



Roscoe West Hall Alterations HVAC/Fire Protection Work

TCNJ Advertised Bid # AB210014

COVER SHEET

INVITATION TO BID

MILESTONE SCHEDULE

CONSTRUCTION BID PROPOSAL FORM

GENERAL WORK DESCRIPTION

PROJECT MANUAL & SPECIFICATIONS

MANDATORY DOCUMENTS

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February 4, 2021



Please place the following advertisement in the Legal Section of Classified Advertising. Please ensure that the invoice for this advertisement is prepared and an affidavit forwarded to The College of New Jersey, Office of Finance and Business Services, Administrative Services Building, Room 201, P.O. Box 7718, Ewing, NJ 08628-0718.

To be published on **February 4, 2021**. Contact person regarding placement of ad is Anup Kapur (609) 771-2495.

**THE COLLEGE OF NEW JERSEY
ADVERTISEMENT FOR BIDS
BID #AB210014**

Under the provisions of the State College Contracts Law, Chapter 64 of Title 18-A, The College of New Jersey will receive sealed bids for the **Roscoe West Hall Interior Alteration HVAC/Fire Protection Work** until **2:00 P.M. on the 26th day of February, 2021** at The College's Office of Finance and Business Services, Administrative Services Building, Second Floor, Room 201, Route 31 (Pennington Road), Ewing Township, New Jersey. At 2:00 P.M. all bids will be publicly opened and read in Room 203 of the Administrative Services Building.

The project will be bid as a Single Lump Sum. No bidder may submit more than one bid.

Bid Documents may be obtained on/after **February 4, 2021 via our website** (<https://bids.tcnj.edu/home/construction-projects/>).

A **strongly encouraged pre-bid conference/on-site inspection** is scheduled on **February 8, 2021 at 10:00 A.M.** in Room 203 of the Administrative Services Building, located on The College's Ewing Township, New Jersey campus on Route 31 (Pennington Road).

Bidders are required to comply with the requirements of P.L. 1975 c. 127 (N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 - Affirmative Action); the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq.; N.J.S.A. 52:25-24.2, "Statement of Ownership Disclosure"; the Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48 et seq.); the New Jersey Business Registration of Public Contractors provisions (N.J.S.A. 52:32-44); Executive Order 117 and P.L. 2005 Chapter 51 (N.J.S.A. 19:44a-1 et seq.) and all amendments thereto.

Bidders must have a New Jersey Department of Treasury, Division of Property Management and Construction (DPMC) (C008) General Construction classification. No other bids will be accepted without this classification.

A bid bond is required in the amount of 10% of the total bid. Bid bond shall consist of a certified check or cashier's check to the order of The College of New Jersey, or an individual or annual bid bond issued by an insurance company or surety company authorized to do business in the State of New Jersey. The successful Bidder(s) is required to provide a Performance and Payment Bond equal to 100% of the contract. A Surety Disclosure Statement and Certification form must accompany the performance bond.

The College will award the contract to the lowest responsible bidder who satisfies the qualification criteria as set forth in the contract documents. The College of New Jersey reserves the right to reject all bids or to waive any minor informalities in the bidding in accordance with law. No bid shall be withdrawn for a period of sixty (60) days subsequent to the opening of bids without the consent of The College of New Jersey.

Participants planning to attend the pre-bid and the bid opening should follow the safety guidelines recommended by the CDC and abide by any and all Executive Order(s) pertaining to safety precautions required as a result of COVID-19.



Roscoe West Hall Interior Alterations HVAC/Fire Protection Work

MILESTONE SCHEDULE

January 26, 2021

Bid Released	4-Feb-21
Site visit	8-Feb-21
Cut off for questions	12-Feb-21
Addendum issued	16-Feb-21
Bids Received	26-Feb-21
Notice of Intent to Award issued	01-Mar-21
End of Protest Period	8-Mar-21
Notice to proceed issued by	9-Mar-21
Submittals in for approval	23-Mar-21
Submittals approved by:	31-Mar-21
Construction Begins in Field	15-Mar-21
Substantial Completion of HVAC and FP work on site	7-June-21
Contract Closed out by:	30-Sept-21

**THE COLLEGE OF NEW JERSEY
Construction Bid Proposal Form**

**Office of Finance & Business Services
Administrative Services Building, Rm. 201
2000 Pennington Road
Ewing, New Jersey 08628-0718**

**Bid Number: AB210014
Bid Due Date: February 26, 2021**

Project Name: Roscoe West Hall Interior Alterations HVAC/Fire Protection Work

BIDDER INFORMATION

Firm Name:

Telephone Number:

Contact Person:
Address:

Fax Number:

Email Address:
Federal I.D. Number:

SOLICITATION OF CONSTRUCTION BIDS

- 1. Bid proposals are solicited as follows:**
 - A. Single Bid (Lump Sum) which combines all trades.**
 - (1) The total number and types of trades are set forth in the Specifications.**
 - (2) Bidder enters the Bid Price on the line provided.**
 - (3) Pursuant to the requirements of N.J.S.A. 18A:64-76.1., bidder lists the names of the subcontractors on the Subcontractor Information page.**
- 2. The scope of work includes HVAC and Fire Protection Alterations to the second floor of Roscoe Hall for the new Diversity Office, being constructed by the facilities construction shops.**
 - A. See Specifications and Drawings for Details (included in RFP package).**
 - B. The College may issue Addenda or Clarifications which may include additions to or deletions from the scope of work; changes to the Specifications, Drawings, and proposal form; and clarifications of requirements. Bidder is advised to review all Addenda and/or clarifications carefully, and shall note the receipt of same with their bid package.**

GENERAL INSTRUCTIONS AND REQUIREMENTS

1. PRICES

- A. Bidder submits prices for the Base Bid and any Alternate Proposals and Unit Prices which are listed for the contract of the bid. If there is no cost associated with the Alternate or Unit Price, bidder is required to enter “0.00” or “no change”.
- B. Prevailing wage rates apply (Mercer County).
- C. Bid is to remain good for sixty (60) days after the Bid Due Date.

2. BOND REQUIREMENTS AND SURETY STANDARDS

- A. Bidder must submit with its bid a Certified Check in the amount of ten percent (10%) of the total bid, or a Bid Bond in the amount of ten percent (10%) of the total bid.
- B. The successful bidder must submit a Performance and Payment Bond equal to 100% of the contract. A completed Surety Disclosure Statement and Certification must accompany the Performance and Payment Bond.
 - (1) The Performance and Payment Bond form and a sample Surety Disclosure Statement and Certification form are included at the end of this Construction Bid Proposal Form.
- C. All bid deposits shall be returned within three (3) days, Sunday and holidays excepted, after the awarding of the contract and the approval of the successful bidder’s performance bond, if any, the bid guaranty of the remaining bidders shall be returned to them.
- D. Should the successful bidder fail to enter into said contract after acceptance of bid by the College, then the check or security deposited by that bidder shall, at the option of the College, be retained as liquidated damages, or if Bid Bond has been supplied, principal and surety shall be liable to the amount of the Bid Bond.
- E. Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified copy of their Power of Attorney to sign said bonds.

3. LICENSES, CERTIFICATIONS, REGISTRATIONS, QUALIFICATIONS

- A. The bidder or, as applicable, its subcontractors shall at the time of bid have those required licenses, certifications, registrations, qualifications and the like (“LCRQ”) listed below and shall present satisfactory evidence thereof upon request of the College prior to the notice of intent to award.
 - (1) The HVACR contractor or subcontractor as applicable shall have a valid HVACR license.
- B. The selected bidder/contractor or, as applicable, its subcontractors shall have and shall present satisfactory evidence of all other required LCRQ noted in the Specifications after execution of contract during the submittal process and prior to the start of the applicable work, unless otherwise requested by the College or a date or event specified for that LCRQ in the Specifications.

4. SUBCONTRACTORS

a. Pursuant to New Jersey State Law (N.J.S.A. 18A-76.1), a Single Bid (Lump Sum) bidder discloses its subcontractors to whom the bidder intends to subcontract the work. The Subcontractor Information sheet is provided for this purpose.

5. Under Executive Order 34, the College is responsible for soliciting demographic information from its vendors. The College is required to seek the following information from each firm under contract with the College:

- 1. Is more than fifty percent (50%) of your company minority owned? (circle one) YES NO
(African-American, Hispanic, Asian, and/or Native American)
- 2. Is more than fifty percent (50%) of your company woman owned? (circle one) YES NO
- 3. What is the ethnicity of the owner of your company: (check applicable according to 51% ownership)
 - Asian American
 - Multiple Ethnicities
 - Non-Minority
 - Hispanic American
 - African American
 - Caucasian American Female
 - Native American
 - Unspecified

The College is required to solicit the foregoing information. Your response, however, is **strictly voluntary**. Please be advised that any contracting decisions made by the College will **not** be influenced in any way by your decision to provide the above information.

6. EXECUTIVE ORDER #34: MINORITY AND WOMEN BUSINESS ENTERPRISES

On September 15, 2006, Governor Corzine signed Executive Order 34 establishing a Division of Minority and Women Business Development. The Division is charged with administering and monitoring policies, practices, and programs to ensure that minority and women business enterprises (MWBE) are afforded an equal opportunity to participate in New Jersey’s purchasing and procurement processes.

State entities are required to report to the Division the ethnic and gender composition of the vendors with which those state entities do business.

- 1. Bidder completes Statement of Ownership Disclosure form and the Non-Collusion Affidavit form.
- 2. Bidders are required to be registered with the New Jersey Department of Property Management and Construction (DPMC) and possess a DPMC C008 classification at the time of bid submission.

7. SET ASIDE PROGRAM FOR SMALL BUSINESS ENTERPRISE (SBE) – CONSTRUCTION

In accordance to N.J.A.C., 17:14-1.2 et seq. and Executive Order 71, signed by Governor James E. McGreevey in 2003, the College requires bidders to make a good faith effort to provide opportunities for Small Business Enterprises (SBE) to participate in the performance of this contract as subcontractors consistent with the overall goals established for construction services by the New Jersey Commerce and Economic Growth Commission (NJ Commerce).

SBE subcontracting goals are not applicable if the bidder is currently registered with NJ Commerce as an SBE firm.

8. PREVAILING WAGE AND PUBLIC WORKS CONTRACTOR REGISTRATION ACTS

- The work described in this project is subject to the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq. and the Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48 et seq.
- The Public Works Contractor Registration Act requires the bidder and any subcontractors listed in the bid to be registered with the New Jersey Department of Labor and Workforce Development at the time the bid is submitted. The contractor must submit registration certificates for all listed subcontractors prior to award of the contract.
- The Contractor must comply with the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 through 56.47. Workers employed by the Contractor or any subcontractor or sub-subcontractor in the performance of services directly on the project must be paid prevailing wages. As required by N.J.S.A. 34:11-56.27 and 56.28, this contract cannot become effective until the College obtains from the New Jersey Department of Labor and Workforce Development a determination of the prevailing wage rates applicable to the project as of the contract award date and attaches a copy to the contract. As required by N.J.S.A. 34:11-56.27, the Contractor or any subcontractor may be terminated if any covered worker is not paid prevailing wages on the project, and the Contractor and its surety shall be liable for any additional costs which result. The Contractor and its subcontractors must be registered with the New Jersey Department of Labor and Workforce Development (N.J.S.A. 34:11-56.51 et seq.), and the prevailing wage rates must be posted at the job site (N.J.S.A. 34:11-56.32). The Contractor and its subcontractors must prepare accurate certified records of wages paid for each worker on the project (N.J.S.A. 34:11-56.29), and copies for the period covered by each invoice must be attached to the invoice submitted under the contract. In accordance with N.J.S.A. 34:11-56.33, the Contractor's final invoice must include a statement of all amounts still then due to workers on the project. The Contractor is also cautioned that it must use job titles and worker classifications consistent with those approved by the Department of Labor and Workforce development, and that, if it intends to pay apprentice rates, it must comply with the Department of Labor and Workforce Development regulations at N.J.A.C. 12:60.
- Please refer to http://lwd.dol.state.nj.us/labor/wagehour/wagerate/wage_rates.html for official wage rate determinations for Mercer County, NJ.

9. NEW JERSEY EQUAL PAY ACT

On April 24, 2018, Governor Phil Murphy signed into law New Jersey's Diane B. Allen Equal Pay Act (P.L. 2018, c. 9) The law provides in pertinent part that as of July 1, 2018, any employer entering into a contract with the State of New Jersey or an instrumentality of the State for "qualifying services" or "public works" must provide to the Department of Labor and Workforce Development – upon commencement of the contract – wage and demographic data for all employees who are employed in connection with the contract (for public works) and for all employees (for qualifying services). This requirement DOES NOT apply to employers who are contracting with local governments (for example: municipalities and counties). The report must contain the gender, race, ethnicity, job category, compensation, and number of hours worked by each employee.

The extent of the Department of Labor and Workforce Development's responsibilities under the Equal Pay Act is the collection of data regarding compensation, hours worked, job/occupational category, job title, gender, race, and ethnicity for State contactors and making that data available to the Division on Civil Rights (DCR), within the Department of Law and Public Safety, and upon request to certain individuals. Complaints of unlawful discrimination under the Equal Pay Act should be directed to the DCR, as should any questions regarding the filing of such a complaint.

The Department of Labor and Workforce Development has issued two forms, as required by the law, to be completed by employers. The forms should be used to report the employee's wage and demographic data and can be found on the LWD website (<http://www.nj.gov/labor/equalpayact>). **A completed copy of the forms is not required at time of bid; however, it will be required of the bidder who receives the notice to proceed from the College. Completed forms should be emailed to: equalpayact@dol.nj.gov**

10. In order for your proposal to be accepted and deemed valid, your company/firm will be required to comply with the requirements of N.J.S.A. 19:44A-1 et seq/P.L. 2005 Ch. 51 ("Chapter 51") and Executive Order 117. Enclosed are the requirements of Chapter 51 and Executive Order 117, the forms for Certification and Disclosure. The contract that will be generated based on this bid proposal cannot be awarded without approval of the Certification and Disclosure forms by the State of New Jersey, Department of Treasury. **A completed copy of your Certification form is not required at time of bid; however, it will be required from the bidder who receives the notice of intent to award from the College prior to the execution of the contract.**
11. Pursuant to N.J.S.A. 52:32-44, The College of New Jersey ("Contracting Agency") is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

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

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

During the course of contract performance:

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

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

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

12. Record Retention: Pursuant to N.J.A.C. 17:44-2.2, the vendor 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.

13. Energy Star energy efficient products: Under Executive Order #11 (Corzine), the College is required to select ENERGY STAR energy-efficient products when acquiring new energy-using products or replacing existing equipment. For products that do not have ENERGY STAR labels, vendors shall follow guidelines established by the New Jersey Clean Energy Program.

