be disposed of until completion of filling or backfilling operations.

5. Excavation for pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown.

6. Excavation for trenches, if and where directed by the ARCHITECT:

a. Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room.

(1). Maximum trench width to a point of two feet (2') above the outside top of pipe shall be the pipe outer diameter plus twenty-four inches (24").

(2) Maximum trench width at ground surface shall be as shown on Plans.

b. Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations. Beyond the building perimeter, keep bottoms of trenches for which elevations are not given sufficiently below finish grade to avoid freeze-ups.

c. Trenches for pipes shall not be operated more than the numbers of linear feet of pipe that can be placed and backfilled in one (1) day.

d. Place the various types of materials in the areas as designated on the Plans, or as directed by the ARCHITECT.

e. Pipe bedding shall be as shown on Plans.

7. Cold weather protection: Protect excavation bottoms against freezing when atmospheric temperature is less than thirty-five (35) degrees.

K. Backfill, fill and compaction:

1. General:

a. Place acceptable material in layers to required subgrade elevations.

b. Fills: Use material obtained from on-site excavation, except use borrow material when specified and/or shown on the Plans.

c. Backfilling: Use material obtained from on-site excavation, except use select backfill where indicated on Plans or as directed by the ARCHITECT. Backfill to a height of two feet (2') above top of pipe with earth free from stones, rock fragments, dirt clods or frozen material greater than one inch (1") in largest dimension.

d. Do not provide borrow material until all acceptable excavated materials on the site have been utilized in the work.

e. Place the various types of materials in the areas as designated on the Plans, or as directed by the ARCHITECT.

2. Backfill excavation as promptly as work permits, but not until completion of the following:

a. Removal of concrete formwork.

b. Removal of trash and debris.

c. Inspection, testing, approval and recording locations of underground utilities.

3. Backfilling prior to approvals:

a. Should any of the work be so enclosed or covered up before it has been approved, uncover all such work at no additional cost to the OWNER.

b. After the work has been completely tested, inspected and approved, make all repairs and replacements necessary to restore the work to the condition in which it was found at the time of uncovering, all at no additional cost to the OWNER.

4. Ground surface preparation prior to filling:

a. Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials from existing ground surface to a depth of not less than four inches (4") and not more than six inches (6") prior to placement of fills. Plow, strip or break-up sloped surfaces steeper than one (1) vertical to four (4) horizontal to a depth of not less than six inches (6") so that fill material will bond with existing surface.

b. When existing ground surface has a density less than that specified under "Compaction," for the particular area classification, break up the ground surface, pulverize, moisture- condition to the optimum moisture content, and compact to required depth and percentage of maximum density.

5. Placement and compaction:

a. Place backfill materials in layers not more than six inches (6") in loose depth.

b. Control soil compaction during construction providing minimum percentage of density specified for each area classification listed below.

c. Pavement areas defined, for the purpose of this Paragraph, as extending a minimum of five feet (5') beyond the pavement.

d. Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship determined in accordance with ASTM D-1557; and not less than the following percentages of relative density determined in accordance with ASTM D-2049, for soils which will not exhibit a well defined moisture-density relationship.

(1) Structures: Compact top twelve inches (12") of subgrade and each layer of backfill of fill material at ninety-five percent (95%) maximum dry density or ninety percent (90%) relative dry density.

(2) Lawn or Unpaved Areas: Compact top six inches (6") of subgrade and each layer of backfiller or fill material at 90 percent (90%) maximum dry density.

(3) Walkways: Compact top six inches (6") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.

(4) Pavement Areas: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.

(5) Subbase Materials: Compact each layer of subbase material to 95 percent (95%) of maximum dry density.

(6) Trench stabilization materials: Compact each layer of material to ninety-five percent (95%) of maximum dry density.

e. Moisture control:

(1) Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

(2) Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

(3) Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by dicing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

f. Puddling or jetting will not be permitted.

g. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice, or other unsuitable materials.

h. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.

L. Grading:

1. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finish surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

2. Grading:

a. Lawn or unpaved areas: Finish area to receive topsoil to within not more than 0.10 feet above or below the required subgrade elevations.

b. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation.

c. Pavement: Shape surface of areas under pavement line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation.

3. Compaction: After grading, compact subgrade surface to the depth and percentage of maximum density for each area classification.

4. Treatment after grading:

   a. After grading is completed and the ARCHITECT has finished his inspection, permit no further excavating, filling or grading except with the approval of and inspection of the ARCHITECT.

   b. Use all means necessary to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

5. Subgrade preparation: All subgrade preparation shall be performed in accordance with the applicable Articles of the New Jersey State Highway Department Standard Specifications except as may be modified by this Specification Section.

M. Subbase course:

1. General:

   a. Subbase Course consists of placing quarry blend stone subbase materials in layers of specified thickness over subgrade, as shown on Plans.

   b. Provide Subbase Course in accordance with Section 301 of the Standard Specifications, except as otherwise modified by this Specification Section.

2. Grade control: During construction, maintain lines and grades including crown and cross-slope of subbase course.

3. Placing:

   a. Prior to placing subbase course under bituminous concrete or other non-portland cement concrete surfaces, apply an herbicide to the subgrade material. They type of herbicide and the method of application shall be approved by the ARCHITECT prior to beginning this work.

   b. Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.

   c. When a compacted subbase course is shown to be eight inches (8") or less, place material in equal layers, except no single layer shall be more than eight inches (8") in thickness when compacted.

d. Spread, shape and compact all subbase course material deposited on the subgrade during the same day.

N. Broken (crushed) stone subbase course:

1. General: Broken Stone Subbase Course consists of placing material in layers of specified thickness, over subgrade to support structures as shown on the Plans.

2. Placing: Place Broken Stone Subbase Course as specified for Quarry Blend Stone Subbase Course.

O. Field quality control:

1. Quality control testing during construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

a. Subgrade. The subgrade shall be in a proper finished condition conforming to the proper line and grade and free of any soft spots or other deficiencies. The subgrade shall be tested by running a roller of a weight at least equal to that used in the paving operation over the entire subgrade. If the deformation of the subgrade is excessive, in the opinion of the ARCHITECT, the subgrade must be stabilized in a manner satisfactory to the ARCHITECT.

b. Subbase course. If the subgrade has a CBR value of twenty (20) or greater, as determined by the American Society for testing and Materials Method for Bearing ratio of Laboratory Compacted Soils (ASTM Designation D 1883), no subbase course is required. Subgrade soils of Type A-1, A-2-4 and A-2-5 of the American Association of State Highway Officials Classification System for Soils (AASHO Designation M 145) will not normally require a subbase course. Subgrade soils of other types will normally require a subbase course of Soil Aggregate Type 2, Class A or B, with a minimum thickness of four (4) inches, to provide the required CBR value.

c. Take all tests at locations as directed by the ARCHITECT.

2. If in the opinion of ARCHITECT based on testing service reports, subgrade or fill which have been placed are below specified density, provide additional compaction and testing as directed by the ARCHITECT, at no expense to the OWNER. This shall include compaction and testing at areas initially tested and at other locations as directed.

P. Maintenance:

1. Protection of graded area:

a. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

b. Repair and re-establish grades in settled, eroded and rutted areas to specified tolerances.

2. Reconditioning compacted areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

Q. Disposal of excess and waste materials:

1. Removal and disposal of excess material shall be the responsibility of the CONTRACTOR.

END OF SECTION

SECTION 312316.10 - EXCAVATION (UNCLASSIFIED)

PART 1 GENERAL

1.1 DESCRIPTION

A. The excavation and removal of all earth, rock, brick, stone, concrete, small structures, existing pavements, and all other materials of whatever character encountered, required for the construction of roadways and their appurtenances; the transportation of the excavated materials; the construction of embankment with the materials excavated; all grading, fertilizing, seeding, and mulching; the disposal of unsuitable and surplus materials; and all other work as specified in this section.

PART 2 PRODUCTS

2.1 MATERIALS

A. No materials are involved.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Reference Standards used in this Specification section.

1. Standard Specifications:

a. Section 202: Excavation

b. Section 203: Embankment

B. Protection:

1. Protect trees, shrubs, lawns and other features remaining as part of final landscaping.

2. Protect curbs, inlets, manholes, utility poles, and all other existing structures to remain.

3. Protect vegetation and structures.

4. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

5. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerance.

6. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

C. Preparation:

1. Field measurements:

a. Layout work limits. Coordinate this work with the ENGINEER.

b. Set grade stakes.

2. Prior to commencement of work, establish location and extent of all utilities in the work areas. Maintain, protect as required existing utilities which pass through the work area.