14. QUESTIONS

- a. Direct inquiries and correspondence relating to this proposal form and questions regarding the technical specifications and requests for clarification must be

submitted in writing via **email to kapura@tcnj.edu** and must be received **prior to 2pm, on February 12, 2021.**

- b. Should any questions be received, a notice will be placed in the newspaper and the addendum or clarification will be available on **February 16, 2021 on the College's website at <https://bids.tcnj.edu/home/construction-projects/>.** **If an addendum and/or clarification is posted, it SHOULD be noted in the General Agreement section of the bidder's proposal. Failure to do so may subject Bidder to disqualification.**

15. HOW TO SUBMIT THE COMPLETED CONSTRUCTION BID PROPOSAL FORM

- a. Bidder places all pages of the completed form and the requisite additional documents in an envelope, seals the envelope, and labels it with his/her firm name, address, and **"Sealed Bid Enclosed for AB210014 and Roscoe West Hall Interior Alterations"**.
 - b. Bidder mails or deliver by hand the sealed bid, no later than **2:00 p.m., February 26, 2021**, to The College of New Jersey, Attention: Anup Kapur for (specify the Bid Number), Office of Finance & Business Services, Room 201, 2000 Pennington Road, Ewing, New Jersey 08628-0718. **At 2 p.m., all bids will be publicly opened and read in Room 201 of the Administrative Services Building.**
 - c. Contractors are advised that the U.S. Postal Service and all express mail companies deliver to The College's Mail Room or Receiving Department, not directly to the Office of Budget & Finance. The College is not responsible for lost or misdirected bids.
- 16.** Any bid not prepared and submitted in accordance with the provisions described herein may be rejected by the College. Any bid received after the time and date specified will not be considered. No bidder shall withdraw a bid within sixty (60) days after the date of the bid opening. Contracts shall be awarded to the lowest responsible bidder whose bid, conforming to the invitation for bids, will be the most advantageous to the State college
- 17.** Any bidder who has defaulted on any contract with the College or any other State Agency may be considered as not responsible and their bid may be rejected. THE COLLEGE OF NEW JERSEY reserves the right to exercise this option, as the College deems proper and/or necessary in accordance with applicable law.
- 18.** Bids shall include all costs of any nature necessary to complete the project in the manner and within the time required by the contract.
- 19.** The College reserves the right to require bidders to provide a schedule of values of their lump sum bid price upon request.

20. The College is exempt from all taxes including Federal Excise Tax, Transportation Taxes, State Excise, Sales Tax and local taxes. Rentals of equipment for 28 days or less is not exempt from any tax under the State sales tax act.
21. Before submitting his bid, the bidder shall be familiar with the Drawings, Specifications, and other Documents that will form part of the contract and shall have visited the site of the project to confirm for themselves the character and amount of work involved.
22. No bidder shall be allowed to offer more than one price on each item even though he/she may feel that he/she has two or more types or styles that will meet specifications. Bidders must determine for themselves which to offer. This may be cause for automatic rejection of bid.
23. It is understood and agreed that all prices quoted are firm and not subject to any increase during the life of the contract.
24. Should any difference arise between the contracting parties as to the meaning or intent of these instructions or specifications, the College's decision shall be final and conclusive.
25. Should the bidder discover discrepancies in this Request for Bids, the matter shall be at once brought to the attention of the College, and the discrepancies corrected by written agreement before submission of bid. The correction will be issued by addendum.

26. ACCEPTANCE/REJECTION OF BIDS

- a. THE COLLEGE OF NEW JERSEY, pursuant to State College Contract Law, Contracts shall be awarded to the lowest responsible bidder whose bid, conforming to the invitation for bids, will be the most advantageous to the State college.
- b. The bid is irrevocable by the bidder or the bidder's representatives. The bid, and any award made to the bidder by the College, shall bind the bidder and the bidder's heirs, executors, administrators, successors or assigns.
- c. Award of contract shall be made to the lowest responsible bidder, whose bid, conforming to the invitation for bids, is the most advantageous to the College.
- d. The award of the contract or the rejection of the bids shall be made within sixty (60) days of the date of receiving bids, unless written extensions are requested by the College and accepted by the bidder(s). All bid securities shall be returned immediately if all bids are rejected. The successful bidder(s) to whom the award is to be made will be notified by receipt of a written "Intent to Award" from the College.
- e. When award of contract is made in one fiscal year with effective date in the next fiscal year, award shall be contingent upon the availability and appropriation of sufficient funds for that purpose for the year in which said contract takes effect. When a contract shall be awarded for a period in excess of one year, said contract shall be contingent upon the annual availability and appropriation of sufficient funds for that purpose for each year of the contract term.

27. WITHDRAWAL OF BIDS

- a. A written request for the withdrawal of a bid, or any part thereof, will be granted if the request is received by the College prior to the specified time of the bid opening.
- b. Should the bidder refuse to perform the work for the price provided, they will forfeit their bid security and will be held liable for the difference between their low bid and the next highest/responsive bidder.

28. OSHA COMPLIANCE:

- a. The Contractor shall guarantee that all materials, supplies and equipment to be provided under his contract shall meet all applicable requirements, Specifications and standards of the Federal Occupational Safety and Health Act (OSHA) of 1970 as amended to date of acceptance by the College, and shall also apply to Contractors Construction procedures.

29. APPLICABLE LAWS:

- a. The following list of statutes and regulations, which may be applicable in whole or in part, is provided for the benefit of the Contractor and is not meant to be all-inclusive. In the event that other laws are applicable, it shall be the responsibility and obligation of the Contractor to ascertain and comply with them.
 - i. New Jersey Statutes and Regulations
 - N.J.S.A. 10:5-31 *et seq.* and N.J.A.C. 17:27-1 *et seq.*, Affirmative Action
 - Prevailing Wage Act, N.J.S.A. 34:11-56.25 *et seq.*
 - N.J.S.A. 52:32-44, Business Registration Certificate
 - N.J.S.A. 34:11-56.48 *et seq.*, Public Works Contractor Registration Act
 - ii. Federal Statutes
 - Immigration Control and Reform Act (1986) – 8 U.S.C.A. Section 1324(a) *et seq.*
 - Civil Rights Act of 1964 – 42 U.S.C.A. Section 1971 *et seq.*
 - The Americans with Disabilities Act of 1990

30. EXAMINATION OF SITE, DRAWINGS AND SPECIFICATIONS

- a. Each Bidder shall visit the site of the proposed work and fully acquaint themselves with the conditions as they exist so that they may fully understand the facilities, difficulties, and restrictions attending the execution of the work under this Contract.
- b. Bidders shall also thoroughly examine and be familiar with the Drawings and Specifications. The failure to receive or examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing shall in no way relieve any bidder from obligation with respect to his bid. By submitting a bid, the bidder agrees and warrants that he has examined the site, the Drawings and Specifications and, that the Specifications and Drawings are adequate and the required result can be produced under the Drawings and

Specifications. No claim for any extra will be allowed because of alleged impossibilities in the productions of the results specified or because of unintentional errors or conflicts in the Drawings and Specifications. No change orders will be issued for items, materials or issues that existed on or with respect to the site prior to bidding.

31. DRAWINGS AND SPECIFICATIONS

- a. The project shall be performed in accordance with the requirements of the Drawings and Specifications, subject to modification as provided in General Conditions. The Drawings and Specifications are intended to complement and supplement each other.
- b. Any work required by either of them and not by the other shall be performed as if denoted in both. Should any work be required which is not also denoted in the Specifications or on the Drawings because of an obvious omission, but which is, nevertheless, necessary for the proper performance of the project, such work shall be performed as fully as if it were described and delineated.

32. FORM OF AGREEMENT

a. Every successful bidder shall be required to sign the standard form contract, a copy of which is attached. Any proposed language or form changes which in any way modifies the contractor's responsibilities as set forth in the Contract Documents will not be acceptable and will be deemed to constitute a bid exception.

33. MULTIPLE BIDS NOT ALLOWED:

- a. No bidder is allowed to submit more than one bid from an individual, firm, partnership, corporation or association under the same or different name. This will be cause for automatic rejection of each bid.

34. SUBSTITUTIONS:

- a. The bidder may include in their bid substitute materials or equipment or methods in lieu of those specified in the contract documents, but they do so at their own risk. Any substitution must be equivalent in type, function and quality to the item required in the contract. The successful bidder must submit all information required within 20 days of contract award to determine if the proposed substitute is equal to the contract requirements, and any substitution must be approved by the architect and the College.
- b. The College shall have complete discretion to decide whether it will accept any substitution. No substitution shall result in any increase in the contract price or times. The successful bidder in its application for the substitution must certify in writing that the substitution is equal to what is specified in the contract documents in all material respects and will not increase the time or price of the contract work.

- c. Should the substitution be rejected, the contractor will then be required to provide the specified product, material or method at no additional cost to the College and no change in the project schedule.

35. DOCUMENTS/SUBMISSIONS THAT MUST BE PROVIDED BEFORE CONTRACT AWARD:

- **AFFIRMATIVE ACTION:** The bidder is required to complete and submit a copy of Initial Project Workforce Report (AA-201) to the College and the Division of Public Contracts Equal Employment Opportunity Compliance verifying that the bidder is operating under a federally approved or sanctioned Affirmative Action program. The bidder also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to The College and the Division.
- **CERTIFICATE OF INSURANCE:** The bidder is required to submit proof of liability insurance in accordance with The College's contract.
- **PUBLIC WORKS CONTRACTOR REGISTRATION CERTIFICATES**
- **P.L. 2005, Chapter 51 / Executive Order 117 - Contractor Certification and Disclosure of Political Contributions:**

In order for your proposal to be accepted and deemed valid, your company/firm will be required to comply with the requirements of Chapter 51 and Executive Order 117. Enclosed are the requirements of Ch. 51 and EO 117, the forms for Certification and Disclosure. The contract that will be generated based on this bid cannot be awarded without approval of the Certification and Disclosure forms by the State of New Jersey, Department of Treasury.

- **New Jersey Business Registration Certificate**
- **All applicable licenses, certificates, and requirements specified in the scope of work, contract documents and specifications.**

The following Bidder's Checklist is provided as an aid to the bidder. It does not in any way relieve the bidder of its responsibility to ensure that its bid proposal is complete.

- a. _____ Bidder has completed the Bidder Information section and General Agreement section and filled out the receipt of addendum and clarifications.
- b. _____ Bidder has completed the form of proposal and indicated base bid for either Separate Bid or Single Bid (Lump Sum all trades), prices for Alternate Proposals, and Unit Prices.
- c. _____ Bidder for Single Bid (Lump Sum) has listed and has disclosed the subcontractors on the Subcontractor Information form.
- d. _____ Bidder has enclosed a certified check or bid bond for ten percent (10%) of the amount of the bid.
- e. _____ Bidder has completed and enclosed the Non-Collusion Affidavit.
- f. _____ Bidder and each disclosed subcontractor has enclosed a copy of its **registration certificate** in accordance with the requirement of the Public Works Contractor Registration Act. (NJ Dept. of Labor and Workforce Development). **A completed copy of your Certification form is not required at time of bid; however, will be required from the bidder who receives the intent to award from the College.**
- g. _____ Bidder has acknowledged the **Affirmative Action Language** in accordance with the requirements P.L. 1975 C.127. (NJAC 17:27-1.1 et seq).
- h. _____ Bidder has enclosed its MWBE information.
- i. _____ Bidder has enclosed its Electrical and Plumbing License and any other licenses, certifications, certifications, and qualifications.
- j. _____ Bidder has enclosed its Vendor Qualification Statement
- ~~k. _____ Bidder has included a copy of its latest Experience Modification Rating (EMR Safety Rating). The College requires an average rating over the last 5 years of 1.25 or less.~~
- ~~l. _____ Bidder has included a copy of its DPMC Notice of Classification and Total Amount of Uncompleted Contracts.~~
- m. _____ Bidder has enclosed a copy of its Chapter 51 & EO117 Certification form. **A completed copy of your Certification form is not required at time of bid; however, will be required from the bidder who receives the intent to award from the College.**
- n. _____ Bidder has enclosed a copy of its New Jersey Business Registration Certificate in accordance with the requirements of the New Jersey Division of Revenue. **A completed copy of your Certificate is not required at time of bid; however, will be required from the bidder who receives the intent to award from the College.**

- o. _____ Statement of Ownership Disclosure (N.J.S.A. 52:25-24.2).**
- p. _____ Disclosure of Investment Activities in Iran (N.J.S.A. 52:32-58).**

GENERAL AGREEMENT

1. Having examined the plans and specifications with related documents and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, the undersigned hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein, and at the price stated. This price covers all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

2. Bidder acknowledges receipt of the following Addendums/Clarifications:

Addendum Number _____	Date _____	Addendum Number _____	Date _____
Addendum Number _____	Date _____	Addendum Number _____	Date _____
Addendum Number _____	Date _____	Addendum Number _____	Date _____

3. Bidder acknowledges and affirms that he/she has personal knowledge of or has obtained and reviewed a copy of the valid prevailing wage rates at the time of the bid and for the duration of the contract for all trades involved in the project for the geographical location of the project as issued by the Commissioner of the Department of Labor & Workforce Development, Trenton, NJ 08625 (609) 292-2259 or visiting the Department of Labor website at (http://lwd.dol.state.nj.us/labor/wagehour/wagerate/wage_rates.html).

4. Bidder agrees that its price is good and the bid shall not be withdrawn for a period of 60 calendar days after the scheduled Bid Due Date and Time.

5. Upon conclusion of the 5 business day protest period, Bidder will execute the formal contract within 5 business days and deliver as required in the General Conditions: a Performance and Payment Bond; Surety Disclosure and Certification Statement; and certificates of insurance for general liability, automobile and worker’s compensation.

6. Bidder acknowledges work to commence on site not later than ten (10) calendar days after receipt of a Notice to Proceed.

(Seal if bid is by Corporation)

Respectfully submitted,

(Signature of Principal)

(Printed Name of Principal)

(Title of Principal)

PRICES FOR SINGLE BID (LUMP SUM): Base Bid, Alternate Proposals, and Unit Prices
FORM OF PROPOSAL

To: **The College of New Jersey**

For: **Roscoe West Hall Interior Alterations HVAC/Fire Protection Work**

Date _____

A. BID:

1.Base: We, _____, the Undersigned, in accordance with the published advertisement inviting proposals, will furnish all labor, material, equipment and services necessary for the complete construction, as defined in the advertisement, specimen contract, specifications, addendums/clarifications/bulletins, drawings, and proposal, for the Contract amount indicated below for the **above noted project** in strict accordance with the Contract Documents and Addenda thereto for the total sum of:

_____ Dollars \$ _____
 (words)

HVAC/Fire Protection Construction (Single overall Prime Contract)

B. UNIT PRICES: N/A

C. AGREEMENT: We, the Undersigned, agree, if awarded the Contract, to execute an agreement for the above stated work and compensation on the Standard Form of Agreement Between Owner and Contractor.

D. SURETY: We, the Undersigned, agree, if awarded the Contract, to execute and deliver to the Owner, prior to the signing of the Contract, the Performance and Payment Bonds as required.

- Contractor shall provide a Maintenance Bond at job completion for a period of one year for 100% of the final contract price.

E. BID SECURITY: The attached bid security is to become the Property of the Owner in the event that the Contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense (including the difference between the price provided with said bond and the next lowest responsive bidder) to the Owner caused thereby.

Certified Check	\$	
Bid Bond	\$	

F. STATEMENT:

1. We, the Undersigned, acting through its authorized officers and intending to be legally bound, agree that this bid proposal shall constitute an offer by the Undersigned to enter into a Contract with the acts and things therein provided, which offer shall be irrevocable for sixty (60) calendar days from the date of opening hereof and that the Owner may accept this offer at any time during said period by notifying the Undersigned of the acceptance of said offer.

2. We, the Undersigned, acknowledge receipt of the following Addenda/Clarifications:

Addenda Number	Dated

The undersigned further agrees to comply with the requirements as to conditions of employment, wage rates, and hours of labor set forth in the Contract Documents.

Dated _____

Firm Name _____ Phone Number: _____

Address _____

**If a corporation, give the State of Incorporation, using the phrase:
"A corporation organized under the laws of _____."

If a partnership, give names of the partners, using also the phrase:
"Co-partners trading and doing business under the firm name and style of _____"

If an individual using a trade name, give individual name, also using the phrase:
"An individual doing business under the firm name and style of _____"

Dated: _____

STATE OF _____ SS.

COUNTY OF _____

_____ being duly sworn say that the several matters stated in this proposal are in all respects true, and that no member of the State or employee of the College are interested in any way in this proposal.

Sworn and subscribed before me _____ Bidder signs above line

this _____ day of _____ 20____

_____ and _____
Print Name Title

SUBCONTRACTOR INFORMATION FOR SINGLE BID (LUMP SUM)

Pursuant to the State Colleges Contract Law, N.J.S.A. 18A:64-76.1, all bids submitted shall set forth the names and license numbers of all subcontractors to whom the bidder intends to subcontract the plumbing and gas fitting work; the refrigeration, the heating and ventilating systems and equipment; the electrical work, including any electrical power plants; tele-data, fire alarm, or security systems; the structural steel and ornamental iron work (individually, the “Trade” or collectively, the “Trades”).

For each Trade listed below for which the work will be completed by a subcontractor you must list for each such subcontractor at a minimum the name and, where applicable, license number (or in lieu thereof enclose a copy of the license with this form) and preferably you will also list the subcontractor’s address, telephone number, and fax number. If the work will be self-performed by the bidder, you may indicate that by inserting the name of the bidder (next to “Name”). If work by that Trade is not required per the scope of work of the project, you may indicate that by inserting “Not required” (next to “Name”). If the name of a subcontractor is not provided on this form for any one or more of the Trades, the bidder, in submitting its bid, certifies that, for such Trades, either the work will be self-performed by the bidder, or the work is not required per the scope of work.

Failure to complete this form as required may result in your bid being disqualified.

Plumbing and Gas Fitting Work

List information for Subcontractor, if any:

Name: _____
License Number: _____
Address: _____

Telephone: _____
Fax: _____

Refrigeration, Heating and Ventilating Systems and Equipment

List information for Subcontractor, if any:

Name: _____
License Number: _____
Address: _____

Telephone: _____
Fax: _____

Electrical Work, including any Electrical Power Plants, Tele-data, Fire Alarm, or Security Systems

List information for Subcontractor, if any:

Name: _____
License Number: _____
Address: _____

Telephone: _____
Fax: _____

Structural Steel Work and Ornamental Iron Work

List information for Subcontractor, if any:

Name: _____
License Number: _____
Address: _____

Telephone: _____
Fax: _____

Bidder Name

By: _____
Signature

Printed Name of Signing Individual

Date

SMALL BUSINESS, MINORITY AND/OR FEMALE-OWNED BUSINESS REPORTING

1. Contractor and sub-contractors are requested to check all of the following that apply to their company and, if applicable, submit a copy of their certificate(s):

A. My company is certified by the NJ Department of Treasury, Division of Revenue as a:

_____ small business _____ minority-owned business _____ female-owned business

B. My company is certified by the NJ Department of Transportation as a:

_____ small business _____ minority-owned business _____ female-owned business

C. My company is a _____ small business _____ minority-owned or _____ female-owned but is not certified by either NJ Department.

C. _____ My company is not a small business, minority-owned or female-owned.

Signed

Date



PERFORMANCE BOND & PAYMENT BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____ as Principal, and _____, a corporation of the State of _____, duly authorized to do business in the State of New Jersey, having an office at _____, are hereby held and firmly bound unto The College of New Jersey in the Penal Sum of _____ DOLLARS, for payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

SIGNED this _____ day of _____, 20_____

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT, WHEREAS, the above named Principal did on the _____ day of _____, 20_____, enter into a written contract with The College of New Jersey for _____ which said contract is made a part of this bond as set forth herein;

NOW, if the said _____ shall well and faithfully do and perform the things agreed by _____ to be done and performed according to the terms of the said contract; shall pay all lawful claims of sub-contractors, materialmen, laborers, persons, forms of other suppliers or teams. fuel, oils, implements or machinery furnished, used or consumed in the carrying forward, performing, or completing of said contract, we agreeing and assenting that this undertaking shall be for the benefit of any subcontractor, materialman, laborer, person, firm or corporation having a just claim, as well as for the obligee herein; then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulated and agrees that no modifications, omissions, or additions in or to the terms of the said contract, or in or to the plans and specifications therefore shall in any wise effect the obligation of said surety on its bond.

This bond is given in compliance with the requirements of the statutes of the State of New Jersey including N.J.S.A. 18A:64-68 and any amendments thereof.

SIGNED, SEALED AND DELIVERED
IN THE PRESENCE OF

Witness

BY: _____

Witness as to Surety

BY: _____
ATTORNEY-IN-FACT

Countersigned

NOTE: General Power of Attorney and the current

this _____ day of _____, 20 _____

financial statement of the bonding company
must be attached to each copy (a total of three)
of the Performance Bond.

BY: _____

SURETY DISCLOSURE STATEMENT AND CERTIFICATION

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

- (1) The surety meets the applicable capital and surplus requirements of R.S. 17:17-6 or R.S. 17:17-7 as of the surety’s most current annual filing with the New Jersey Department of Insurance.
- (2) The capital (where applicable) and surplus, as determined in accordance with the applicable laws of the State of New Jersey, of the surety(ies) participating in the issuance of the attached bond is (are) in the following amount(s) as of the calendar year ending December 31, _____, (insert most recent calendar year for which capital and surplus amounts are available), which amounts have been certified as indicated by certified public accountants (indicating separately for each surety that surety’s capital and surplus amounts, together with the name and address of the firm of certified public accountants that shall have certified those amounts):

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

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

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

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

- (a) The name and address of each such re-insurer under that contract and the amount of that re-insurer’s participation in the contract is as follows:

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

CERTIFICATION

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

I, _____ (name of agent), as _____ (title of agent)

for _____ (name of surety),

a corporation/mutual insurance company/other (indicate type of business organization by circling one) domiciled in _____ (state of domicile), DO HEREBY CERTIFY that, to the best of my knowledge, the foregoing statements made by me are true, and ACKNOWLEDGE that, if any of those statements are false, this bond is VOID and I am subject to punishment.

(Signature of certifying agent)

(Printed name of certifying agent)

(Title of certifying agent)

(Date of Certification)



Roscoe West Hall Interior Alterations

Date: January 26, 2021

General Work Description: Replace and/or modify portions of the existing HVAC and Sprinkler systems as part of the TCNJ Construction shop project to alter the interior spaces for a new department.

Scope: Install HVAC equipment and systems as well as fire protection as noted on the bidding drawings and project specifications. This is a single prime contract: HVAC contracting being the lead with a sprinkler sub-contractor.

Schedule: see bidding schedule as part of this bidding package.

Additional Items:

1. All work is to include labor and materials for a complete turnkey project based on the scope in these bidding documents.
2. Clean up of this contract work to occur daily to maintain a safe clean working site at all times.
3. **Prevailing wages apply to this project.**
4. Contractor is to submit certified payrolls with their monthly requisitions.
5. Contractor is to include in their bid the costs for a certified balancer to balance the systems as noted on the documents.
6. Contractor is to include all costs associated with connection and extensions to and from existing Honeywell control systems, including fire alarm.
7. Ewing work ordinance is 7am until 10pm
8. All workers to park at the TCNJ Carlton Avenue parking lot, across Pennington Road. The site will accommodate two contractors vehicle only.
9. The contractor can use temporary facilities on site.
10. COVID rules while on campus apply at all times. See COVID requirements as part of this package.
11. All personnel will be required to be COVID tested weekly during the time they are working on campus. TCNJ has a free testing facility available on campus. Upon successful bid, TCNJ will review the protocols at the project kick off meeting.
12. Review Contract, General Conditions of the contract, Division 1 and all Specifications/Drawings for more detailed information.
13. TCNJ will pay for all permits. Contractor is to fill out permit applications for TCNJ distribution to DCA. Disregard notes on drawings indicating that contractor is to pay for permits.
14. Division 1 calls for contractor to provide their own dumpsters. TCNJ has a dumpster on site and the contractor can use the TCNJ provided dumpster at no cost to the contractor.

DCA Number:



MECHANICAL AND FIRE PROTECTION PROJECT MANUAL & SPECIFICATIONS

Principals

*Marc R. Parette, AIA, PP
Gregory J. Somjen, AIA

Partners

*William Bannister, AIA
*John Carton, AIA
Stephen D. Quick, AIA

Sr. Associate

Edward Neighbour, AIA

Associates

Hae-An Chyun, AIA
Steven Colella, AIA
*David Didimamoff, AIA
Melissa Insinga, NCIDQ
C. William Ross, AIA
Rachel Tiedemann, RA
Joshua Thompson, AIA

*LEED AP

for the proposed:

ROSCOE HALL WEST INTERIOR ALTERATIONS

PSA COMMISSION NUMBER: 8500

for

THE COLLEGE OF NEW JERSEY

08 January 2021

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DOCUMENT 00 01 10
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PART 1 - PROCUREMENT

Section Title

DIVISION 0 – PROCUREMENT AND CONTRACTING

MISCELLANEOUS DOCUMENTS

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00 54 00	Agreement Form Supplements
00 72 13	General Conditions – Stipulated Sum (Single-Prime Contract) [AIA A201-2007]
00 73 00	Supplementary Conditions

PART 2 – GENERAL REQUIREMENTS

DIVISION 1 – GENERAL REQUIREMENTS

OWNER INSERT

01 01 00	Summary of Work
01 02 50	Measurement and Payment
01 10 00	Project Procedures
01 30 00	Submittals and Substitutions
01 31 00	Quality Control
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01 33 00	Contract Closeout
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PART 3 - SPECIFICATIONS

DIVISION 2 – EXISTING CONDITIONS

02 41 19.13	Selective Building Demolition
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DIVISION 21 – FIRE SUPPRESSION

See Sheet Specifications FP-001

DIVISION 23 – HEATING VENTILATION AND AIR CONDITIONING

23 05 29	Hangers and Supports for HVAC Piping and Equipment
23 05 53	Identification for HVAC Piping and Equipment
23 05 93	Testing, Adjusting, and Balancing for HVAC
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23 31 13	Metal Ducts
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08 January 2021

The College of New Jersey
Roscoe Hall West Interior Alterations
PSA 8500

23 37 13 Diffusers, Registers, and Grilles

END OF DOCUMENT 00 01 10

SECTION 02 41 19.13

SELECTIVE BUILDING DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Demolishing designated building equipment and fixtures.
 - 2. Demolishing designated construction.
 - 3. Cutting and alterations for completion of the Work.
 - 4. Removing designated items for reuse and Owner's retention.
 - 5. Protecting items designated to remain.
 - 6. Removing demolished materials.

1.2 CLOSEOUT SUBMITTALS

- A. Section 01 33 00 – Contract Closeout

1.3 QUALITY ASSURANCE

- A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.
- B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered.
- C. Obtain required permits from authorities having jurisdiction prior to commencement of demolition.

1.4 SCHEDULING

- A. Section 01 10 00 – Project Procedures.
- B. Schedule Work to coincide with new construction.
- C. Cooperate with Owner in scheduling noisy operations and waste removal that may impact Owners operation.
- D. Coordinate utility and building service interruptions with Owner.
 - 1. Do not disable or disrupt building fire or life safety systems without 7 days prior written notice to Owner.
 - 2. Each Contractor shall schedule tie-ins to existing systems with all other trades to minimize disruption.
 - 3. Coordinate Work to ensure fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation at all times in occupied areas.

1.5 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Notify affected utility companies before starting work and comply with their requirements.
- B. Mark location and termination of utilities.
- C. Erect, and maintain temporary barriers, including warning signs and lights, and similar measures, for protection of the public, Owner, and existing improvements indicated to remain.
- D. Erect and maintain weatherproof closures for exterior openings.
- E. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued Owner occupancy.
- F. Prevent movement of structure; provide temporary bracing and shoring required to ensure safety of existing structure.
- G. Provide appropriate temporary signage including signage for exit or building egress.
- H. Do not close or obstruct building egress path.
- I. Do not disable or disrupt building fire or life safety systems without 7 days prior written notice to Owner.

3.2 SALVAGE REQUIREMENTS

- A. Coordinate with Owner to identify building components and equipment required to be removed and delivered to Owner.
- B. Protect designated salvage items from demolition operations until items can be removed. Items included for salvage, but not limited to are:
 - 1. Magnetic Locks
 - 2. Light fixtures
 - 3. Doors and Frames (interior)
 - 4. Doors and Frames (exterior)
 - 5. Existing unit ventilators and other mechanical equipment.
- C. Carefully remove building components and equipment indicated to be salvaged.
- D. Package small and loose parts to avoid loss.
- E. Deliver salvaged items to Owner. Obtain signed receipt from Owner.

3.3 DEMOLITION

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Maintain protected egress from and access to adjacent existing buildings at all times. General Contractor is responsible for installing fencing, barriers, etc. to keep egress paths opened and identified.
- C. Cease operations immediately when structure appears to be in danger and notify Architect.
- D. Disconnect and remove designated utilities within demolition areas.

- E. Each trade shall cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition. Each Contractor shall coordinate and identify existing utility lines with all other trades for future tie-ins.
- F. Demolish in orderly and careful manner. Protect existing improvements, supporting structural members and finish surfaces.
- G. Carefully remove building components indicated to be reused.
 - 1. Disassemble components as required to permit removal.
 - 2. Package small and loose parts to avoid loss.
 - 3. Mark components and packaged parts to permit reinstallation.
 - 4. Store components, protected from construction operations, until reinstalled.
- H. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- I. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- J. Remove temporary Work.
- K. Each contractor/trade is responsible for demolition that affects their own work. Existing conditions that require demolition in order to accept the proposed work is the responsibility of the trade affected. Scheduling of demolition to be coordinated among all trades. General Contractor to organize and manage the full scope of demolition with all trades.

END OF SECTION 02 41 19.13

08 January 2021

The College of New Jersey
Roscoe Hall West Interior Alterations
PSA 8500

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SECTION 23 05 29

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal pipe hangers and supports.
2. Trapeze pipe hangers.
3. Metal framing systems.
4. Thermal-hanger shield inserts.
5. Fastener systems.
6. Pipe stands.
7. Equipment supports.

1.2 DEFINITIONS

- A. MSS: Manufacturers Standardization Society of the Valve and Fittings Industry Inc.