3. Prior to excavating, cut existing pavement vertically with sharp tool on a straight line at a distance of six (6") inches beyond limits of excavation shown on plans. Maintain cut straight and neat, or recut and dress as directed by the ENGINEER.

D. Grading:

1. Grade project site to required levels, profiles, contours, and elevation, ready for finish grading and paving.

2. Methods of construction for excavation and grading shall conform to Section 203 of the Standard Specifications.

3. Grades shall be uniform levels or slopes between points where elevations are given or between such points and existing finished grades. Abrupt change in slopes shall be rounded.

4. Use all means necessary to prevent dust being a nuisance to the public.

5. Soil shall not be worked, or fill placed, during freezing weather, when frozen, or unstable due to excessive moisture.

6. Unstable or unsuitable material encountered at the prescribed bottom limits of roadway excavation shall be removed within limits as directed by the ENGINEER. Backfill the excavated areas with suitable material obtained from project excavation as directed by the ENGINEER.

7. Compaction: Compact any embankment for this project as specified in Section 203.03.02, Placing and Compacting Methods, of the Standard Specifications. Embankment material shall be free of stumps, brush, weeds, roots, and other material that may decay.

8. Compact subgrade in all paved areas as specified in Section 203.03 of the Standard Specifications.

9. Dispose of surplus or unsuitable excavated materials.

END OF SECTION

SECTION 312500 - TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES

PART 1 GENERAL

1.1 DESCRIPTION

A. This work shall consist of temporary control measures ordered by the ARCHITECT during the life of the contract and as shown on Plans, to control erosion and sediment through use of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, and other erosion control devices or methods.

B. The primary objective of this specification is to control soil erosion to the maximum extent possible with reasonable and economical construction practices.

C. The temporary control provisions contained herein shall be coordinated with the permanent erosion control features (grass, pavement and other restorations) specified elsewhere in the contract to the extent practical to assure economical, effective and continuous erosion control throughout the construction and post-construction period.

D. The erosion control measures described herein shall be continued until the construction is complete and final restorations installed.

E. Wherever construction exposes work which is subject to erosion, the extent of such exposure in advance of the subsequent construction shall be subject to the approval of the ARCHITECT. Erosion control features or other work to be completed within such areas shall follow as soon after exposure as practical.

F. All materials and methods of construction shall be in accordance with the New Jersey State Standards for Soil Erosion and Sediment Control.

PART 2 PRODUCTS

2.1 MATERIALS

A. Mulches may be hay, straw, fiber mats, netting, wood cellulose, corn or tobacco stalks, bark, corn cobs, wood chips, or other suitable material acceptable to the ARCHITECT and shall be reasonable clean and free of noxious weeds deleterious materials.

B. Grass shall be a quick growing species (such rye grass, Italian rye grass, or cereal grasses) suitable to the area providing a temporary cover.

C. Fertilizer and soil conditioners shall be a standard commercial grade acceptable to the ARCHITECT.

D. Others as specified by the ARCHITECT.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Preconstruction conference: At the preconstruction conference or prior to the start of the applicable construction, the CONTRACTOR shall submit for acceptance his schedules for accomplishment of temporary and permanent erosion control work, as are applicable for excavation work, and any other elements of the project which may contribute to ground erosion or siltation.

B. Construction requirements:

1. The ARCHITECT has the authority to limit the surface area of erodible earth material exposed by excavation and grading operations, and to direct the CONTRACTOR to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams, water sources, or bodies of water. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slopes drains, and use of temporary mulches, mats, seeding or other control devices or methods as necessary to control erosion. Cut slopes shall be temporarily seeded and mulched as the excavation proceeds to the extent considered desirable and practical.

2. The CONTRACTOR will be required to incorporate all permanent erosion control features to include the required pavement and grass restorations into the project at the earliest practical time as out-lined in his accepted schedule. Temporary control measures will be used to correct conditions that develop during construction that were not foreseen during the design stages that are needed prior to installation or permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

3. Where erosion is likely to be a problem, excavation and grading operation shall be so scheduled and performed that permanent erosion control features can follow immediately; otherwise temporary erosion control measures may be required between successive construction stages.

4. The ARCHITECT will limit the area of excavation and grading operations in progress commensurate with the CONTRACTOR's capability and progress in keeping the finish permanent pollution control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.

5. The ARCHITECT may increase or decrease the amount of surface area of erodible earth material to be exposed at one time by excavation and grading operations as determined by his analysis of project conditions.

6. Project soil conditions and the demonstrated ability and performance of the CONTRACTOR in controlling erosion will be the prime factors used by the ARCHITECT in the determination of reasonable areas.

7. In the event of conflict between these requirements and pollution control laws,

rules, or regulations of other federal or state or location agencies, the more restrictive laws, rules, or regulations shall apply.

8. The CONTRACTOR will be responsible for maintaining all soil erosion and sediment control measures in an acceptable manner. All temporary measures shall be removed by the CONTRACTOR if and as directed by the ARCHITECT.

END OF SECTION

SECTION 321123 - DENSE GRADED AGGREGATE BASE COURSE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Dense Grade Aggregate (D.G.A.) base course.

1.2 REFERENCES

A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb (4.54 kg) Rammer and an 18-in. (457 mm) Drop.

B. ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.

C. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.

D. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

E. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

F. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

1.3 SUBMITTALS FOR REVIEW

A. Submit one (1) sample and gradation from a certified material laboratory which shall include the name of source location of material.

PART 2 PRODUCTS

2.1 MATERIALS

A. Dense Graded Aggregate: As specified in Section 901.10.01 and Table 901.10.01-1 Gradation Requirements for D.G.A. of the Standard Specifications shall be met.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify subbase has been excavated and compacted, gradients and elevations are correct, and is dry.

3.2 PREPARATION

A. Correct irregularities in subbase gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place D.G.A. on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

A. Spread aggregate over prepared subbase to a total compacted thickness as specified on the Plans.

B. Place aggregate in maximum 8" inch layers, and compact to specified density.

C. Level and contour surfaces to elevations and gradients indicated.

D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

A. Flatness: Maximum variation of 1/2" inch measured with 10 foot (3 m) straight edge.

B. Scheduled Compacted Thickness: Within 1/2" inch.

C. Variation From Design Elevation: Within 1/2" inch.

3.5 FIELD QUALITY CONTROL

A. Compaction testing will be performed in accordance with referenced standards.

B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

C. Frequency of Tests: One (1) test per 1000 sy, if and where directed by ARCHITECT.

3.6 SCHEDULES

A. Under Asphalt Pavement:

1. Compact placed dense graded aggregate materials to achieve dry density compaction of 95% percent.

B. Under Concrete Pavement:

1. Compact placed dense graded aggregate materials to achieve dry density compaction of 95% percent.

C. Surface Course

1. Compact placed dense graded aggregate materials to achieve dry density compaction of 95% percent.

END OF SECTION

SECTION 321216 - HOT-MIXED ASPHALT (HMA-MIX)

PART 1 GENERAL

1.1 DESCRIPTION

A. General: The quality of materials and performance of work specified in this Specification section shall be in accordance with the Standard Specifications.

B. The work of this section includes construction and overlay of the bituminous pavement areas as specified and/or shown on the Plans or as directed by the ARCHITECT with hot-mixed bituminous concrete materials.

1.2 RELATED SECTIONS

A. Section 312300.10: Site Excavation, Filling, and Grading.

1.3 REFERENCE STANDARDS

A. Standard Specifications.

1.4 DEFINITIONS

A. Subgrade: Surface upon which pavement structure will be constructed.

B. Subbase: That portion of the pavement cross section consisting of quarry processed stone and/or soil aggregate.

PART 2 PRODUCTS

2.1 MATERIAL

A. Paving materials and mixtures - Materials and mixtures shall comply with the following sections of the Standard Specification:

1. Hot Mix Asphalt surface course and level course:

   a. Materials: Section 902.02 of the Standard Specifications.

   b. Mixture: HMA 9.5M64 Surface Course, Section 902.02.

2. Hot Mix Asphalt base course:

   a. Material: Section 902.02

   b. Mixture: HMA 19M64 Base Course, Section 902.02.

3. Tack coat: Grade RC-70 or RC-T cutback asphalt or Grade SS-1 emulsified asphalt, Section 401.03.02 of the Standard Specifications.

4. Prime coat: Grade MC-30 or MC-70 cutback asphalt: Section 401.03.02 of the Standard Specifications.

B. Job mix formula requirements:

1. Provide job mix formulas for each required bituminous aggregate mixture as specified in Section 902.02.03-1 of the Standard Specifications, and as specified by the testing laboratory.

2. Submit for the ARCHITECT's approval prior to beginning paving operations.

C. Mix design and control requirements: The design and control requirements for all paving mixtures shall conform to Section 902.02.03 of the Standard Specifications.