1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design trapeze pipe hangers and equipment supports, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance: Hangers and supports for HVAC piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.
1. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
 2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

PART 2 - PRODUCTS

2.1 METAL PIPE HANGERS AND SUPPORTS

A. Carbon-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.

2. Galvanized Metallic Coatings: Pregalvanized or hot dipped.
3. Nonmetallic Coatings: Plastic coating, jacket, or liner.
4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.

2.2 TRAPEZE PIPE HANGERS

- A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural carbon-steel shapes with MSS SP-58 carbon-steel hanger rods, nuts, saddles, and U-bolts.

2.3 THERMAL-HANGER SHIELD INSERTS

- A. 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:
 1. Carpenter & Paterson, Inc.
 2. Clement Support Services.
 3. National Pipe Hanger Corporation.
 4. Piping Technology & Products, Inc.
 5. Or approved equal.
- B. Insulation-Insert Material for Cold Piping: ASTM C 591, Type VI, Grade 1 polyisocyanurate with 125-psig minimum compressive strength and vapor barrier.
- C. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate with 100-psig minimum compressive strength.
- D. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
- E. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- F. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.4 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

- B. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated stainless- steel anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

2.5 PIPE STANDS

- A. General Requirements for Pipe Stands: Shop- or field-fabricated assemblies made of manufactured corrosion-resistant components to support roof-mounted piping.
- B. Compact Pipe Stand: One-piece plastic unit with integral-rod roller, pipe clamps, or V-shaped cradle to support pipe, for roof installation without membrane penetration.
- C. Low-Type, Single-Pipe Stand: One-piece plastic base unit with plastic roller, for roof installation without membrane penetration.
- D. High-Type, Single-Pipe Stand:
 - 1. Description: Assembly of base, vertical and horizontal members, and pipe support, for roof installation without membrane penetration.
 - 2. Base: Plastic.
 - 3. Vertical Members: Two or more cadmium-plated-steel or stainless-steel, continuous-thread rods.
 - 4. Horizontal Member: Cadmium-plated-steel or stainless-steel rod with plastic or stainless-steel, roller-type pipe support.
- E. High-Type, Multiple-Pipe Stand:
 - 1. Description: Assembly of bases, vertical and horizontal members, and pipe supports, for roof installation without membrane penetration.
 - 2. Bases: One or more; plastic.
 - 3. Vertical Members: Two or more protective-coated-steel channels.
 - 4. Horizontal Member: Protective-coated-steel channel.
 - 5. Pipe Supports: Galvanized-steel, clevis-type pipe hangers.
- F. Curb-Mounted-Type Pipe Stands: Shop- or field-fabricated pipe supports made from structural-steel shapes, continuous-thread rods, and rollers, for mounting on permanent stationary roof curb.

2.6 EQUIPMENT SUPPORTS

- A. Description: Welded, shop- or field-fabricated equipment support made from structural carbon-steel shapes.

2.7 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.
- B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
 - 1. Properties: Nonstaining, noncorrosive, and nongaseous.
 - 2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT INSTALLATION

- A. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.
- B. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.
 - 1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
 - 2. Field fabricate from ASTM A 36/A 36M, carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.
- C. Fiberglass Pipe-Hanger Installation: Comply with applicable portions of MSS SP-69 and MSS SP-89. Install hangers and attachments as required to properly support piping from building structure.
- D. Metal Framing System Installation: Arrange for grouping of parallel runs of piping, and support together on field-assembled metal framing systems.
- E. Fiberglass Strut System Installation: Arrange for grouping of parallel runs of piping, and support together on field-assembled fiberglass struts.
- F. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

- G. Fastener System Installation:
1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
 2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- H. Pipe Stand Installation:
1. Pipe Stand Types except Curb-Mounted Type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.
 2. Curb-Mounted-Type Pipe Stands: Assemble components or fabricate pipe stand and mount on permanent, stationary roof curb. See Division 07 Section "Roof Accessories" for curbs.
- I. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
- J. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- K. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- L. Install lateral bracing with pipe hangers and supports to prevent swaying.
- M. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
- N. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- O. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.
- P. Insulated Piping:
1. Attach clamps and spacers to piping.
 - a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
 - b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.

- c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.
2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
 - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
 - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
4. Shield Dimensions for Pipe: Not less than the following:
 - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
 - b. NPS 4: 12 inches long and 0.06 inch thick.
 - c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
 - d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
 - e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.
5. Pipes NPS 8 and Larger: Include wood or reinforced calcium-silicate-insulation inserts of length at least as long as protective shield.
6. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.2 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make bearing surface smooth.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.3 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

- C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.4 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- B. Touchup: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Division 09 painting Sections.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

3.6 HANGER AND SUPPORT SCHEDULE

- A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

- E. Use carbon-steel pipe hangers and supports and attachments for general service applications.
- F. Use copper-plated pipe hangers and copper attachments for copper piping and tubing.
- G. Use padded hangers for piping that is subject to scratching.
- H. Use thermal-hanger shield inserts for insulated piping and tubing.
- I. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.
 - 2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of up to 1050 deg F, pipes NPS 4 to NPS 24, requiring up to 4 inches of insulation.
 - 3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 4 inches of insulation.
 - 4. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 if little or no insulation is required.
 - 5. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
 - 6. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated, stationary pipes NPS 3/4 to NPS 8.
 - 7. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
 - 8. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
 - 9. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
 - 10. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 8.
 - 11. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 3.
 - 12. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.
 - 13. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
 - 14. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.

15. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.
 16. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes NPS 2-1/2 to NPS 36 if vertical adjustment is required, with steel-pipe base stanchion support and cast-iron floor flange.
 17. Single-Pipe Rolls (MSS Type 41): For suspension of pipes NPS 1 to NPS 30, from two rods if longitudinal movement caused by expansion and contraction might occur.
 18. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes NPS 2-1/2 to NPS 24, from single rod if horizontal movement caused by expansion and contraction might occur.
 19. Complete Pipe Rolls (MSS Type 44): For support of pipes NPS 2 to NPS 42 if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
 20. Pipe Roll and Plate Units (MSS Type 45): For support of pipes NPS 2 to NPS 24 if small horizontal movement caused by expansion and contraction might occur and vertical adjustment is not necessary.
 21. Adjustable Pipe Roll and Base Units (MSS Type 46): For support of pipes NPS 2 to NPS 30 if vertical and lateral adjustment during installation might be required in addition to expansion and contraction.
- J. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.
- K. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
 2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
 3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
 4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
 5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.

- L. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
 2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
 3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
 4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
 5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
 6. C-Clamps (MSS Type 23): For structural shapes.
 7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
 8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
 9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
 10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.
 11. Malleable-Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
 12. Welded-Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:
 - a. Light (MSS Type 31): 750 lb.
 - b. Medium (MSS Type 32): 1500 lb.
 - c. Heavy (MSS Type 33): 3000 lb.
 13. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
 14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
 15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.
- LI. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
 2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
 3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- N. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
 2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
 3. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41, roll hanger with springs.
 4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.
 5. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from hanger.
 6. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from base support.
 7. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from trapeze support.
 8. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:
 - a. Horizontal (MSS Type 54): Mounted horizontally.
 - b. Vertical (MSS Type 55): Mounted vertically.
 - c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.
- O. Comply with MSS SP-69 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.
- P. Comply with MFMA-103 for metal framing system selections and applications that are not specified in piping system Sections.

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- Q. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

END OF SECTION 23 05 29

SECTION 23 05 53

IDENTIFICATION FOR HVAC EQUIPMENT

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. Equipment labels.
 - 2. Warning signs and labels.
 - 3. Pipe labels.
 - 4. Duct labels.
 - 5. Valve tags.
 - 6. Warning tags.

1.3 COORDINATION

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- B. Coordinate installation of identifying devices with locations of access panels and doors.
- C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

- A. Plastic Labels for Equipment:
 - 1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
 - 2. Letter Color: White.
 - 3. Background Color: Black.

4. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
 5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
 6. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
 7. Fasteners: Stainless-steel self-tapping screws.
 8. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- B. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified.
- C. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.2 WARNING SIGNS AND LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
- B. Letter Color: White.
- C. Background Color: Red.
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- G. Fasteners: Stainless-steel self-tapping screws.
- H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

- I. Label Content: Include caution and warning information, plus emergency notification instructions.

2.3 DUCT LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
- B. Letter Color: Contrasting with background.
- C. Background Color: Refer to duct label installation (Para. 3.4).
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- G. Fasteners: Stainless-steel self-tapping screws.
- H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- I. Duct Label Contents: Include identification of duct service using same designations or abbreviations as used on Drawings, duct size, and an arrow indicating flow direction.
 - 1. Flow-Direction Arrows: Integral with duct system service lettering to accommodate both directions, or as separate unit on each duct label to indicate flow direction.
 - 2. Lettering Size: At least 1-1/2 inches high.

2.4 WARNING TAGS

- A. Warning Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with matte finish suitable for writing.
 - 1. Size: Approximately 4 by 7 inches.
 - 2. Fasteners: Brass grommet and wire.
 - 3. Nomenclature: Large-size primary caption such as "DANGER," "CAUTION," or "DO NOT OPERATE."
 - 4. Color: Yellow background with black lettering.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 EQUIPMENT LABEL INSTALLATION

- A. Install or permanently fasten labels on each major item of mechanical equipment.
- B. Locate equipment labels where accessible and visible.

3.3 DUCT LABEL INSTALLATION

- A. Install plastic-laminated duct labels with permanent adhesive on air ducts in the following color codes:
 - 1. Blue: For cold-air supply ducts.
 - 2. Yellow: For hot-air supply ducts.
 - 3. Green: For exhaust-, outside-, relief-, return-, and mixed-air ducts.
 - 4. ASME A13.1 Colors and Designs: For hazardous material exhaust.
- B. Locate labels near points where ducts enter into concealed spaces and at maximum intervals of 50 feet in each space where ducts are exposed or concealed by removable ceiling system.

3.4 WARNING-TAG INSTALLATION

- A. Write required message on, and attach warning tags to, equipment and other items where required.

END OF SECTION 23 05 53

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING FOR HVAC

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. Balancing Air Systems:
 - a. Constant-volume air systems.
 - b. Variable-air-volume systems.
 - c. Multizone systems.
 - 2. Verification of performance of all equipment and automatic temperature controls.

1.3 DEFINITIONS

- A. AABC: Associated Air Balance Council.
- B. NEBB: National Environmental Balancing Bureau.
- C. TAB: Testing, adjusting, and balancing.
- D. TABB: Testing, Adjusting, and Balancing Bureau.
- E. TAB Specialist: An entity engaged to perform TAB Work.

1.4 SUBMITTALS

- A. LEED Submittal:
 - 1. Air-Balance Report for LEED Prerequisite EQ 1: Documentation of work performed for ASHRAE 62.1-2017, Section 7.2.2, "Air Balancing."
- B. Qualification Data: Within 45 days of Contractor's Notice to Proceed, submit documentation that the TAB contractor and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.

- C. Certified TAB reports.
- D. Sample report forms.
- E. Instrument calibration reports, to include the following:
 - 1. Instrument type and make.
 - 2. Serial number.
 - 3. Application.
 - 4. Dates of use.
 - 5. Dates of calibration.

1.5 QUALITY ASSURANCE

- A. TAB Contractor Qualifications: Engage a TAB entity certified by AABC or NEBB.
 - 1. TAB Field Supervisor: Employee of the TAB contractor and certified by AABC or NEBB.
 - 2. TAB Technician: Employee of the TAB contractor and who is certified by AABC or NEBB as a TAB technician.
- B. TAB Conference: Meet with the Contractor and Commissioning Contractor on approval of the TAB strategies and procedures plan to develop a mutual understanding of the details. Require the participation of the TAB field supervisor and technicians. Provide seven days' advance notice of scheduled meeting time and location.
 - 1. Agenda Items:
 - a. The Contract Documents examination report.
 - b. The TAB plan.
 - c. Coordination and cooperation of trades and subcontractors.
 - d. Coordination of documentation and communication flow.
- C. Certify TAB field data reports and perform the following:
 - 1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
 - 2. Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.
- D. TAB Report Forms: Use standard TAB contractor's forms approved by Engineer.
- E. Instrumentation Type, Quantity, Accuracy, and Calibration: As described in ASHRAE 111, Section 5, "Instrumentation."

1.6 PROJECT CONDITIONS

- A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.
- B. Partial Owner Occupancy: Owner may occupy completed areas of building before Substantial Completion. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

1.7 COORDINATION

- A. Notice: Provide fourteen (14) days' advance notice for each test to Contractor, Commissioning Contractor, Architect and Engineer. Include scheduled test dates and times.
- B. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.
- C. TAB Contractor shall participate with Commissioning Contractor in verification of up to 25% of readings. Failure of 10% will require an additional 25% of readings to be verified. Failure or an additional 10% will require total re-balance of affected system.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 TAB SPECIALISTS

- A. Subject to compliance with requirements, available TAB contractors that may be engaged include, but are not limited to, the following:
 - 1. USC Environmental
 - 2. Eastern Air Balance Co., Inc.
 - 3. National Air Balance Co., Inc.
 - 4. Technical Airflow, Inc.
 - 5. Or approved equal.

3.2 EXAMINATION

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

- B. Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.
- C. Examine the approved submittals for HVAC systems and equipment.
- D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.
- E. Examine ceiling plenums and underfloor air plenums used for supply, return, or relief air to verify that they meet the leakage class of connected ducts as specified in Division 23 Section "Metal Ducts" and are properly separated from adjacent areas. Verify that penetrations in plenum walls are sealed and fire-stopped if required.
- F. Examine equipment performance data including fan and pump curves.
 - 1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
 - 2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.
- G. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.
- H. Examine test reports specified in individual system and equipment Sections.
- I. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.
- J. Examine terminal units, such as variable-air-volume boxes, and verify that they are accessible and their controls are connected and functioning.
- K. Examine strainers. Verify that startup screens are replaced by permanent screens with indicated perforations.
- L. Examine three-way valves for proper installation for their intended function of diverting or mixing fluid flows.
- M. Examine heat-transfer coils for correct piping connections and for clean and straight fins.
- N. Examine system pumps to ensure absence of entrained air in the suction piping.
- O. Examine operating safety interlocks and controls on HVAC equipment.

- P. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.
- Q. Review automatic temperature control sequences with and coordinate measurement and calibration of automatic temperature control devices with automatic temperature controls installer.

3.3 PREPARATION

- A. Prepare a TAB plan that includes strategies and step-by-step procedures.
- B. Complete system-readiness checks and prepare reports. Verify the following:
 - 1. Permanent electrical-power wiring is complete.
 - 2. Hydronic systems are filled, clean, and free of air.
 - 3. Automatic temperature-control systems are operational.
 - 4. Equipment and duct access doors are securely closed.
 - 5. Balance, smoke, and fire dampers are open.
 - 6. Isolating and balancing valves are open and control valves are operational.
 - 7. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
 - 8. Windows and doors can be closed so indicated conditions for system operations can be met.

3.4 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system according to the procedures contained in NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and in this Section.
 - 1. Comply with requirements in ASHRAE 62.1-2017, Section 7.2.2, "Air Balancing."
- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
 - 1. After testing and balancing, patch probe holes in ducts with removable plugs or test ports.
 - 2. After testing and balancing, install test ports and duct access doors that comply with requirements in Division 23 Section "Air Duct Accessories."

3. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Division 23 Section "HVAC Insulation."
- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.5 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.
- B. Prepare schematic diagrams of systems' "as-built" duct layouts.
- C. For variable-air-volume systems, develop a plan to simulate diversity.
- D. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.
- E. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.
- F. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- G. Verify that motor starters are equipped with properly sized thermal protection.
- H. Check dampers for proper position to achieve desired airflow path.
- I. Check for airflow blockages.
- J. Check condensate drains for proper connections and functioning.
- K. Check for proper sealing of air-handling-unit components.
- L. Verify that air duct system is sealed as specified in Division 23 Section "Metal Ducts."

3.6 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
 1. Measure total airflow.
 - a. Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow.

2. Measure fan static pressures as follows to determine actual static pressure:
 - a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
 - b. Measure static pressure directly at the fan outlet or through the flexible connection.
 - c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.
 - d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
 3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
 - a. Report the cleanliness status of filters and the time static pressures are measured.
 4. Measure static pressures entering and leaving other devices, such as sound traps, heat-recovery equipment, and air washers, under final balanced conditions.
 5. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
 6. Obtain approval from Engineer for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in Division 23 Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
 7. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.
- B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.
1. Measure airflow of submain and branch ducts.
 - a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
 2. Measure static pressure at a point downstream from the balancing damper, and adjust volume dampers until the proper static pressure is achieved.

3. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.
- C. Measure air outlets and inlets without making adjustments.
1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.
- D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals.
1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.
 2. Adjust patterns of adjustable outlets for proper distribution without drafts.

3.7 PROCEDURES FOR VARIABLE-AIR-VOLUME SYSTEMS

- A. Compensating for Diversity: When the total airflow of all terminal units is more than the indicated airflow of the fan, place a selected number of terminal units at a minimum set-point airflow with the remainder at maximum-airflow condition until the total airflow of the terminal units equals the indicated airflow of the fan. Select the reduced-airflow terminal units so they are distributed evenly among the branch ducts.
- B. Pressure-Independent, Variable-Air-Volume Systems: After the fan systems have been adjusted, adjust the variable-air-volume systems as follows:
1. Set outdoor-air dampers at minimum, and set return- and exhaust-air dampers at a position that simulates full-cooling load.
 2. Select the terminal unit that is most critical to the supply-fan airflow and static pressure. Measure static pressure. Adjust system static pressure so the entering static pressure for the critical terminal unit is not less than the sum of the terminal-unit manufacturer's recommended minimum inlet static pressure plus the static pressure needed to overcome terminal-unit discharge system losses.
 3. Measure total system airflow. Adjust to within indicated airflow.
 4. Set terminal units at maximum airflow and adjust controller or regulator to deliver the designed maximum airflow. Use terminal-unit manufacturer's written instructions to make this adjustment. When total airflow is correct, balance the air outlets downstream from terminal units the same as described for constant-volume air systems.
 5. Set terminal units at minimum airflow and adjust controller or regulator to deliver the designed minimum airflow. Check air outlets for a proportional reduction in airflow the same as described for constant-volume air systems.

- a. If air outlets are out of balance at minimum airflow, report the condition but leave outlets balanced for maximum airflow.
6. Remeasure the return airflow to the fan while operating at maximum return airflow and minimum outdoor airflow.
 - a. Adjust the fan and balance the return-air ducts and inlets the same as described for constant-volume air systems.
7. Measure static pressure at the most critical terminal unit and adjust the static-pressure controller at the main supply-air sensing station to ensure that adequate static pressure is maintained at the most critical unit.
8. Record final fan-performance data.

3.8 PROCEDURES FOR MOTORS

- A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:
 1. Manufacturer's name, model number, and serial number.
 2. Motor horsepower rating.
 3. Motor rpm.
 4. Efficiency rating.
 5. Nameplate and measured voltage, each phase.
 6. Nameplate and measured amperage, each phase.
 7. Starter thermal-protection-element rating.
- B. Motors Driven by Variable-Frequency Controllers: Test for proper operation at speeds varying from minimum to maximum. Test the manual bypass of the controller to prove proper operation. Record observations including name of controller manufacturer, model number, serial number, and nameplate data.

3.9 TOLERANCES

- A. Set HVAC system's air flow rates and water flow rates within the following tolerances:
 1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 5 percent.
 2. Air Outlets and Inlets: Plus or minus 5 percent.

3.10 REPORTING

- A. Draft Reports: Upon completion of testing, adjusting and balancing procedures, prepare draft reports on the approved forms. Draft reports may be handwritten, but must be complete, factual, accurate and legible. Organize and format draft reports in the same manner specified for the final reports. Submit two (2) complete sets of draft reports. Only one (1) complete set of draft reports will be returned.

3.11 FINAL REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
 - 1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
 - 2. Include a list of instruments used for procedures, along with proof of calibration.
- B. General Report Data: In addition to form titles and entries, include the following data:
 - 1. Title page.
 - 2. Name and address of the TAB contractor.
 - 3. Project name.
 - 4. Project location.
 - 5. Architect's name and address.
 - 6. Engineer's name and address.
 - 7. Contractor's name and address.
 - 8. Report date.
 - 9. Signature of TAB supervisor who certifies the report.
 - 10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
 - 11. Summary of contents including the following:
 - a. Indicated versus final performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the Contract Documents.

12. Nomenclature sheets for each item of equipment.
 13. Data for terminal units, including manufacturer's name, type, size, and fittings.
 14. Notes to explain why certain final data in the body of reports vary from indicated values.
 15. Test conditions for fans and pump performance forms including the following:
 - a. Settings for outdoor-, return-, and exhaust-air dampers.
 - b. Conditions of filters.
 - c. Cooling coil, wet- and dry-bulb conditions.
 - d. Face and bypass damper settings at coils.
 - e. Fan drive settings including settings and percentage of maximum pitch diameter.
 - f. Inlet vane settings for variable-air-volume systems.
 - g. Settings for supply-air, static-pressure controller.
 - h. Other system operating conditions that affect performance.
- C. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:
1. Quantities of outdoor, supply, return, and exhaust airflows.
 2. Water flow rates.
 3. Duct, outlet, and inlet sizes.
 4. Pipe and valve sizes and locations.
 5. Terminal units.
 6. Balancing stations.
 7. Position of balancing devices.
- CI. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data:
 - a. Unit identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and unit size.
 - e. Manufacturer's serial number.
 - f. Unit arrangement and class.
 - g. Discharge arrangement.
 - h. Sheave make, size in inches, and bore.
 - i. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 - j. Number, make, and size of belts.
 - k. Number, type, and size of filters.

2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.
 - f. Center-to-center dimensions of sheave, and amount of adjustments in inches.

3. Test Data (Indicated and Actual Values):
 - a. Total air flow rate in cfm.
 - b. Total system static pressure in inches wg.
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg.
 - e. Filter static-pressure differential in inches wg.
 - f. Preheat-coil static-pressure differential in inches wg.
 - g. Cooling-coil static-pressure differential in inches wg.
 - h. Heating-coil static-pressure differential in inches wg.
 - i. Outdoor airflow in cfm.
 - j. Return airflow in cfm.
 - k. Outdoor-air damper position.
 - l. Return-air damper position.
 - m. Vortex damper position.

E. Apparatus-Coil Test Reports:

1. Coil Data:
 - a. System identification.
 - b. Location.
 - c. Coil type.
 - d. Number of rows.
 - e. Fin spacing in fins per inch o.c.
 - f. Make and model number.
 - g. Face area in sq. ft..
 - h. Tube size in NPS.
 - i. Tube and fin materials.
 - j. Circuiting arrangement.

2. Test Data (Indicated and Actual Values):
 - a. Air flow rate in cfm.
 - b. Average face velocity in fpm.
 - c. Air pressure drop in inches wg.
 - d. Outdoor-air, wet- and dry-bulb temperatures in deg F.
 - e. Return-air, wet- and dry-bulb temperatures in deg F.
 - f. Entering-air, wet- and dry-bulb temperatures in deg F.
 - g. Leaving-air, wet- and dry-bulb temperatures in deg F.
 - h. Water flow rate in gpm.

- i. Water pressure differential in feet of head or psig.
- j. Entering-water temperature in deg F.
- k. Leaving-water temperature in deg F.
- l. Refrigerant expansion valve and refrigerant types.
- m. Refrigerant suction pressure in psig.
- n. Refrigerant suction temperature in deg F.

F. Air-Terminal-Device Reports:

1. Unit Data:

- a. System and air-handling unit identification.
- b. Location and zone.
- c. Apparatus used for test.
- d. Area served.
- e. Make.
- f. Number from system diagram.
- g. Type and model number.
- h. Size.
- i. Effective area in sq. ft..

2. Test Data (Indicated and Actual Values):

- a. Air flow rate in cfm.
- b. Air velocity in fpm.
- c. Preliminary air flow rate as needed in cfm.
- d. Preliminary velocity as needed in fpm.
- e. Final air flow rate in cfm.
- f. Final velocity in fpm.
- g. Space temperature in deg F.

G. VAV Device Reports:

1. Unit Data:

- a. System and air-handling unit identification.
- b. Location and zone.
- c. Apparatus used for test.
- d. Area served.
- e. Make.
- f. Number from system diagram.
- g. Type and model number.
- h. Size.
- i. Effective area in sq. ft..

2. Test Data (Indicated and Actual Values):

- a. Max Air flow rate in cfm.
- b. Min air flow rate in cfm.
- c. Air velocity in fpm.

- d. Preliminary air flow rate as needed in cfm.
- e. Preliminary velocity as needed in fpm.
- f. Final air flow rate in cfm.
- g. Final velocity in fpm.
- h. Space temperature in deg F.

3.12 CERTIFICATE OF OCCUPANCY REQUIREMENTS

- A. In addition to the above, the testing and balancing contractor shall comply with the requirements of the Uniform Construction Code, certificate of occupancy requirements, NJAC 5:23-2.23,17, submission of test and balancing report. The test and balance report for mechanically ventilated Class I and II buildings of use Group B and E shall be prepared and submitted in a timely manner, and shall be included with the written application for a certificate of occupancy that will be filed with the enforcing agency by the Owner. The test and balance report must be submitted by the test and balance professional, certified by the NEBB or AABC. The signed report shall include:

- 1. Minimum quantity of outdoor air required by code.
- 2. Minimum quantity of outdoor air specified in the design.
- 3. Actual measured outdoor cubic feet per minute (CFM) or a derived quantity, if actual measurements are not possible.
- 4. Actual measured CFM.

END OF SECTION 23 05 93

SECTION 23 07 00

HVAC 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 HVAC insulation for piping, ductwork, and equipment.

1.3 DESCRIPTION OF WORK

- A. Extent of mechanical insulation required by this section is indicated on drawings and schedules, and by requirements of this section.
- B. Types of mechanical insulation specified in this section include the following:
 - 1. Piping Systems Insulation:
 - a. Fiberglass.
 - b. Cellular Glass.
 - 2. Ductwork System Insulation:
 - a. Fiberglass.
 - b. Cellular Glass.
 - 3. Equipment Insulation:
 - a. Fiberglass.
 - b. Cellular Glass.

1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of mechanical insulation products, of types and sizes required, whose products have been in satisfactory use in similar services for not less than 3 years.
- B. Installer's Qualifications: Firm with at least 5 years successful installation experience on projects with mechanical insulations similar to that required for this project.
- C. Flame/Smoke Ratings: Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame-spread index of 25 or less, and smoke-developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method.

- D. Insulation Materials: Insulation materials must be manufactured at facilities certified and registered with an approved registrar to conform to ISO 9000 quality standard.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver insulation, coverings, cements, adhesives, and coatings to site in containers with manufacturer's stamp or label, affixed showing fire hazard indexes of products.
- B. Protect insulation against dirt, water, and chemical and mechanical damage. Do not install damaged or wet insulation; remove from project site.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
 1. Owens-Corning Fiberglass Corp.
 2. Certainteed Corp.
 3. Johns-Manville
 4. Armstrong
 5. Or approved equal.

2.2 EXPOSED OUTDOOR DUCTWORK INSULATION MATERIALS

- A. Insulation material shall be flexible, closed-cell elastomeric insulation in tubular or sheet form.
- B. Materials shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with ASTM E84, latest revision. In addition, the product when tested shall not melt or drip flaming particles, and the flame shall not be progressive. In addition, all materials shall pass simulated end-use fire tests.
- C. Materials shall have a maximum thermal conductivity of 0.27 Btu-in/h-ft²-°F at a 75°F mean temperature when tested in accordance with ASTM C177 or ASTM C518, latest revisions.
- D. Materials shall have a maximum water vapor transmission of 0.10 perm-inches when tested in accordance with ASTM E96 (Procedure A), latest revision.
- E. The material shall be manufactured under an independent third party supervision testing program covering the properties of fire performance, thermal conductivity and WVT.
- F. Adhesive shall be the Insulation Manufacturer's recommended contact adhesive.
- G. Insulation Finish shall be the Insulation manufacturer's recommended Finish.
- H. Accessories such as adhesives, mastics and cements shall have the same properties as listed above and shall not detract from any of the system ratings as specified above.

2.3 INTERIOR DUCTWORK INSULATION MATERIALS

- A. Rigid Fiberglass Ductwork Insulation: ASTM C 612, Class 4.
- B. Flexible Fiberglass Ductwork Insulation: ASTM C 553, Type I, Class B-4.
- C. Jackets for Ductwork Insulation: ASTM C 1136, Type I for ductwork with temperatures below ambient; Type II for ductwork with temperatures above ambient.
- D. Ductwork Insulation Accessories: Provide staples, bands, wires, tape, anchors, corner angles and similar accessories as recommended by insulation manufacturer for applications indicated.
- E. Ductwork Insulation Compounds: Provide cements, adhesives, coatings, sealers, protective finishes and similar compounds as recommended by insulation manufacturer for applications indicated.
- F. Range Hood Exhaust Ductwork – 3M 15 A fire barrier duct wrap 1 ½ thick; 2 hour rating.

2.4 EQUIPMENT INSULATION MATERIALS

- A. Rigid Fiberglass Equipment Insulation: ASTM C 612, Class 2.
- B. Flexible Fiberglass Equipment Insulation: ASTM C 553, Type I, Class B-4.
- C. Jacketing Material for Equipment Insulation: Provide pre-sized glass cloth jacketing material, not less than 7.8 ounces per square yard, or metal jacket at Installer's option, except as otherwise indicated.
- D. Equipment Insulation Compounds: Provide adhesives, cements, sealers, mastics and protective finishes as recommended by insulation manufacturer for applications indicated.
- E. Equipment Insulation Accessories: Provide staples, bands, wire, wire netting, tape, corner angles, anchors and stud pins as recommended by insulation manufacturer for applications indicated.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which mechanical insulation is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 DUCTWORK SYSTEM INSULATION

- A. Insulation Omitted: Do not insulate fibrous glass ductwork, or lined ductwork.