D. Sampling and testing for conformance to job mix formula and mix design requirements:

1. Methods and rates of sampling bituminous mixtures shall conform to Section 902.02.04 of the Standard Specifications:

a. Sampling shall be performed by the CONTRACTOR under the supervision of the ARCHITECT unless otherwise directed by the ARCHITECT.

b. For small scale projects where it is not possible to attain the minimum lot size specified, a total of five (5) samples shall be taken at random for each type of mix specified.

2. Testing of bituminous concrete mixtures to determine the quantity of bitumen, gradation of the aggregate, and conformance to mix design requirements shall be performed by the CONTRACTOR'S quality control technician, as approved by the ARCHITECT as specified in Section 902.02.04 of the Standard Specifications.

3. Submit results of tests on forms acceptable to the ARCHITECT. Forms shall be signed by producer's quality control technician and forwarded to the ARCHITECT as directed.

E. Preparation of mixtures: The preparation of all bituminous mixtures shall conform to Section 902 of the Standard Specifications.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Qualifications of bituminous concrete producer: Use only materials which are furnished by a bulk bituminous concrete producer regularly engaged in the production of hot-mix, hot-laid bituminous concrete.

B. Paving methods - Methods shall comply with the following sections of the Standard Specification:

1. Section 401: Hot Mix Asphalt Courses

2. Section 301.03.01: Subbase.

C. The method of construction to include bituminous concrete plant and equipment, bituminous concrete paver, vehicles for transporting bituminous mixtures, rollers, and all construction methods shall conform to Section 401 of the Standard Specifications for hot mix asphalt courses, except as modified by the Supplemental Requirements below:

1. Equipment shall be as specified in Section 401.02.02 of the Standard Specifications.

2. Excavation for base pavement:

a. Prior to excavating, cut existing pavements vertically with a sharp tool on a straight line along designated excavation limits, as directed by the ARCHITECT.

b. Remove existing pavement, subgrade material, earth, rock, stone and all other materials encountered to required depth.

c. Promptly dispose of excess excavated materials.

d. Prepare subgrade for base repairs and paving as specified in Specification Section entitled “Site Excavation, Filling and Grading”.

3. Proof roll:

a. Proof roll subgrade surfaces using a vehicle equal to, or greater than the weight of the vehicles used to construct the paving, approved by the ARCHITECT.

(1) Check for unstable areas.

(2) Check for areas requiring additional compaction.

b. Notify ARCHITECT of unsatisfactory conditions.

c. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

4. Surface preparation:

   a. Earth and subbase surfaces:

      (1) Remove loose and foreign material from compacted subgrade surface immediately before application of paving.

      (2) Use power broom or blowers and hand brooming as required.

      (3) Do not displace subgrade material.

   b. Existing pavement surfaces:

      (1) Remove loose and foreign material from existing pavement surfaces immediately before application of paving.

      (2) Use self-propelled mechanical sweepers. Supplement with hand brooming as required.

      (3) Pay particular attention to cleaning of gutterlines and outer edges of pavement areas.

      (4) Remove all weeds, grass or other vegetative matter growing in pavement areas, particularly along curbs.

   c. Minor patching:

      Existing pavement surfaces: Fill in depressions, and patch pavement in overlay areas that are not marked out for base repairs. Patch as directed by ARCHITECT in the field.

5. Tack coat:

   a. Apply to cleaned surfaces of all pavements to be overlaid and at adjoining curb lines.

   b. Apply to cleaned surfaces of newly constructed base pavement if coated with dust, dirt, foreign materials in sufficient amount to prevent bond with surface course paving as determined by ARCHITECT.

   c. Apply to edges of paving where base repairs are to be made.

   d. Apply tack coat material at temperatures, and observe safety precautions, specified in Section 401.03.02 of the Standard Specifications.

e. Apply at rate of 0.02 to 0.08 gallon per square yard for cut back asphalt or 0.04 to 0.15 gallons per square yard for diluted emulsified asphalt as directed by ARCHITECT, immediately prior to placing pavement.

f. Apply track coat by brush to contact surfaces of pavement cold joints, curbs, gutters, manholes, and other structures projecting into or abutting asphalt concrete pavement.

g. Allow surface to dry until material is in a condition of tackiness to receive pavement.

h. Take precautions to insure tack coat is not applied to exposed surfaces or curbs or other exposed surfaces. Tack coat so applied shall be removed by CONTRACTOR at no additional cost to OWNER.

6. Prime coat (subbase surfaces): If and Where Directed

a. Uniformly apply at rate of 0.15 to 0.35 gallon per square yard over compacted and cleaned subbase surface.

b. Apply enough material to penetrate and seal, but not flood the surface.

c. Allow to cure and dry as long as required to attain penetration and evaporation of volatile components, and in no case less than twelve (12) hours unless otherwise acceptable to the ARCHITECT.

d. Apply prime coat material at temperatures, and observe safety precautions, specified in Section 401.03.02 of the Standard Specifications.

7. Perform work as additionally described in the Statement of Work.

8. For pavement replacement, install compacted thickness indicated on Plans of bituminous stabilized base course over excavated area and dense graded aggregate subbbase.

9. For pavement replacement install compacted thickness indicated on Plans of hot mix asphalt surface course over base course.

10. For new pavements, install hot mix asphalt base course in layers of not more than two and one-half (2 1/2") inches compacted thickness, except in those areas where stone mix is prescribed and the total combined thickness of the surface course, binder course, if any, and base course is seven (7") inches or greater, the CONTRACTOR may construct layers of not more than four (4") inches compacted thickness.

11. The requirements for string line or ski type reference systems for bituminous concrete pavers is deleted.

12. General surface requirements:

    a. Test finish surface of each concrete course for smoothness using a ten (10) foot straightedge.

    b. The straightedges shall have projections on the bottom at each end, either built-in or firmly attached, so that it is supported six (6") inches above the pavement surface at the ends. It shall be free from warp and deflection, subject to approval by the ARCHITECT, and furnished by the CONTRACTOR without additional compensation.

    c. Check surfaced areas at intervals and in directions specified by ARCHITECT.

    d. Check surfaces for pavement smoothness immediately after initial compaction, and correct variations by removing or adding material as may be necessary. Then rolling shall be continued as specified.

    e. Immediately after final rolling and while the pavement is still hot, the smoothness of the course shall be checked again and all projections or depressions exceeding the specified tolerances shall be corrected by removing defective work and replacing it with new surface course as specified. Portions of the surface otherwise unsatisfactory shall be replaced to the satisfaction of the ARCHITECT.

    f. Finished surfaces shall be free of all roller marks, ridges and voids.

13. Surface requirements:

    a. Base courses will not be acceptable if exceeding 1/4 inch in ten feet (10') when tested in any direction.

    b. Intermediate courses and surface courses will not be acceptable if exceeding 1/4 inch in ten feet (10') when tested in any direction.

D. Field quality control:

1. Pavement cores and testing for the determination of conformance to control air voids and pavement thickness shall be provided by the CONTRACTOR as required by the ARCHITECT in accordance with Section 401.03.05 of the Standard Specifications.

2. Areas of pavement removed for field quality control testing shall be replaced by the CONTRACTOR as follows:

a. Clean debris from core area. Cut all exposed pavement edges vertical.

b. Apply tack coat to exposed surfaces before installing replacement pavement.

c. Fill core area with surface course mixture for the full depth of the core.

d. Compact and grade mixture; seal repaired area with tack coat; apply a thin layer of sand over tack coat in a manner satisfactory to the ARCHITECT.

END OF SECTION

SECTION 321723 - TRAFFIC STRIPING AND MARKINGS

PART 1 GENERAL

1.1 DESCRIPTION

A. The work of this section includes providing striping, pavement markings and symbols as specified herein and/or shown on the Plans.

1.2 REFERENCE STANDARDS

A. Reference standards included in this section shall be the Standard Specifications:

1. Section 610: Traffic Stripes

2. Section 912: Traffic Paint

3. Section 912: Glass Beads

PART 2 PRODUCTS

2.1 MATERIALS

A. Latex traffic paint - Striping shall conform to Section 912.03.01 of the Standard Specifications.

B. Thermoplastic traffic paint - Striping shall conform to Section 912.03.02 of the Standard Specifications.

B. Glass beads: Shall conform to Section 912 of the Standard Specifications.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Methods of construction shall conform to Section 610.03 of the Standard Specifications except as modified herein.