B. Cold Ductwork (Below Ambient Temperature):

1. Application Requirements: Insulate the following cold ductwork:
 - a. Outdoor air intake ductwork between air entrance and fan inlet of HVAC unit inlet.
 - b. HVAC supply ductwork between fan discharge, or HVAC unit discharge, and room terminal outlet.
 - c. Insulate neck and bells of supply diffusers.
2. HVAC return ductwork between room terminal inlet and return fan inlet, or HVAC unit inlet; except omit insulation on return ductwork located in return air ceiling plenums.
3. HVAC plenums and unit housings not pre-insulated at factory or lined.
4. Insulate each ductwork system specified above with one of the following types and thicknesses of insulation:
 - a. Rigid Fiberglass: 1-1/2" thick, increase thickness to 2" in machine, fan and equipment rooms.
 - b. Flexible Fiberglass: 1-1/2" thick, application limited to concealed locations.

C. Hot Ductwork (Above Ambient Temperature):

1. Application Requirements: Insulate the following hot ductwork:
 - a. Range and hood exhaust ductwork.
2. Insulate each ductwork system specified above with one of the following types and thicknesses of insulation:
 - a. 3-M 15 A fire barrier duct wrap or approved equal: 1 1/2" thick, 2 hour resistant rated.

3.3 EQUIPMENT INSULATION

A. Cold Equipment (Below Ambient Temperature):

1. Application Requirements: Insulate the following cold equipment:
 - a. Drip pans under chilled equipment.
2. Insulate each item of equipment specified above with one of the following types and thicknesses of insulation:
 - a. Fiberglass: 2" thick for cold surfaces above 35 degrees F (2 degrees C) and 3" thick for surfaces 35 degrees F (2 degrees C) and lower.
 - b. Cellular Glass: 3" thick for surfaces above 35 degrees F (2 degrees C) and 4-1/2" thick for surfaces 35 degrees F (2 degrees C) and lower.

B. Hot Equipment (Above Ambient Temperature):

1. Application Requirements: Insulate the following hot equipment:
 - a. Air Separators
2. Insulate each item of equipment specified above with the following type and thickness of insulation.
 - a. Fiberglass: 2" thick

3.4 INSTALLATION OF INTERIOR DUCTWORK INSULATION

- A. General: Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.
- B. Install insulation materials with smooth and even surfaces.
- C. Clean and dry ductwork prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.
- D. Maintain integrity of vapor-barrier on ductwork insulation, and protect it to prevent puncture and other damage.
- E. Extend ductwork insulation without interruption through walls, floors and similar ductwork penetrations, except where otherwise indicated.
- F. Lined Ductwork: Except as otherwise indicated, omit insulation on ductwork where internal insulation or sound absorbing linings have been installed.
- G. Corner Angles: Except for oven and hood exhaust duct insulation, install corner angles on external corners of insulation on ductwork in exposed finished spaces before covering with jacketing.

3.5 INSTALLATION OF EXPOSED OUTDOOR DUCTWORK INSULATION

- A. Square and Rectangular Outdoor Ductwork:
 - 1. One inch (1") thick rubber closed cell sheet insulation shall be adhered directly to clean, oil free surfaces with a full coverage of adhesive.
 - 2. The duct insulation shall be constructed from the bottom up, with a top insulation sized to extend over the side insulation. This will form a water shed.
 - 3. Butt-edge seams shall be adhered using adhesive by the compression fit method to allow for expansion/contraction. Leave a 1/2" wide uncoated border at the butt-edge seams on the duct surface the insulation surface. Overlap the insulation 1/4" at the butt-edges and compress the edges into place. Apply adhesive to the butt-edges of the insulation.
 - 4. Standing metal duct seams shall be insulated with the same insulation thickness as installed on the duct surface. Seams may be covered using strips of tubular pipe insulation with miter-cut ends. Standing seams shall be adhered using manufacturer's recommended adhesive.
 - 5. Seams shall be staggered when applying multiple layers of insulation.
 - 6. Exterior ductwork insulation shall be installed on all ductwork including lined ductwork.
- B. Round Outdoor Ductwork:

1. One inch (1") thick rubber closed cell insulation shall be used on all round ductwork. Insulation shall be wrapped, not stretched, around the duct. On ductwork larger than 12" diameter, the insulation shall be adhered to the duct surface on the lower one third. Longitudinal seams shall be located on the lower half of any round ductwork.
 2. Butt-edge seams shall be adhered using adhesive by the compression fit method to allow for expansion/contraction. Leave a 1/2" wide uncoated border at the butt-edge seams on the duct surface the insulation surface. Overlap the insulation 1/4" at the butt-edges and compress the edges into place. Apply adhesive to the butt-edges of the insulation.
 3. Seams shall be staggered when applying multiple layers of insulation.
 4. Exterior ductwork insulation shall be installed on all exterior ductwork including lined ductwork.
- C. Exposed Outdoor Duct Finish:
1. All outdoor exposed ductwork shall be finished using one of the following applications:
 - a. Rectangular Ductwork:
 - 1) The surface of the insulation must be clean and dry.
 - 2) Allow adhesive seams on the insulation to set for two (2) hours.
 - 3) Apply thin uniform coat of spray adhesive. Allow to become tacky and apply 10 x 10 weave glass mesh.
 - 4) Allow adhesive and mesh to dry four (4) hours.
 - 5) Apply manufacturer's recommended finish over the mesh at a rate of less than 400 square feet per gallon. Allow to dry four (4) hours.
 - 6) Apply the second coat of manufacturer's recommended finish at a rate of less than 400 square feet per gallon.
 - b. Round Ductwork:
 - 1) The surface of the insulation must be clean and dry.
 - 2) Allow adhesive seams on the insulation to set for two (2) hours.
 - 3) Apply thin uniform coat of spray adhesive. Allow to become tacky and apply 10 x 10 weave glass mesh.
 - 4) Allow adhesive and mesh to dry four (4) hours.
 - 5) Apply manufacturer's recommended finish over mesh at a rate of less than 400 square feet per gallon. Allow to dry four (4) hours.
 - 6) Apply the second coat of manufacturer's recommended finish at rate of not more than 400 square feet per gallon.
- D. Acceptable Manufacturers:
1. Armstrong
 2. Johns Manville
 3. Certainteed Corp.
 4. Or approved equal.

3.6 INSTALLATION OF EQUIPMENT INSULATION

- A. General: Install equipment thermal insulation products in accordance with manufacturer's written instructions, and in compliance with recognized industry practices to ensure that insulation serves intended purpose.
- B. Install insulation materials with smooth and even surfaces and on clean and dry surfaces. Redo poorly fitted joints. Do not use mastic or joint sealer as filler for gapping joints and excessive voids resulting from poor workmanship.
- C. Maintain integrity of vapor-barrier on equipment insulation and protect it to prevent puncture and other damage.
- D. Do not apply insulation to equipment, breechings, or stacks while hot.
- E. Cover insulated surfaces with all-service jacketing neatly fitted and firmly secured. Lap seams at least 2". Apply over vapor barrier where applicable.
- F. Do not insulate equipment manholes, handholes, cleanouts, ASME stamp, and manufacturer's nameplate. Provide neatly beveled edge at interruptions of insulation.
- G. Provide removable insulation sections to cover parts of equipment which must be opened periodically for maintenance; include metal vessel covers, fasteners, flanges, frames and accessories.
- H. Equipment Exposed to Weather: Protect outdoor insulation from weather by installation of weather-barrier mastic protective finish, or jacketing, as recommended by the manufacturer.

3.7 PROTECTION AND REPLACEMENT

- A. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.
- B. Protection: Insulation Installer shall advise Contractor of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

3.8 INSULATION REPAIR

- A. Repair damaged sections of mechanical insulation, both previously damaged or damaged during this construction period. Use insulation of same thickness as existing insulation; install new jacket lapping and sealed-over existing.

END OF SECTION 23 07 00

08 January 2021

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Roscoe Hall West Interior Alterations
PSA 8500

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SECTION 23 09 93 – ATC HVAC CONTROLS

PART 1 -

PART 2 - GENERAL

2.1 RELATED DOCUMENTS

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

2.2 SUMMARY

- A. This Section includes control sequences for HVAC systems, subsystems, and equipment.

2.3 DEFINITIONS

- A. The following definitions are used throughout the section:
- B. ATC – Automatic Temperature Control
- C. LAN – Local Area Network
- D. FMS – Facility Management System
- E. DDC – Direct Digital Control
- F. BMS – Building Management System

2.4 DESCRIPTION OF WORK

- A. All DDC automation and control components shall be integrated onto the existing BMS distributed network system communicating over the BACnet network.
- B.

PART 3 - PRODUCTS

3.1 ACCEPTABLE MANUFACTURERS

- A. The existing automatic temperature control system shall be modified, extended and reprogrammed. The system installation shall be complete in all respects including labor, materials, equipment, and services necessary.

- B. The Automatic Temperature Control System (ATC) shall use the existing Honeywell ATC control system
- C. Additional controllers shall be provided for monitoring and control of the new HVAC Equipment.
- D. Controllers shall communicate on the BACnet communications trunk and shall utilize the existing Honeywell BMS Graphical User Interface Software & Hardware package.

3.2 Control Dampers

- A. Dampers required in the temperature and smoke control functions of the automatic control system shall be factory fabricated and shall be manufactured by the ATC Systems Manufacturer. All dampers shall be sized as shown on drawings or as specified. All damper frames shall be constructed of 13 gauge galvanized sheet metal or extruded aluminum of 12 gauge thickness, and shall have a flange or duct mounting. The blades shall be parallel or opposed, as required, and suitable for the air velocities to be encountered in the system. Replaceable Butyl rubber seals are to be provided on damper blades and installed along with the top and bottom of the frame. Stainless steel damper blades and seals shall be installed inside the frame sides. Seals and bearings shall be able to withstand temperatures ranging from minus 40°F to plus 200°F. Dampers shall be leak rated for 3 CFM/foot squared at 1" WG and 10 CFM/foot squared at 4" WG or less in full closed position at 4" WG pressure differential across damper.
- B. Damper blades shall not exceed 6" in width. All blades shall not exceed 6" in width. All blades are to be corrugated type construction, fabricated from two sheets of #22 gauge galvanized sheet steel, spot welded together. Blades are to be suitable for high velocity performance. Damper blades shall be a maximum of 48" long.

- 3.3 Operators: All damper and valve operators shall be **0 to 10vdc electric** and be provided for each automatic damper or valve and shall be of sufficient capacity to operate the damper or valve under all conditions and to guarantee tight close-off of valves, as specified, against system pressure encountered. Damper operators shall be provided with spring-return for normally closed or normally open position for fail safe operation to account for fire, low temperatures, or power interruption as indicated. Valve operators shall be spring return or DDC failsafe operated to fail to safe position if the associated fan system is off. Damper and valve operators are to be made out of diecast metal; no plastic or sheet metal bodies will be allowed.

3.4 Sensors and Controllers

- A. Space Temperature Transmitter shall contain an RTD sensing element to monitor room air temperatures in the range of 30°F to 90°F, unless indicated otherwise. The transmitter shall be factory calibrated to an accuracy of + 1%. The assembly shall be installed within a metal ventilated enclosure suitable for wall mounting. The output shall be a compatible with the panel it serves. Transmitter shall be factory calibrated to an accuracy of + 1% over the full range.

PART 4 -

PART 5 - EXECUTION

5.1 Commissioning:

- A. Control system shall be set up and checked by factory trained competent technicians skilled in the setting and adjustment of the FMS equipment used in this project. This technician is to be experienced in the type of HVAC systems associated with this project.
- B. At the completion of the commissioning, this contractor will demonstrate the sequence of operations for each system to the architect or his representative.

5.2

5.3

5.4 Installation

- A. All conduit, wiring, accessories and wiring connections required for the installation of the Building Management System, as herein specified, shall be provided by the ATC Contractor.
- B. All ATC wiring shall be install in raceway dedicated for the purpose; IT conduit and pathway shall not to be used.
- C. Low voltage plenum rated wiring can be run exposed above accessible ceiling. All control wiring in mechanical spaces shall be installed in EMT.

5.5 WARRANTY

- A. The Automatic Temperature Control system contractor shall provide all services, materials and equipment necessary for the successful operation of the entire BMS system for a period of 1-year after final acceptance of the system. The adjustment, required testing, and repair of the system includes all computer equipment, transmission equipment and all sensors and control devices

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08 January 2021

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SECTION 23 31 13

METAL DUCTS

PART 1 - GENERAL

- 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. Single-wall rectangular ducts and fittings.
 - 2. Single-wall round ducts and fittings.
 - 3. Double-wall round ducts and fittings.
 - 4. Sheet metal materials.
 - 5. Duct liner.
 - 6. Sealants and gaskets.
 - 7. Hangers and supports.

1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.
- B. Structural Performance: Duct hangers and supports and seismic restraints shall withstand the effects of gravity and seismic loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and SMACNA's "Seismic Restraint Manual: Guidelines for Mechanical Systems."
- C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2013.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data including details of construction relative to materials, dimensions of individual components, profiles, and finishes for the following items:

1. Duct Liner.
 2. Sealing Materials.
 3. Fire-Stopping Materials.
 4. Prefabricated Double Wall Ductwork.
- C. Shop drawings from duct fabrication shop, drawn to a scale not smaller than 1/4 inch equals 1 foot, on drawing sheets same size as the Contract Drawings, detailing:
1. Fabrication, assembly, and installation details, including plans, elevations, sections, details of components, and attachments to other work.
 2. Duct layout, indicating pressure classifications and sizes in plan view. For exhaust ducts systems, indicate the classification of the materials handled as defined in this Section.
 3. Fittings.
 4. Reinforcing details and spacing.
 5. Seam and joint construction details.
 6. Penetrations through fire-rated and other partitions.
 7. Terminal unit and coil installations.
 8. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.
- D. Coordination drawings for ductwork installation. Show the following:
1. Coordination with ceiling suspension members.
 2. Spatial coordination with other systems of all trades installed in the same space with the duct systems.
 3. Coordination of ceiling- and wall-mounted access doors and panels required to provide access to dampers and other operating devices.
 4. Coordination with ceiling-mounted lighting fixtures and air outlets and inlets.
- E. Welding certificates including welding procedures specifications, welding procedures qualifications test records, and welders' qualifications test records complying with requirements specified in "Quality Assurance" below.
- F. Record drawings including duct systems routing, fittings details, reinforcing, support, and installed accessories and devices.
- G. Maintenance data for volume control devices, fire dampers, and smoke dampers, in accordance with Division 01.

1.5 QUALITY ASSURANCE

- A. Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel" for hangers and supports and AWS D9.1 "Sheet Metal Welding Code".
- B. Qualify each welder in accordance with AWS qualification tests for welding processes involved. Certify that their qualification is current.
- C. NFPA Compliance: Comply with the following NFPA Standards: NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems," except as indicated otherwise.

- D. NFPA 96, "Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors for Commercial Cooking Equipment," Chapter 3, "Duct System," for kitchen hood duct systems, except as indicated otherwise.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- A. Sheet Metal, General: Provide sheet metal in thicknesses indicated, packaged and marked as specified in ASTM A 700.
- B. Galvanized Sheet Steel: Lock-forming quality, ASTM A 527, Coating Designation G 90. Provide mill phosphatized finish for exposed surfaces of ducts exposed to view.
- C. Carbon Steel Sheets: ASTM A 366, cold-rolled sheets, commercial quality, with oiled, exposed matte finish.
- D. Stainless Steel: ASTM A 480, Type 316, sheet form, with No. 4 finish on exposed surface for ducts exposed to view; Type 304, sheet form, with No. 1 finish for concealed ducts.
- E. Aluminum Sheets: ASTM B 209, Alloy 3003, Temper H14, sheet form; with standard, one-side bright finish where ducts are exposed to view, and mill finish for concealed ducts.
- F. PVC Coated Round Galvanized Steel: 4 mil coating on interior surfaces and 4 mil coating on exterior surfaces (chemical fume hood exhaust).
- G. Reinforcement Shapes and Plates: Unless otherwise indicated, provide galvanized steel reinforcing where installed on galvanized sheet metal ducts. For aluminum and stainless steel ducts provide reinforcing of compatible materials.
- H. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for 36-inch length or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.2 DUCT LINER

- A. General: Comply with NFPA Standard 90A and TIMA Standard AHC-101.
- B. All supply ductwork, return and transfer air ductwork shall be lined. Dimensions shown indicate clear inside dimensions. Increase sheetmetal size as required. In addition, general exhaust ductwork shall be lined within 15' from fan.
- C. Exceptions: Kitchen exhausts, kiln exhaust, fume hood exhaust.
- D. Materials: ASTM C 1071, Type II, with coated surface exposed to airstream to prevent erosion of glass fibers.
 - 1. Thickness: 1 inch (indoors), 2 inch (outdoors)

2. Density: 1-1/2 pounds.
3. Thermal Performance: "K-Factor" equal to 0.28 or better, at a mean temperature of 75 deg F.
4. Fire Hazard Classification: Flame spread rating of not more than 25 without evidence of continued progressive combustion and a smoke developed rating of no higher than 50, when tested in accordance with ASTM C 411.
5. Liner Adhesive: Comply with NFPA Standard 90A and ASTM C 916.
6. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct. Provide fasteners that do not damage the liner when applied as recommended by the manufacturer, that do not cause leakage in the duct, and will indefinitely sustain a 50-pound tensile dead load test perpendicular to the duct wall.
7. Fastener Pin Length: As required for thickness of insulation, and without projecting more than 1/8 inch into the airstream.
8. Adhesive for Attachment of Mechanical Fasteners: Comply with the "Fire Hazard Classification" of duct liner system.

2.3 SEALING MATERIALS

- A. Joint and Seam Sealants, General: The term sealant used here is not limited to materials of adhesive or mastic nature, but also includes tapes and combinations of open weave fabric strips and mastics. The contractor has the option of using "Duct-Mate" or similar sealing and joining the manufacturer's instruction.
- B. Joint and Seam Tape: 2 inches wide, glass-fiber-fabric reinforced.
- C. Joint and Seam Sealant: One-part, nonsag, solvent-release-curing, polymerized butyl sealant complying with FS TT-S-001657, Type I; formulated with a minimum of 75 percent solids.
- D. Flanged Joint Mastics: One-part, acid-curing, silicone elastomeric joint sealants, complying with ASTM C 920, Type S, Grade NS, Class 25, Use O.

2.4 PREFABRICATED DOUBLE WALL DUCTWORK

- A. Furnish and install Acousti-K27 Double Wall Round Ductwork and Fittings as manufactured by United McGill Corporation or approved equal. Acousti-K27 duct and fittings shall be constructed of a perforated inner liner, a 2-inch layer of fiberglass insulation, and an outer pressure shell. Duct shall be of spiral lockseam construction, provided in standard lengths of 10, 12 or 20 feet or otherwise as required, fabricated from galvanized steel meeting ASTM-A527 standards. Installation, connections and sealants shall be in strict accordance with manufacturer's requirements and recommendations. Outer shell shall be constructed of paintable steel.

2.5 FIRE-STOPPING

- A. Fire-Resistant Sealant: Provide one-part elastomeric sealant formulated for use in a through-penetration fire-stop system for filling openings around duct penetrations through walls and floors, having fire-resistance ratings indicated as established by testing identical assemblies per ASTM E 814 by Underwriters Laboratory, Inc. or other testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. "Dow Corning Fire Stop Sealant"; Dow Corning Corp.
 - 2. "3M Fire Barrier Caulk CP-25"; Electrical Products Div./3M.
 - 3. "RTV 7403"; General Electric Co.
 - 4. "Fyre Putty"; Standard Oil Engineered Materials Co.
 - 5. Or approved equal.

2.6 HANGERS AND SUPPORTS

- A. Building Attachments: Concrete inserts, powder actuated fasteners, or structural steel fasteners appropriate for building materials. Do not use powder actuated concrete fasteners for lightweight aggregate concretes or for slabs less than 4 inches thick.
- B. Hangers: Galvanized sheet steel, or round, uncoated steel, threaded rod.
 - 1. Hangers Installed In Corrosive Atmospheres: Electro-galvanized, all-thread rod or hot-dipped-galvanized rods with threads painted after installation.
 - 2. Straps and Rod Sizes: Conform with Table 4-1 in SMACNA HVAC Duct Construction Standards, 1985 Edition, for sheet steel width and gage and steel rod diameters.
- C. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- D. Trapeze and Riser Supports: Steel shapes conforming to ASTM A 36.
- E. Where galvanized steel ducts are installed, provide hot-dipped-galvanized steel shapes and plates.
- F. For stainless steel ducts, provide stainless steel support materials.
- G. For aluminum ducts, provide aluminum support materials, except where materials are electrolytically separated from ductwork.

PART 3 - PRODUCTS

3.1 RECTANGULAR DUCT FABRICATION

- A. General: Except as otherwise indicated, fabricate rectangular ducts with galvanized sheet steel, in accordance with SMACNA "HVAC Duct Construction Standards," Tables 1-3 through 1-19, including their associated details. Conform to the requirements in the referenced standard for metal thickness, reinforcing types and intervals, tie rod applications, and joint types and intervals.
- B. Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure classification.
 - 1. Provide materials that are free from visual imperfections such as pitting, seam marks, roller marks, stains, and discolorations.
- C. Fabricate kitchen hood exhaust ducts with 16-gauge, carbon steel sheets for concealed ducts and 18-gauge stainless steel for exposed ducts. Weld and flange seams and joints. Conform to NFPA Standard 96.
- D. Except as otherwise noted, transverse duct joints on all rectangular supply, exhaust and return air ductwork more than 16" in any dimension shall be made with the Ductmate System or an approved equal. The Ductmate System components shall be of standard catalog manufacture as supplied by Ductmate Industries, Inc.
- E. The installation of the Ductmate System shall be in accordance with the manufacturer's printed instruction and installation.
- F. The Ductmate System joint is the equivalent of SMACNA "J" connection and construction of the duct, such as gauge, reinforcing, etc., shall be indicated in the SMACNA manuals for the indicated pressure class.
 - 1. The Ductmate angle shall be securely fastened to the duct walls by either spot welding, tack screwing or riveting. Fastener spacing shall be as recommended in the manufacturer's installation manual for the applicable pressure class. The raw duct ends shall be properly seated in the integral mastic seal.
 - 2. A continuous strip of closed cell gasket tape, size 5/16" x 3/4" shall be installed between the mating flanges of the companion angles at each transverse joint and the joint shall be made up using 3/8" diameter x 1" long plated joints bolts and nuts. Drive-on or snap-on cleats shall be used at spacings as recommended in the manufacturer's installation manual.
 - 3. Where Ductmate is not used all longitudinal joints shall be Pittsburgh or double lock seams hammered tight and shall be located above the horizontal axis of the duct.
 - 4. Transverse joints shall be made as airtight as possible with all laps in the direction of air flow.

5. All fasteners and attachments shall be made of the same material as the ducts or of corrosion-resistant materials.

- G. Weather Resistant Ducts: Provide factory fabricated ducts and fittings only. No shop or field fabrications will be allowed.

- H. Static Pressure Classifications: Except where otherwise indicated, construct duct systems to the following pressure classifications:
 1. Supply Ducts: 3 inches water gage minimum. For Air Handling Units with scheduled ESP over 2.75", but less than 5.75", construct to 6" water gage. For Air Handling Units with scheduled ESP over 5.75", construct to 10" water gage.
 2. Return Ducts: 2 inches water gage minimum, negative pressure. For fans with scheduled ESP over 1.75", but less than 4.75", construct to 5" water gage, negative pressure. For fans with scheduled ESP over 4.75", construct to 10" water gage.
 3. Exhaust Ducts: 2 inches water gage minimum, negative pressure. For fans with scheduled ESP over 1.75", but less than 4.75", construct to 5" water gage, negative pressure. For fans with scheduled ESP over 4.75", construct to 10" water gage.

- I. Leakage; ducts constructed in accordance with SMACNA Standards and in the Static Pressure Classifications noted above shall have a leakage less than 5% of system operating air flow.

- J. Crossbreaking or Cross Beading: Crossbreak or bead duct sides that are 19 inches and larger and are 20 gage or less, with more than 10 sq. ft. of unbraced panel area, as indicated in SMACNA "HVAC Duct Construction Standard," Figure 1-4, unless they are lined or are externally insulated.

3.2 RECTANGULAR DUCT FITTINGS

- A. Fabricate elbows, transitions, offsets, branch connections, and other duct construction in accordance with SMACNA "HVAC Metal Duct Construction Standard," 1985 Edition, Figures 2-1 through 2-10.

3.3 SHOP APPLICATION OF LINER IN RECTANGULAR DUCTS

- A. Adhere a single layer of indicated thickness of duct liner with 90 percent coverage of adhesive at liner contact surface area. Multiple layers of insulation to achieve indicated thickness is prohibited.
- B. Apply a coat of adhesive to liner facing in direction of airflow not receiving metal nosing.
- C. Butt transverse joints without gaps and coat joint with adhesive.
- D. Fold and compress liner in corners of rectangular ducts or cut and fit to assure butted edge overlapping.

- E. Longitudinal joints in rectangular ducts shall not occur except at corners of ducts, unless the size of the duct and standard liner product dimensions make longitudinal joints necessary.
- F. Apply an adhesive coating on longitudinal seams in ducts exceeding 2,500 FPM air velocity.
- G. Secure liner with mechanical fasteners 4 inches from corners and at intervals not exceeding 12 inches transversely around perimeter; at 3 inches from transverse joints and at intervals not exceeding 18 inches longitudinally.
- H. Secure transversely oriented liner edges facing the airstream with metal nosings that are either channel or "Z" profile or are integrally formed from the duct wall at the following locations:
 - 1. Fan discharge.
 - 2. Intervals of lined duct preceding unlined duct.
 - 3. Upstream edges of transverse joints in ducts.

3.4 DUCT INSTALLATION, GENERAL

- A. Duct System Pressure Class: Construct and install each duct system for the specific duct pressure classification indicated.
- B. Install ducts with the fewest possible joints.
- C. Use fabricated fittings for all changes in directions, changes in size and shape, and connections.
- D. Install couplings tight to duct wall surface with projections into duct at connections kept to a minimum.
- E. Locate ducts, except as otherwise indicated, vertically and horizontally, parallel and perpendicular to building lines; avoid diagonal runs.
- F. Install duct systems in shortest route that does not obstruct useable space or block access for servicing building and its equipment.
- G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- H. Provide clearance of 1 inch where furring is shown for enclosure or concealment of ducts, plus allowance for insulation thickness, if any.
- I. Install insulated ducts with 1-inch clearance outside of insulation.
- J. Conceal ducts from view in finished and occupied spaces by locating in mechanical shafts, hollow wall construction, or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as specifically shown.
- K. Coordinate layout with suspended ceiling and lighting layouts and similar finished work.

- L. Electrical Equipment Spaces: Route ductwork to avoid passing through transformer vaults and electrical equipment spaces and enclosures.
- M. Non-Fire-Rated Partition Penetrations: Where ducts pass interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same gage as duct. Overlap opening on 4 sides by at least 1-1/2 inches.

3.5 SEAM AND JOINT SEALING

- A. General: Seal duct seams and joints as follows. Double tape all seams and joints specified to be sealed.
- B. Pressure Classifications Greater Than 3 Inches Water Gage: All transverse joints, longitudinal seams, and duct penetrations.
- C. Pressure Classification 2 and 3 Inches Water Gage: All transverse joints and longitudinal seams.
- D. Pressure Classification Less than 2 Inches Water Gage: Transverse joints only.
- E. Seal externally insulated ducts prior to insulation installation.

3.6 HANGING AND SUPPORTING

- A. Install rigid round and rectangular metal duct with support systems indicated in SMACNA "HVAC Duct Construction Standards," Tables 4-1 through 4-3 and Figures 4-1 through 4-8.
- B. Support horizontal ducts within 2 feet of each elbow and within 4 feet of each branch intersection.
- C. Support vertical ducts at a maximum interval of 16 feet and at each floor.
- D. Upper attachments to structures shall have an allowable load not exceeding 1/4 of the failure (proof test) load but are not limited to the specific methods indicated.
- E. Install concrete insert prior to placing concrete.
- F. Install powder actuated concrete fasteners after concrete is placed and completely cured.
- G. Equipment Connections: Connect equipment with flexible connectors in accordance with Division 23 Section "Air Duct Accessories."
- H. Branch Connections: Comply with SMACNA "HVAC Duct Construction Standards," Figures 2-7 and 2-8.
- I. Outlet and Inlet Connections: Comply with SMACNA "HVAC Duct Construction Standards," Figures 2-16 through 2-18.

- J. Terminal Units Connections: Comply with SMACNA "HVAC Duct Construction Standards," Figure 2-19.

3.7 PVC-COATED DUCT INSTALLATION (FUME HOOD EXHAUST DUCTS)

- A. Install PVC-coated duct and fittings in accordance with the manufacturer's instructions. United McGill Uni-Coat duct and fittings with 4 mil coating on both interior and exterior surfaces.
- B. Seal all joints and seams. Apply sealer to male end connectors before insertion, and afterwards to cover the entire joint and sheet metal screws.
- C. Secure couplings with sheet metal screws. Install screws at an interval of 12", with a minimum of three (3) screws in each coupling.
- D. Repair damage to PVC coating with PVC aerosol spray.

3.8 FIELD QUALITY CONTROL

- A. An independent testing agency shall perform, record, and report leakage tests.
- B. Remake leaking joints as required and apply sealants to achieve specified maximum allowable leakage.

3.9 ADJUSTING

- A. Adjust volume control devices as required by the testing and balancing procedures to achieve required air flow. Refer to Division 23 Section "TESTING, ADJUSTING, AND BALANCING for HVAC" for requirements and procedures for adjusting and balancing air systems.

END OF SECTION 23 31 13

SECTION 23 33 00

AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Backdraft and pressure relief dampers.
2. Barometric relief dampers.
3. Manual volume dampers.
4. Control dampers.
5. Fire dampers.
6. Smoke dampers.
7. Combination fire and smoke dampers.
8. Flange connectors.
9. Duct silencers.
10. Turning vanes.
11. Duct-mounted access doors.
12. Flexible connectors.
13. Flexible ducts.
14. Duct accessory hardware.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For duct silencers, include pressure drop and dynamic insertion loss data. Include breakout noise calculations for high transmission loss casings.