1. Latex striping.

a. Apply latex stripes or markings when the ambient and surface temperatures are above forty-five degrees Fahrenheit (45 ^{O}F) and rising. Apply the latex traffic paint in a wet film thickness of 6 ± 1 mil where traffic stripes are required for 14 days or less when used for interim applications prior to the placement of long life material. Apply the traffic paint in a wet film thickness of 15 ± 1 mil where stripes or markings are to be visible to traffic 15 days and beyond, or when stripes or markings are to be placed in intermediate pavement layers to be opened to traffic due to stage construction.

b. Apply glass beads, according to the gradation specified for latex traffic paint, to the wet paint in a uniform pattern and at the rate of 12 pounds per gallon of paint.

c. When traffic stripes or traffic markings are intended to remain visible beyond 14 days, apply prior to acceptance and when directed, additional applications of latex traffic paint and glass beads. Apply these applications at least 15 days after the initial application and after any sawing or sealing of joints in bituminous concrete overlay.

2. Thermoplastic striping.

a. Place preformed thermoplastic or hot extruded thermoplastic traffic markings on thoroughly dry surfaces and during dry weather conditions. Apply using equipment and procedures that produce markings of the specified color, width, and thickness with well-defined edges, uniform retroreflectivity, and proper bonding to the pavement. Apply the thermoplastic material as follows:

(1) Extruded Thermoplastic. Uniformly heat the thermoplastic material. When the ambient and surface temperatures are at least 50̊ F, apply the melted material at a temperature of between 400 and 425˚F. Extrude the thermoplastic traffic markings on the HMA or concrete pavement ensuring a thickness of 90 ± 1 mils.

(2) Immediately after, or in conjunction with, the thermoplastic extrusion, uniformly apply glass beads to the wet material at a minimum rate of 10 pounds per 100 square feet of markings. Apply glass beads by mechanical means only.

(3) Preformed Thermoplastic. Melt the preformed thermoplastic tape to bond the traffic markings permanently in position according to the manufacturer’s recommendations.

(4) Meet the minimum initial retroreflectance value, as specified in 610.03.01.D for thermoplastic tape, by applying additional glass beads to the hot-wet material in a uniform pattern as necessary.

3. Immediately before marking the pavement surface, clean the surface of dirt, oil, grease, and foreign material, including curing compound on new concrete. Clean the surface 2 inches beyond the perimeter of the marking to be placed.

4. Replace, at no cost to the owner, all types of long life traffic stripes or traffic markings determined to be in nonconformance with the specifications, or not placed at the locations or in the dimensions specified on the plans. Remove the defective stripes or markings according to subsection 610.03.08.

5. Traffic stripes shall be completed before opening to traffic.

END OF SECTION

SECTION 329113.16 - MULCHING

PART 1 GENERAL

1.1 DESCRIPTION

A. Provide straw mulch for seeded areas.

B. Provide binder for straw mulch.

1.2 SUBMITTALS

A. Manufacturer's Literature and Recommendations:

1. Submit manufacturer's descriptive literature and printed application instruction for synthetic plastic emulsion, fiber mulch and vegetable based gel binders.

2. Submit all of the above for ARCHITECT'S approval.

PART 2 PRODUCTS

2.1 MATERIALS

A. Mulch:

1. Straw:

a. Threshed, unrotted stalks of rye, barley, or wheat; relatively free from seeds, noxious weeds, and other foreign material.

b. Not ground or chopped into short pieces.

B. Straw mulch binder gels:

1. Vegetables based gels:

Materials which can be classified as naturally occurring powder based hydrophyllic additives formulated to provide gels, which when applied under satisfactory curing conditions, will form membranded networks of water insoluble polymers. Physiologically harmless and not having phytotoxic or crop damaging properties.

2. High polymer synthetic plastic emulsion:

Miscible with all normally available water when diluted to any proportion. No longer soluble or dispersible in water after adequate drying, but tacky until grass seed has germinated. Physiologically harmless, and not having any phytotoxic or crop damaging properties.

3. Fiber mulch:

Made from wood or plant fibers containing no growth of germination inhibiting materials.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Product delivery, storage and handling:

1. Deliver all binder materials in manufacturer's original packaging with all tags and labels intact and legible.

2. Store and handle binder materials in accordance with manufacturer's instructions.

B. Job conditions:

1. Existing conditions: Perform mulching only after preceding related work is accepted.

2. Environmental requirements:

Do not apply synthetic plastic emulsion binder or vegetable based gel binder during rain or freezing weather.

3. Protection: Restrict foot and vehicular traffic from mulched areas to end of maintenance period.

C. Inspection:

Verify that seeding and all work affecting ground surface have been completed.

D. Preparation:

Immediately before mulching, relime, refertilize, and reseed areas which have become eroded or otherwise disturbed.

E. Installation:

1. General:

a. Apply straw mulch to seeded areas within seven (7) days of seed application.

b. Leave all mulch in place and allow to disintegrate, except remove excessive amounts of straw when directed by the ARCHITECT.

2. Straw mulch:

   a. Spread straw uniformly in layer 1 to 1 ½ inches thick, loose measurement.

3. Binder for straw mulch:

   a. Evenly distribute binder over mulch.

   b. In areas where pedestrian traffic would make use of asphalt binder objectionable, ARCHITECT may direct spreading of small quantities of topsoil on the mulch as an alternative method of securing the mulch in place.

   c. Bind mulch in place using one (1) of the following binder materials:

      (1) Vegetable Base Gels: Mix with water and apply by hydraulic pressure equipment. Apply in accordance with manufacturer's printed instructions, do not mix less than 40 pounds of dry material in 750 gallons of water.
      (2) High Polymer Synthetic Plastic Emulsion: Apply by hydraulic pressure equipment at rate of 30 gallons of undiluted material per acre. Dilute in water at ratio of 1:15. Apply in accordance with manufacturer's printed instructions.
      (3) Fiber Mulch: Mix with water and apply by hydraulic equipment. Apply in accordance with manufacturer's printed instructions, except do not use less than 400 pounds of dry product per acre.

F. Mulch maintenance:

1. Remulch all areas requiring reseeding.

2. Relime, refertilize, reseed and remulch all areas where straw mulch is displaced.

3. Perform all mulch maintenance work in accordance with the specifications without additional compensation.

4. Mulch maintenance period to extend until acceptance of project by ARCHITECT.

G. Cleaning:

In addition to cleaning required in Section Cleaning and Restorations:

1. Immediately clean spills from paved and finished surface areas.

2. Remove debris and excess materials from project site.

END OF SECTION

SECTION 329119.13 - TOPSOILING

PART 1 GENERAL

1.1 DESCRIPTION

A. Prepare topsoil subsoil.

B. Prepare topsoil stripped from the site, furnish topsoil required in excess of that obtained from stripping of site form approved sources located outside the project limits.

PART 2 PRODUCTS

2.1 MATERIALS

A. Topsoiling: General requirements for topsoil furnished from within or outside the project limits.

1. Containing no stones, lumps, roots or other objects larger than ½ inch in any dimension.

2. Acid-Alkaline Range: pH 5.8 to 6.5

3. Free of pests, pest larvae, and matter toxic to plants.

4. Maximum soluble salts: 500ppm

5. Free of viable Bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, Canada thistle, and other objectionable grassy or broadleaf weeds.

6. Contractor shall submit a sample of topsoil prior to installation. If borrow material is proposed, the topsoil must be tested by CONTRACTOR for compliance with these specifications, and screened, if necessary, to remove objects larger than specified dimension.

B. Topsoil furnished from outside project limits:

1. Gradation range:

Sand (2.00mm to 0.05mm) 40 - 80 percent
Silt (0.050mm to 0.005mm) 10 - 30 percent
Clay (0.005mm and smaller) 0-10 percent

a. When one-half of the sand content is larger than 0.500 mm., the maximum sand content shall be seventy-five percent; and maximum clay content shall be fifteen percent.

b. Lower limits of silt and clay shall be flexible to extent that soils with minimum combined silt and clay content of twenty percent shall be satisfactory. However, if more than one-half of the sand is larger than 0.500mm., then the minimum combined silt and clay content shall be twenty-five percent.

2. Organic content:

a. Minimum of 2.75 percent by weight.

b. If necessary, add peat at rate necessary to attain minimum organic content.

3. Taken from borrow area acceptable to ARCHITECT.

C. Soil conditioners:

Peat:

1. Sedge or reed peat:

a. Consisting of incompletely decomposed plant residues resulting from anaerobic activity in water-saturated areas.
b. Containing no gravel, debris, or toxic compounds. Average Water Content: Not to exceed sixty-five percent by weight.
c. pH value: Not less than 4.
d. Not cultivated or aged.
e. Shredded or resemble texture of cultivated peat.
f. Minimum organic content: 75 percent by weight.
g. Inorganic materials: Consisting only of sand, silt and clay.

2. If required, add peat to topsoil obtained from sources outside project limits, at rate necessary to attain minimum organic content of 2.75 percent.

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Submittals:

1. Legal documents:

a. One executed copy of each legal right or easement required for storage of topsoil on private property located outside the limits of easement of right-of-way areas acquired by the OWNER.

b. Submit to ARCHITECT prior to storing of topsoil on any private property.

2. Delivery slips:

   a. Accompany all shipments of topsoil with delivery slip showing the product weight and name of supplier.

   b. Submit delivery slip to ARCHITECT at end of each working day.

B. Product delivery and storage.

1. Transport topsoil from outside project limits in accordance with local regulations.

2. Obtain all legal rights or easements necessary from private owners on whose lands topsoil may be stored. Furnish rights or easements in written form satisfactory to ARCHITECT, and signed by both CONTRACTOR and property owner involved, or their duly authorized representatives.

C. Job conditions:

1. Existing conditions:

   a. Perform topsoiling only after preceding work affecting ground surface is completed.

2. Environmental requirements:

   a. Do not prepare or place frozen or saturated topsoil.

3. Protection:

   a. Protect trees and shrubs to remain as part of final landscaping against damage.

D. Preparation:

1. Verify that clearing, earthwork, grading and other preceding work affecting ground surface have been completed.

2. Verify that trees, shrubs, and other plants to remain as part of final landscaping have been identified.

3. Assure that area to be topsoiled is cleared, shaped, dressed, and approved by ARCHITECT.

4. Do not proceed with topsoiling until conditions are satisfactory.

5. Preparation of topsoil subsoil:

a. Shape and dress area to be topsoiled. This work included grading to required lines and elevations; removal of all stones, clods, lumps one-half inches (½ ") or larger in any dimension; removal of all wires, cables, pieces of concrete, tree roots, and debris or other unsuitable material.

b. Do not proceed with installation of topsoil until this work has been approved by the ARCHITECT.

E. Installation:

1. Plane an even layer that will produce a prescribed compacted thickness of four inches.

2. If quantity of topsoil obtained from stripping is insufficient for the project requirements, provide required topsoil from approved sources located outside project limits.

3. Remove stones, lumps, roots, and other objects larger than one-half inches (½") in any dimension from graded topsoil surface.

F. Protection:

When directed by ARCHITECT, erect temporary signs and barriers to protect topsoiled areas.

G. Maintenance:

1. Immediately before establishment of ground cover, retopsoil and regrade areas which become eroded or otherwise disturbed.

2. Perform all maintenance work in accordance with the Specifications without additional compensation.

3. Maintenance period to extend until installation of ground cover.

H. Cleaning:

In addition to cleaning required in Specification entitled, "Cleaning and Restoration for Sitework":

1. Immediately clean spills, soil, and conditioners on paved and finished areas.

2. Distribute, stockpile, or haul topsoil in excess of the quantity required for the project as directed by the ARCHITECT.

3. Dispose of protective barricades and warning signs at termination of maintenance period.

END OF SECTION

SECTION 329219 - FERTILIZING AND SEEDING

PART 1 GENERAL

1.1 DESCRIPTION

A. Provide topsoil, lime, fertilizer and Type "A-3" seed:

1. Restoration of existing grass areas disturbed by CONTRACTOR's operations.

2. Temporary soil erosion control.

1.2 SUBMITTALS

A. Certificates:

1. Seed producer's certified analysis of composition, purity, and germination of seed mixture, dated within nine (9) months of sowing.

2. Manufacturer's certificate chemical analysis of fertilizer composition.

3. Manufacturer's certified chemical and physical composition analysis of ground limestone.

4. Submit all of the above the ARCHITECT prior to incorporation of materials into project.

B. Delivery slips: Accompany each delivery of seed, ground limestone, and fertilizer with delivery slip showing the product weight.

C. Test reports:

1. Submit results of test report for pH analysis of soil, and when ground limestone is required, the total amount of magnesium and calcium oxides required.

PART 2 PRODUCTS

2.1 MATERIALS

A. Seed Mixture:

1. Type "A-3" Seed Mixture:

Kind of Seed	Percent Mixture	Minimum Germination Percent
Perennial Ryegrass	20	85
Red Fescue	20	80
Spreading Fescue	20	85
Kentucky Bluegrass	40	75

2. Use clean, dry, new crop seed. Use seed listed in the top 100 of the NTEP.

B. Topsoil: As specified in Specification Section entitled, "Topsoiling."

C. Ground limestone:

1. Minimum total calcium and magnesium oxides content: 40 percent (40%).

2. Physical Properties:

Sieve Size	Total Percent Passing Minimum
No. 20	100
No. 60	80
No. 100	60

D. Fertilizer:

1. Use fertilizer having commercial designation of 10-20-10 or and 1-2-1 ratio fertilizer.

2. Minimum available nutrients, percent by total weight:

a. 5, Nitrogen (N)
b. 10, Phosphoric Oxide (P2O5)
c. 5, Potash (K20).

3. For fertilizer to be applied with mechanical spreader in dry form, a minimum of 75 percent (75%) shall pass a No. 8 sieve, minimum of 75 percent (75%) shall be retained on a No. 16 sieve, and maximum free moisture content shall be 2 percent (2%).

E. Water: Free of substances harmful to plant growth.

F. Mulch: As specified in Specification Section entitled, "Mulching."

PART 3 EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Product delivery, storage and handling:

1. Deliver all materials in accordance with manufacturer's printed instructions, and in such manner as to protect from moisture.

2. Store and handle material in accordance with manufacturer's printed instructions, and in such manner as to protect from moisture.

B. Job conditions:

1. Existing conditions: Perform seeding only after preceding work affecting ground surface is completed.

2. Environmental requirements:

a. Plant seed on unfrozen soil. Soil shall be in friable condition at time of seeding.

b. Do not perform seeding when wind exceeds 15 mph.

c. Do not seed between calendar dates from May 15th to August 15th, and from October 15th to March 1st, except when weather and soil conditions are favorable as determined by ARCHITECT.

3. Protection: Restrict foot and vehicular traffic from seeded areas after planting to end of the establishment period.

C. Protection (prior to seeding):

1. Check that clearing, soil preparation and proceeding work affecting around surface is completed.

2. Verify that soil is unfrozen and within allowable moisture content.

3. Do not start work until conditions are satisfactory.

4. When specified, install bed of topsoil.

5. When soil to be seeded has a pH value of less than 5.8, evenly spread ground limestone, which is dry and free flowing, over area to be seeded at rate that will change soil Ph value to 6.5. Thoroughly mix limestone into upper 3 to 4 inches of soil by dicing, harrowing, or other approved method.

6. Within limits set forth under materials, select fertilizer for use on the project. Use one selection throughout project. Apply fertilizer in quantity necessary to yield 60 pounds of nitrogen per acre. Thoroughly mix fertilizer into upper 3 to 4 inches of soil by dicing, harrowing, or other approved method.

7. Water dry soil at least 24 hours prior to seeding to obtain a loose friable seed bed.

8. Before applying seed, remove all stones, rocks, lumps, roots, wires, clods, and other objects measuring 1 inch or larger in any dimension.

D. Application:

1. Broadcast half of seed with mechanical seeder.

2. Broadcast remaining half of seed at right angles to first seeding pattern, using same broadcast method.

3. Apply seed at the rate of 100 lbs./acre:

   Type "A-3" Seed Mixture: 100 lbs/acre.

4. Cover seed to depth of 1/8 inch by raking or other method approved by ARCHITECT.

5. Roll seeded area with roller weighing maximum of 159 pounds per foot of width.

6. Water seeded area until water penetrates to a depth of 3 to 4 inches.

7. Finished seeded areas shall be smooth, even, and to prescribed lines and contour.

E. Protection (after seeding): When directed by ARCHITECT, erect temporary signs and barriers to protect seeded areas from pedestrian and vehicular traffic.

F. Lawn establishment:

1. Watering:

   a. Keep soil most during seed germination period.

   b. Method of watering shall provide equal distribution and coverage to all areas seeded.

   c. CONTRACTOR shall water area to a depth of 2" once a week until final acceptance.

2. Mowing: Mow unacceptable weedy areas in fertilized and seeded area as directed by ARCHITECT if, prior to the establishment of a satisfactory stand of grass, an excess amount of weed growth becomes established. Mow at CONTRACTOR's expense.

3. Relime, refertilize and reseed, as directed by the ARCHITECT, all seeded areas which become eroded or otherwise disturbed; or which require mowing of weedy areas in order to establish acceptable turf.

4. Relime, refertilize and reseed, as directed by ARCHITECT, spots larger than one square foot not having uniform stand of grass practically weed free, and not containing plants in reasonable proportion to the various kinds of seed in the grass seed mixture.

5. Perform all lawn establishment work in accordance with the specifications without additional compensation.

6. Establishment period to extend until acceptance of project by ARCHITECT.

G. Cleaning:

In addition to cleaning required in Specification Section entitled, "Cleaning and Restoration for Sitework":

1. Immediately clean spills on paved and finished surface areas.

2. Remove debris and excess materials from projects site.

3. Dispose of protective barricades and warning signs at termination of lawn establishment period.

H. Field quality control:

Seed mixture:

1. ARCHITECT reserves the right to have certified seed mixtures samples and tested after delivery to the project. CONTRACTOR shall pay for testing and related costs when materials are found not to be in compliance with this specification.

2. Sampling and testing will be conducted in accordance with the New Jersey State Seed Law, Chapter 189, P.L. 1948, and with the rules and regulations for testing seeds adopted by the Association of Official Seed Analysts.

END OF SECTION

SECTION 340001 – APPENDIX - 01

ASBESTOS ABATEMENT

WORK FOR THE

SOUTHAMPTON SCHOOL DISTRICT EXISTING STORAGE BARN

APPENDIX 01

SPECIFICATION
FOR
ASBESTOS ABATEMENT

Removal of

NON-FRIABLE ASBESTOS-CONTAINING WINDOW CAULK & GLAZING
AND
DEMOLITION OF EXTERIOR WALLS WITH ASBESTOS PLASTER

From the

OLD BARN
(BEHIND ADMIN BUILDING)
144 MAIN STREET
SOUTHAMPTON, NJ 08088

PREPARED FOR

SOUTHAMPTON TOWNSHIP SCHOOLS
177 MAIN STREET
SOUTHAMPTON, NJ 08088

PREPARED BY

WESTCHESTER ENVIRONMENTAL, LLC. ASCM# 00127
1248 WRIGHTS LANE,
CHESTER, PENNSYLVANIA 19380

Reviewed: _____

ASCM#: 00127

JANUARY 2019

SOUTHAMPTON TOWNSHIP SCHOOL DISTRICT

SPECIFICATIONS FOR ABATEMENT OF ASBESTOS CONTAINING MATERIALS IN THE OLD BARN, 144 MAIN ST; SOUTHAMPTON, NJ
NON FRIABLE WONDOW CAULK & GLAZING
DEMOLITION OF ASBESTOS CONTAINING PALSTER WALL

001 The Contractor shall furnish all labor, materials, employee training, services, fees, insurance and equipment necessary to carry out the asbestos decontamination, removal and disposal in accordance with the federal EPA's AHERA and OSHA regulations, and all other applicable Federal, State, and local government regulations and these specifications.

QUALITY ASSURANCE

001 The contractor shall comply with all applicable federal, state and local regulations. Applicable Standards listed in these Specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

EPA U.S. Environmental Protection Agency

OSHA Occupational Safety and Health Administration

NIOSH National Institute for Occupational Safety and Health

DEP Department of Environmental Protection

U.S. / NJ Department of Labor

N.J.A.C. 12:120 and N.J.A.C. 8:60

NJ DOH / NJ DOL

002 The Contractor has the responsibility of informing himself fully of the New Jersey Department of Health, the New Jersey DCA and the New Jersey Department of Labor requirements and shall satisfy completely these Specifications and all applicable regulations. All other applicable federal, state and local regulations are incorporated by reference.

STANDARDS

001 Standards which govern abatement work or hauling and disposal of asbestos waste materials may include but are not limited to the following:

American National Standards Institute (ANSI)

American Society for Testing and Materials (ASTM)

AFL-CLO Asbestos Standard for construction (1926-58)

AIA Service Corporation

AWCI/GAO/GSA

NOTIFICATION

001 Send in all notifications upon notice of intent from the Owner. To expedite the work the contractor shall contact the applicable agencies and determine if existing notifications can be extended. If notifications cannot be extended apply for a waiver. Contractor shall Fax copies of all notifications to the owner. Where required contact all necessary agencies to get a waiver of the ten (10) notification requirements prior to beginning any work on asbestos - containing materials. Send notification to the following address:

United States Environmental Protection Agency
Air and Hazardous Materials Division
26 Federal Plaza
New York, NY 10007

New Jersey Department of Health
CN360 Trenton, New Jersey 08625-0360

New Jersey State Department of Education
225 West State Street CN 500
Trenton, New Jersey 08625-0500

New Jersey Department of Labor
Asbestos control & Licensing
1 John Fitch Plaza 3rd Floor P.O. Box 949
Trenton, New Jersey 08625

002 Include at a minimum the following information in the notifications:

Name and address of Owner or Operator.

Name and Address of Contractor.

Description of the facility being renovated, including the size, age, and prior use of the facility.

Estimate of the approximate amount of asbestos material present in the facility in terms cubic feet of wall material to be disposed.

Location of the facility being renovated.

Scheduled starting and completion dates of renovation.

Nature of planned renovation and method(s) to be used.

Procedures and equipment to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61 Subpart M).

Name and location of the waste disposal site where the friable asbestos material will be deposited.

PERMITS

001 Contractors may be required to obtain a permit before proceeding

002 All asbestos containing waste is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for ACM, as required for transporting of waste asbestos-containing materials to a disposal site.

LICENSES

001 Maintain current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract. It is a specification requirement that all workers involved with the removal of the vapor barrier be licensed by the state of New Jersey for asbestos work.

DOCUMENTATION

001 The contractor shall furnish documentation that the firm and its employees are familiar with the regulations of OSHA, EPA, and AHERA relating to the application, removal, disposal and treatment of asbestos.

002 One copy of each of the regulations cited shall be available in the Contractor's business office.

003 Written proof that employees have had instructions on the dangers of asbestos, respirator use, and proper fit testing of approved respirators shall be documented at the Contractor's business office. The Contractor shall further document that all workers on the job have completed an approved safety and health program. Documentation shall consist of an asbestos worker certificate, issued by the proper training authorities, for all workers to be assigned to the project.

004 Other than for construction demolition, Post a sign in black letters greater than four inches (4") in height stating the following:

"LICENSED BY THE STATE OF NEW JERSEY FOR ASBESTOS WORK"
License #

005 An original copy of the Contractor's license obtained from the New Jersey Department of

Labor shall be posted on site.

006 Listed on site shall be emergency telephone numbers to include the following: the monitoring firm employed by the Building Owner, E.P.A., O.S.H.A., D.O.H., fire, police, local hospital, and emergency squad.

007 Posted in view shall be emergency procedures. In case of an emergency, decontamination procedures shall not impede emergency procedures.

008 A complete list of all personnel including new employees shall be posted.

009 A daily log of all visitors shall be kept on site. Nonemployees of the Asbestos Contractor shall be required to sign an acceptable waiver form.

010 The daily log shall include a record of start and stop times, any work area problems encountered, any corrective action, and estimated amount of asbestos waste generated.

011 Contractor shall deliver to the District copies of Waste Haulers Certificate and copy of all landfill receipts.

SPECIAL REPORTS

001 Except as otherwise indicated, submit special reports directly to the Owner, within one day of occurrence requiring special reports, with one copy to the Owner and others affected by occurrence.

002 When an event of unusual and significant nature occurs at site, prepare and submit a special report listing chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predicable in advance, advise the Owner at the earliest possible date.

003 Prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document data and actions; comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

CONTINGENCY PLAN

001 Prepare a contingency plan for emergencies including fire, accident, power failure, negative air system failure, or any other event that may require modification or abridgement of decontamination or work area isolation procedures. Note that nothing in this specification should impede safe exiting or providing of adequate medical attention in the event of an emergency.

002 Post emergency services telephone numbers at the job site adjacent to the designated telephone.

SCHEDULING OF WORK

001 The entire project is to proceed in the order of the progress schedule set by the owner.

002 Work shall be confined to the areas indicated in the contract. Employees' access, location of barriers, dumpsters, etc., shall all be at the discretion of the Owner.

PROGRESS MEETINGS

001 The Owner may hold general progress meetings as required. The Contractor is required to attend all meetings. These meetings shall also be attended by designated representatives of the Owner, and the Asbestos Safety Technician. A full update of work programs both completed and started shall be given.

PROJECT REVIEW AND INSPECTION

001 The Owner, Project Manager, and the representatives of agencies having lawful jurisdiction shall at all times have access to the work area whether work is in preparation or in progress.

002 During the work monitoring for airborne asbestos fibers may be conducted (on behalf of the Owner) to ensure that the contractor is complying with all codes, regulations, ordinances, and requirements of this specification.

003 The Owner reserves the right to stop all removal operations and cancel this contract if proper environmental, health, and safety precautions are not being implemented and adhered to by the Contractor and his personnel. If work procedures are not in compliance with this specification a "Stop Work Order" shall be issued to the Contractor by the Owner. No work shall commence until authorization is given in writing by the Owner. Further noncompliance of these specifications or safety regulations shall be cause for cancellation of the contract.

OWNERS RESPONSIBILITIES

004 The Owner shall have authorized representatives on the work site at all times or provide the Contractor with a means of communicating to such representatives within a reasonable time. These representatives shall have access and knowledge of all areas and equipment. These representatives shall be available to aid the Contractor in the event of power failure, supply air shut down, or other technical difficulties.

005 Should any utility failure occur, the Owner shall not be responsible for any loss of time or other expense to the Contractor. Contractor shall use backup generators as necessary.

006 The Owner shall notify the Contractor of any scheduled system shut downs.

AIR MONITORING - OWNER

001 The Owner may employ the services of an asbestos sampling technician. An appropriately accredited laboratory facility shall be employed to analyze, air, bulk, and any other samples

deemed necessary.

002 The purpose of the Owner's air monitoring is to detect faults in the work.

Contamination of the building outside of the work area with airborne asbestos fibers.

Contamination of air inside the building.

003 The Technician shall provide monitoring and inspection which may include work area samples, and samples outside the work area to ensure that these areas remain free from contamination. Acceptable levels outside the work area will be:

<0.01 fibers/cc or background - Analysis via Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy.

004 Inspections will include checking the standard operating procedures, engineering control systems, respiratory protection and decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project which may affect the health and safety of the people and environment.

005 The Owner shall be responsible for costs incurred with rush required laboratory work. Any subsequent testing (and associated costs) required due to limits exceeded during clearance testing shall be paid by the Contractor.

006 Prior to beginning work in the area, the Technician may collect preliminary background samples to determine the present airborne fiber concentrations.

007 If at any time during the course of the work, airborne fiber concentrations exceed either background concentration or <0.01 fibers/cc outside of the work area, the Technician will be required to halt worker activities and take corrective measures to reduce airborne fiber concentrations (misting the air, wet wiping, and HEPA vacuuming, etc.) Work may not commence until the source of the contamination has been identified and additional air samples have been collected indicating airborne fiber concentrations are below 0.01 fibers/cc or the background level.

AIR MONITORING - CONTRACTOR

001 The Contractor shall comply with representative personal air sampling.

RECORD KEEPING FOR ALL AIR MONITORING

001 All records, reports, field notes, data, laboratory analysis, and support information shall be secured and maintained in the Project Log for contractor monitoring and in the project minutes of the Owner. Such records will be retained for a minimum of thirty (30) years.

DISCRETIONARY SAMPLING

001 Additional sampling may also be indicated based on the professional judgement of the

Technician or the Owner.

TEMPORARY FACILITIES

001 Provide temporary connection to existing building utilities or provide temporary facilities as required herein or as necessary to carry out the work.

002 Provide new or used materials and equipment that are undamaged and in serviceable condition. Provide only materials and equipment that are recognized as being suitable for the intended use, by compliance with appropriate standards.

003 All temporary water service connections to the Owner's water system shall include backflow protection. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sinker grade where water will not damage existing finishes or equipment.

004 Employ heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and water heating equipment, branch piping, showers, shut-off nozzles and equipment etc.

005 Hot water shall be provided by the Contractor's water system, with backflow protection installed at point of connection to Owner's cold water supply.

006 All polyethylene sheeting used shall be "Flame-resistant" and conform to the requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. In buildings required by the Uniform construction code to be of noncombustible construction, all materials used to construct separation barriers must meet the Uniform construction Code, building Subcode requirements for that building and all plastics used must be flame resistant.

007 Electrical services should comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric services. Contractors connection and disconnect into and from the building supplied electrical service shall be accomplished by an electrician licensed in New Jersey. The electrician shall be available throughout the project duration for any and all alterations to the connection(s).

008 Provide identification warning signs at power outlets which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

009 Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate GFCI's exterior to Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters, equipped with test button and reset switch for all circuits to be used for any purpose in work areas, decontamination units, exterior, or as otherwise required by national electrical code, OSHA

or other authority. CONTRACTOR SHALL VERIFY THAT ALL ELECTRIC INTO THE WORK AREA IS OFF.

010 Use only grounded (OSHA approved) extension cords; use "hard service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas of work.

011 Where necessary, provide general service incandescent lamps to give adequate illumination. Protect lamps with guard cages or tempered glass enclosures, where fixtures are exposed to breakage by construction operations. Provide exterior fixtures where fixtures are exposed to the weather or moisture.

WORK AREA

001 Provide warning signs at each visual and physical barrier reading as follows:

DANGER
ASBESTOS ABATEMENT WORK
IN PROGRESS
AUTHORIZED PERSONNEL ONLY
BREATHING ASBESTOS DUST MAY
BE HAZARDOUS TO YOUR HEALTH

Provide caution signs:

LINE 1: DANGER ASBESTOS
LINE 2: CANCER AND LUNG DISEASE
LINE 3: HAZARD
LINE 4: AUTHORIZED PERSONNEL ONLY
LINE 5: RESPIRATORS AND PROTECTIVE
LINE 6: CLOTHING ARE REQUIRED IN
LINE 7: THIS AREA

WORKER PROTECTION

001 Workers are to be accredited as Abatement Workers as required by the N.J. D.O.L., AHERA regulations 40 CFR 763 Appendix C to Subpart E, April 30, 1987 and trained in accordance with the OSHA requirements and on the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures etc..

002 Train workers on the purpose, proper use, fitting, instructions, and limitations of respirators as required by OSHA regulations. Contractor is required to comply with the new OSHA respiratory standard.

003 Before the start of work, submit the Physicians written opinion. Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stresses in the worker.

004 Adequate protective clothing, including but not limited to the following items, must be provided:

Provide disposable full-body coveralls, footwear covers, and disposable head cover, and require that they be worn by all workers in the work area. Provide a sufficient number for all required changes, for all workers in the work area.

Provide eye protective (goggles) as required by OSHA for all workers involved in scraping, spraying, or any other activity which may potentially cause eye injury.

Provide work gloves to all workers and require that they be worn at all times in the work area. Do not remove gloves from work area and dispose of them as asbestos contaminated waste at the end of the work.

005 Respirators, disposable coveralls, head covers, and footwear covers shall be provided by the Contractor for the Owner, Project Administrator, and other representatives who may inspect the job site.

006 Provide worker protection as required by the OSHA and/or EPA standards applicable to the work.

RESPIRATORY PROTECTION

001 Powered air-purifying, positive pressure, full or half-faced respirators (where permitted by OSHA) may be worn during all phases of the project. At the discretion of the Asbestos Safety Technician, full or half-face, negative pressure respirators may be worn during prescribed phases of the project when the protection factor of these respirators is not exceed.

002 Supply a sufficient quantity of high efficiency respirator filters approved for asbestos so that workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Require that HEPA elements in filter cartridges be protected from wetting during showering.

003 Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radio nuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z228.2 (1980). In addition, a chemical cartridge selection may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA Certification.

004 Do not use single, disposable or quarter-face respirators.

005 Check the fit of each worker's respirator by having irritant smoke blown onto the respirator

and into the intake port of the motor unit (this should be done with filters in place) from a smoke tube.

006 Require that each time an air purifying respirator is put on, it be checked for fit with a positive pressure fir test in accordance with the manufacturer's instructions or ANSI Z88.2 (1980).

DECONTAMINATION UNITS

001 The Contractor shall provide remote/attached three stage decontamination units. Coordinate location with the construction manager.

002 A decontamination facility shall be available during any asbestos cleanup/removal activity.

003 Waste shower water shall be recycled to be used as a wetting agent or added to asbestos waste before disposal in an approved landfill.

ELECTRICAL WIRING ETC.

001 Contractor shall insure that all electrical equipment to the work area is completely disconnected. Insure that all electric to the work area is via GFCI. Clearly mark all plugs/connections etc where voltage exceeds 110 volts.

DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL

001 All waste/debris from the work area is considered contaminated and shall be disposed of as asbestos.

002 Warning labels, having waterproof print and permanent, waterproof adhesive, shall be affixed to all bags, dumpsters, trucks and other containers used for asbestos. Labels shall be conspicuous and legible and shall contain the following warning (as a minimum):

DANGER
Contains Asbestos Fibers
Do Not Open
Avoid Creating Dust
Breathing Asbestos is Hazardous to Your Health
SCHOOL NAME/LOCATION

003 The waste container shall be completely enclosed and locked. It is to be opened only for materials from the removal area. Warning sign shall be posted on the waste container.

004 The Contractor shall keep track of the amount of asbestos disposed and list accurate quantities on the waste manifest.

005 Inspection of the waste hauling vehicle shall be accomplished upon its arrival on-site. Walls and floor will be inspected for sharp protrusions which will be taped, if found. Container floor shall be covered by one layer of 6 mil poly which shall extend at least 6" up container walls.

006 Do not store disposal bagged material outside the work area. Take bags from the work area directly to a sealed truck or dumpster.

007 The Contractor shall transport all sealed bags to an approved sanitary landfill disposal sight. Disposal shall be in accordance with the Environmental Protection agency and New Jersey Department of Environmental Protection. Contractor is responsible for all transfer fees.

010 Retain the material chain-of-custody and receipts from landfill for materials disposed of. The Contractor shall forward copies of such receipts to the Owner.

PREVAILING WAGE INFORMATION

001 In accord with the 1963 Revised Statues of New Jersey, Chapter 150, "Prevailing Rate of Wages on Public Contracts," the prevailing wage rates (as determined by the commissioner of Labor and Industry of the state of New Jersey) for the locality of the work and for each classification of workmen needed to perform the contract will apply; where applicable, all workmen shall be paid not less than these prevailing wage rates.

002 Be advised that effective February 18, 1992 Regulation N.J.A.C. 12:60-2.1 & 6.1 of the N.J. Prevailing wage act, N.J.S.A. 34:11 - 56.25 et seq. requires that all public works employers shall submit a certified payroll to the public body or lessor which contracted for the public work project each payroll period within ten (10) days of the payment of wages. The public body shall receive, file and make available for inspection during normal business hours the certified payroll records.
A copy of the certified payroll form may be obtained by contacting the New Jersey Department of Labor, Division of Workplace Standards, Public Contracts Section, CN 389, Trenton, N.J. 08625-0389, telephone (609) 292-2259.

INSURANCE

001 Contractor shall comply with District insurance requirements.

NON-FRIABLE WINDOW CAULK & GLAZING REMOVAL

001 Contractor shall carefully, using applicable ‘non-friable’ removal methods and techniques, remove the asbestos containing window caulk & glazing. Contractor shall put up signs and barrier tape around work areas. Contractor shall use a poly drop cloth on the waste route.

002 Insure that all MSDS are on site.

003 Contractor shall follow DOH non-friable removal methods.

Non-friable Window caulk/glazing and demolition of walls with friable asbestos plaster.

Scope of Work

The following asbestos containing Asbestos Containing Materials are to be removed from the Old barn (behind the Administrative Building) – Southampton Township School District:

OLD BARN BEHIND ADMINISTRATION BUILDING			
LOCATION	**ASBESTOS MATERIAL**	**ESTIMATED QUANTITIES**	**RESPONSE ACTION**
Interior and Exterior Wall Plaster - Top Coat	Wall Plaster Top Coat Only	2,465 SF	Demolition of wall under containment.
Exterior	Windows – Glazing and Caulk	36 SF (6 Windows)	Non-friable removal.

NOTES:

1. All window caulk & glazing work to be performed with the buildings **UN OCCUPIED.**
2. Quantities of materials to be removed are for estimating purposes only. The contractor performing the work is responsible to field verify all quantities prior to submitting a bid. The building owner or consultant is not responsible for extra compensation if the contractor does not verify the quantities

SEQUENCE OF ABATEMENT WORK

01 The non-friable window caulk and glazing to be removed first following all applicable regulations.

02 At this time the remaining structure is to be fenced off with metal fencing with a lockable gate. Contractor shall provide adequate room inside the fencing for an outside decontamination chamber, waste dumpster and all other required equipment.

03 The wooden structure above the walls of the barn to be demolished; this includes all the non-asbestos roofing materials, wooden upper walls and all other non-asbestos materials inside the barn. Care should be taken to ensure that plaster walls are not disturbed or damaged.

04 Once this is completed, only the plaster walls and the cement flooring should be

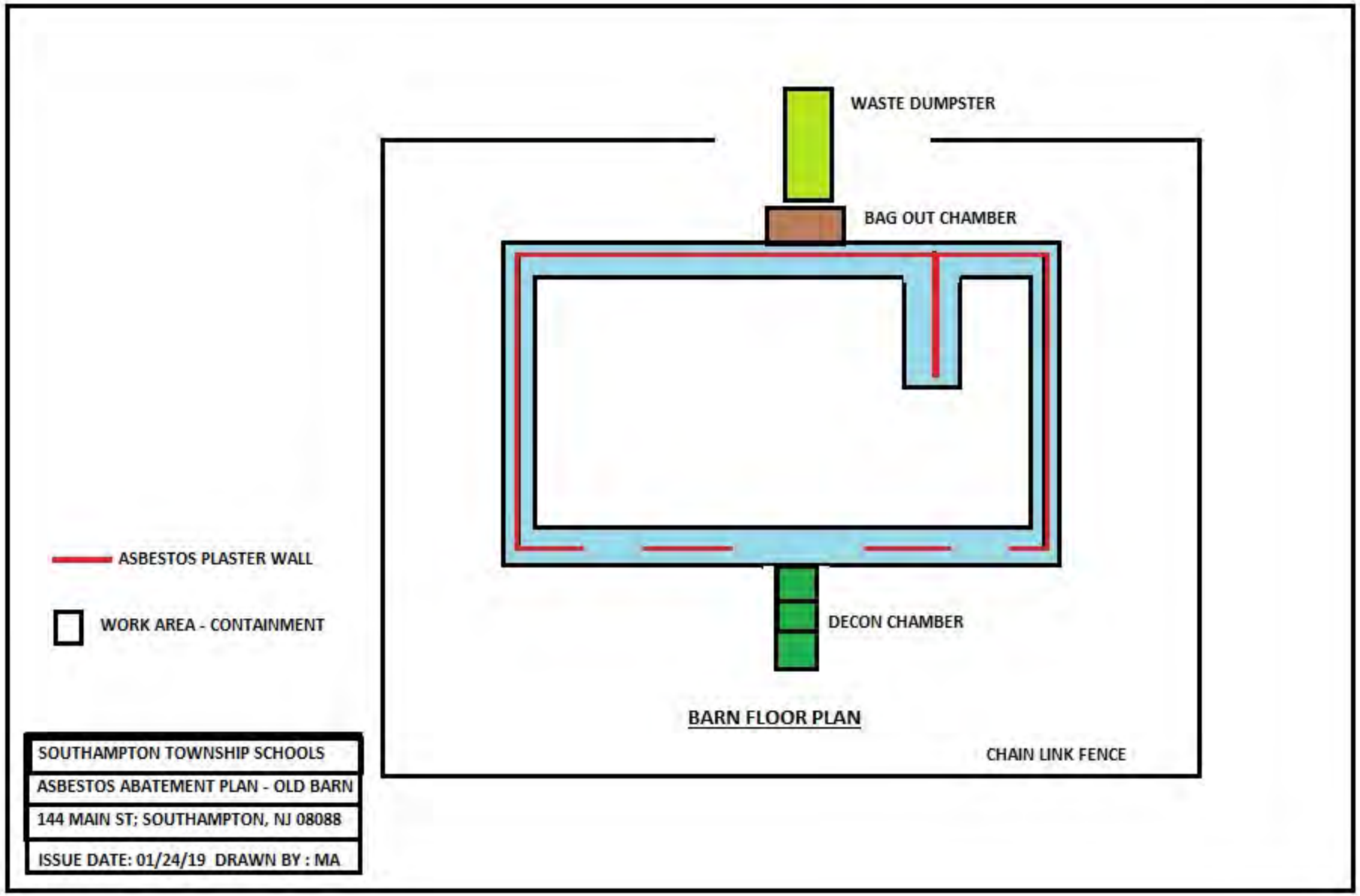
remaining at the site.

05 A wood framed plastic lined tent is to be built around the walls to be demolished. The tent should have plastic on the ceiling, walls and floor. Negative air is to be maintained inside this tent. The tent is to be wide enough to facilitate the demolition of the walls and transportation of the debris to a lined, closed and lockable waste dumpster.

06 All plaster is to be adequately wet with amended water during removal and all waste water to be collected and either bagged or added to the asbestos waste debris.

07 All bagging, transportation and disposal of Asbestos waste as per all existing and applicable regulations.

END OF SECTION


WASTE DUMPSTER
BAG OUT CHAMBER
DECON CHAMBER
BARN FLOOR PLAN
CHAIN LINK FENCE
ASBESTOS PLASTER WALL
WORK AREA - CONTAINMENT
SOUTHAMPTON TOWNSHIP SCHOOLS
ASBESTOS ABATEMENT PLAN - OLD BARN
144 MAIN ST; SOUTHAMPTON, NJ 08088
ISSUE DATE: 01/24/19 DRAWN BY : MA