B. Shop Drawings: For duct accessories. Include plans, elevations, sections, details and attachments to other work.

1. Detail duct accessories fabrication and installation in ducts and other construction. Include dimensions, weights, loads, and required clearances; and method of field assembly into duct systems and other construction. Include the following:
 - a. Special fittings.
 - b. Manual volume damper installations.
 - c. Control damper installations.
 - d. Fire-damper, smoke-damper, combination fire- and smoke-damper. Installations, including sleeves; and duct-mounted access doors and remote damper operators.

- e. Wiring Diagrams: For power, signal, and control wiring.
 - C. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which ceiling-mounted access panels and access doors required for access to duct accessories are shown and coordinated with each other, using input from Installers of the items involved.
 - D. Source quality-control reports.
 - E. Operation and Maintenance Data: For air duct accessories to include in operation and maintenance manuals.
- 1.3 QUALITY ASSURANCE
- A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."
 - B. Comply with AMCA 500-D testing for damper rating.
- 1.4 EXTRA MATERIALS
- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Fusible Links: Furnish quantity equal to 10 percent of amount installed.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.
 - 1. Galvanized Coating Designation: G90.
 - 2. Exposed-Surface Finish: Mill phosphatized.
- C. Stainless-Steel Sheets: Comply with ASTM A 480/A 480M, Type 304, and having a No. 2 finish for concealed ducts and polished finish for exposed ducts.
- D. Aluminum Sheets: Comply with ASTM B 209, Alloy 3003, Temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.
- E. Extruded Aluminum: Comply with ASTM B 221, Alloy 6063, Temper T6.

- F. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.
- G. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.2 BACKDRAFT AND PRESSURE RELIEF DAMPERS

- A. 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:
 - 1. Air Balance Inc.; a division of Mestek, Inc.
 - 2. American Warming and Ventilating; a division of Mestek, Inc.
 - 3. Ruskin Company.
 - 4. Or approved equal.
- B. Description: Gravity balanced.
- C. Maximum Air Velocity: 2000 fpm.
- D. Maximum System Pressure: 1-inch wg.
- E. Frame: 0.063-inch- thick extruded aluminum, with welded corners and mounting flange.
- F. Blades: Multiple single-piece blades, center-pivoted, maximum 6-inch width, 0.050-inch- thick aluminum sheet with sealed edges.
- G. Blade Action: Parallel.
- H. Blade Seals: Neoprene, mechanically locked.
- I. Blade Axles:
 - 1. Material: Stainless steel.
 - 2. Diameter: 0.20 inch.
- J. Tie Bars and Brackets: Aluminum.
- K. Return Spring: Adjustable tension.
- L. Bearings: Steel ball or synthetic pivot bushings.
- M. Accessories:
 - 1. Adjustment device to permit setting for varying differential static pressure.
 - 2. Counterweights and spring-assist kits for vertical airflow installations.

3. Electric actuators.
4. Chain pulls.
5. Screen Mounting: Front mounted in sleeve.
 - a. Sleeve Thickness: 20-gage minimum.
 - b. Sleeve Length: 6 inches minimum.
6. Screen Mounting: Rear mounted.
7. Screen Material: Aluminum.
8. Screen Type: Bird.
9. 90-degree stops.

2.3 BAROMETRIC RELIEF DAMPERS

- A. 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:
 1. Air Balance Inc.; a Division of Mestek, Inc.
 2. American Warming and Ventilating; a division of Mestek, Inc.
 3. Ruskin Company.
 4. Or approved equal.
- B. Suitable for horizontal or vertical mounting.
- C. Maximum Air Velocity: 2000 fpm.
- D. Maximum System Pressure: 2-inch wg.
- E. Frame: 0.064-inch- thick, galvanized sheet steel, with welded corners and mounting flange.
- F. Blades:
 1. Multiple, 0.050-inch- thick aluminum sheet.
 2. Maximum Width: 6 inches.
 3. Action: Parallel.
 4. Balance: Gravity.
 5. Eccentrically pivoted.
- G. Blade Seals: Neoprene.
- H. Blade Axles: Galvanized steel.
- I. Tie Bars and Brackets:
 1. Material: Galvanized steel.

- 2. Rattle free with 90-degree stop.
- J. Return Spring: Adjustable tension.
- K. Bearings: Stainless steel.
- L. Accessories:
 - 1. Flange on intake.
 - 2. Adjustment device to permit setting for varying differential static pressures.

2.4 MANUAL VOLUME DAMPERS

- A. Standard, Steel, Manual Volume Dampers:
 - 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. Air Balance Inc.; a division of Mestek, Inc.
 - b. American Warming and Ventilating; a division of Mestek, Inc.
 - c. Ruskin Company.
 - d. Or approved equal.
 - 2. Standard leakage rating.
 - 3. Suitable for horizontal or vertical applications.
 - 4. Frames:
 - a. Hat-shaped, galvanized-steel channels, 0.064-inch minimum thickness.
 - b. Mitered and welded corners.
 - c. Flanges for attaching to walls and flangeless frames for installing in ducts.
 - 5. Blades:
 - a. Multiple or single blade.
 - b. Parallel- or opposed-blade design.
 - c. Stiffen damper blades for stability.
 - d. Galvanized-steel, 0.064 inch thick.
 - 6. Blade Axles: Stainless steel.
 - 7. Bearings:
 - a. Oil-impregnated bronze.
 - b. Dampers in ducts with pressure classes of 3-inch wg or less shall have axles full length of damper blades and bearings at both ends of operating shaft.
 - 8. Tie Bars and Brackets: Galvanized steel.

B. Standard, Aluminum, Manual Volume Dampers:

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. Air Balance Inc.; a division of Mestek, Inc.
 - b. American Warming and Ventilating; a division of Mestek, Inc.
 - c. Ruskin Company.
 - d. Or approved equal.
2. Standard leakage rating.
3. Suitable for horizontal or vertical applications.
4. Frames: Hat-shaped, 0.10-inch- thick, aluminum sheet channels; frames with flanges for attaching to walls and flangeless frames for installing in ducts.
5. Blades:
 - a. Multiple or single blade.
 - b. Parallel- or opposed-blade design.
 - c. Stiffen damper blades for stability.
 - d. Roll-Formed Aluminum Blades: 0.10-inch- thick aluminum sheet.
 - e. Extruded-Aluminum Blades: 0.050-inch- thick extruded aluminum.
6. Blade Axles: Stainless steel.
7. Bearings:
 - a. Oil-impregnated bronze.
 - b. Dampers in ducts with pressure classes of 3-inch wg or less shall have axles full length of damper blades and bearings at both ends of operating shaft.
8. Tie Bars and Brackets: Aluminum.

C. Jackshaft:

1. Size: 1-inch diameter.
2. Material: Galvanized-steel pipe rotating within pipe-bearing assembly mounted on supports at each mullion and at each end of multiple-damper assemblies.
3. Length and Number of Mountings: As required to connect linkage of each damper in multiple-damper assembly.

D. Damper Hardware:

1. Zinc-plated, die-cast core with dial and handle made of 3/32-inch- thick zinc-plated steel, and a 3/4-inch hexagon locking nut.

2. Include center hole to suit damper operating-rod size.
3. Include elevated platform for insulated duct mounting.

2.5 CONTROL DAMPERS

- A. 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:
1. American Warming and Ventilating; a division of Mestek, Inc.
 2. Arrow United Industries; a division of Mestek, Inc.
 3. Ruskin Company.
 4. Or approved equal.
- B. Low-leakage rating, with linkage outside airstream, and bearing AMCA's Certified Ratings Seal for both air performance and air leakage.
- C. Frames:
1. U shaped.
 2. Galvanized-steel channels, 0.064 inch thick.
 3. Mitered and welded corners.
- D. Blades:
1. Multiple blade with maximum blade width of 8 inches.
 2. Opposed-blade design.
 3. Galvanized steel.
 4. 0.064 inch thick.
 5. Retain one of two subparagraphs below.
 6. Blade Edging: Closed-cell neoprene edging.
 7. Blade Edging: Inflatable seal blade edging, or replaceable rubber seals.
- E. Blade Axles: 1/2-inch- diameter; stainless steel; blade-linkage hardware of zinc-plated steel and brass; ends sealed against blade bearings.
1. Operating Temperature Range: From minus 40 to plus 200 deg F.
- F. Bearings:
1. Oil-impregnated bronze.
 2. Dampers in ducts with pressure classes of 3-inch wg or less shall have axles full length of damper blades and bearings at both ends of operating shaft.
 3. Thrust bearings at each end of every blade.

2.6 FIRE DAMPERS

- A. 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:
 - 1. Air Balance Inc.; a division of Mestek, Inc.
 - 2. Arrow United Industries; a division of Mestek, Inc.
 - 3. Prefco; Perfect Air Control, Inc.
 - 4. Ruskin Company.
 - 5. Or approved equal.
- B. Type: Static; rated and labeled according to UL 555 by an NRTL.
- C. Closing rating in ducts up to 4-inch wg static pressure class and minimum 4000-fpm velocity.
- D. Fire Rating: 1-1/2 and 3 hours.
- E. Frame: Curtain type with blades outside airstream; fabricated with roll-formed, 0.034-inch-thick galvanized steel; with mitered and interlocking corners.
- F. Mounting Sleeve: Factory- or field-installed, galvanized sheet steel.
 - 1. Minimum Thickness: 0.052 or 0.138 inch thick, as indicated, and of length to suit application.
 - 2. Exception: Omit sleeve where damper-frame width permits direct attachment of perimeter mounting angles on each side of wall or floor; thickness of damper frame must comply with sleeve requirements.
- G. Mounting Orientation: Vertical or horizontal as indicated.
- H. Blades: Roll-formed, interlocking, 0.034-inch- thick, galvanized sheet steel. In place of interlocking blades, use full-length, 0.034-inch- thick, galvanized-steel blade connectors.
- I. Horizontal Dampers: Include blade lock and stainless-steel closure spring.
- J. Heat-Responsive Device: Replaceable, 165 deg F rated, fusible links.

2.7 SMOKE DAMPERS

- A. 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:
 - 1. Air Balance Inc.; a division of Mestek, Inc.
 - 2. Ruskin Company.
 - 3. Arrow United Industries; a division of Mestek, Inc.
 - 4. Or approved equal.
- B. General Requirements: Label according to UL 555S by an NRTL.
- C. Smoke Detector: Integral, factory wired for single-point connection.

- D. Frame: Multiple-blade type; fabricated with roll-formed, 0.034-inch- thick galvanized steel; with mitered and interlocking corners.
- E. Blades: Roll-formed, horizontal, interlocking, 0.034-inch- thick, galvanized sheet steel. In place of interlocking blades, use full-length, 0.034-inch- thick, galvanized-steel blade connectors.
- F. Leakage: Class I.
- G. Rated pressure and velocity to exceed design airflow conditions.
- H. Mounting Sleeve: Factory-installed, 0.052-inch- thick, galvanized sheet steel; length to suit wall or floor application with factory-furnished silicone calking.
- I. Damper Motors: two-position action.
- J. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Division 23 Section "Common Motor Requirements for HVAC Equipment."
 - 1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
 - 2. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in Division 23 Section "Instrumentation and Control for HVAC."
 - 3. Permanent-Split-Capacitor or Shaded-Pole Motors: With oil-immersed and sealed gear trains.
 - 4. Spring-Return Motors: Equip with an integral spiral-spring mechanism where indicated. Enclose entire spring mechanism in a removable housing designed for service or adjustments. Size for running torque rating of 150 in. x lbf and breakaway torque rating of 150 in. x lbf.
 - 5. Outdoor Motors and Motors in Outdoor-Air Intakes: Equip with O-ring gaskets designed to make motors weatherproof. Equip motors with internal heaters to permit normal operation at minus 40 deg F.
 - 6. Nonspring-Return Motors: For dampers larger than 25 sq. ft., size motor for running torque rating of 150 in. x lbf and breakaway torque rating of 300 in. x lbf.
 - 7. Electrical Connection: 115 V, single phase, 60 Hz.
- K. Accessories:
 - 1. Auxiliary switches for position indication.

2.8 COMBINATION FIRE AND SMOKE DAMPERS

- A. 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:
 - 1. Air Balance Inc.; a division of Mestek, Inc.
 - 2. Arrow Industries; a division of Mestek, Inc.
 - 3. Ruskin Company.
 - 4. Or approved equal.
- B. Type: Static and dynamic; rated and labeled according to UL 555 and UL 555S by an NRTL.
- C. Closing rating in ducts up to 4-inch wg static pressure class and minimum 4000-fpm velocity.
- D. Fire Rating: 1-1/2 and 3 hours.
- E. Frame: Multiple-blade type; fabricated with roll-formed, 0.034-inch- thick galvanized steel; with mitered and interlocking corners.
- F. Heat-Responsive Device: Replaceable, 165 deg F rated, fusible links.
- G. Heat-Responsive Device: Electric resettable link and switch package, factory installed, rated.
- H. Frame: Multiple-blade type; fabricated with roll-formed, 0.034-inch- thick galvanized steel; with mitered and interlocking corners.
- I. Blades: Roll-formed, horizontal, interlocking, 0.034-inch- thick, galvanized sheet steel. In place of interlocking blades, use full-length, 0.034-inch- thick, galvanized-steel blade connectors.
- J. Leakage: Class I.
- K. Rated pressure and velocity to exceed design airflow conditions.
- L. Mounting Sleeve: Factory-installed, 0.052-inch- thick, galvanized sheet steel; length to suit wall or floor application with factory-furnished silicone caulking.
- M. Master control panel for use in dynamic smoke-management systems.
- N. Damper Motors: two-position action.
- O. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Division 23 Section "Common Motor Requirements for HVAC Equipment."
 - 1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
 - 2. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in Division 23 Section "Instrumentation and Control for HVAC."

3. Permanent-Split-Capacitor or Shaded-Pole Motors: With oil-immersed and sealed gear trains.
4. Spring-Return Motors: Equip with an integral spiral-spring mechanism where indicated. Enclose entire spring mechanism in a removable housing designed for service or adjustments. Size for running torque rating of 150 in. x lbf and breakaway torque rating of 150 in. x lbf.
5. Outdoor Motors and Motors in Outdoor-Air Intakes: Equip with O-ring gaskets designed to make motors weatherproof. Equip motors with internal heaters to permit normal operation at minus 40 deg F.
6. Nonspring-Return Motors: For dampers larger than 25 sq. ft., size motor for running torque rating of 150 in. x lbf and breakaway torque rating of 300 in. x lbf.
7. Electrical Connection: 115 V, single phase, 60 Hz.

P. Accessories:

1. Auxiliary switches for position indication.

2.9 FLANGE CONNECTORS

- A. 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:
 1. Ductmate Industries, Inc.
 2. Nexus PDQ; Division of Shilco Holdings Inc.
 3. Ward Industries, Inc.; a division of Hart & Cooley, Inc.
 4. Or approved equal.
- B. Description: Add-on or roll-formed, factory-fabricated, slide-on transverse flange connectors, gaskets, and components.
- C. Material: Galvanized steel.
- D. Gage and Shape: Match connecting ductwork.

2.10 DUCT SILENCERS

- A. 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:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 1. Industrial Noise Control, Inc.
 2. McGill AirFlow LLC.
 3. Ruskin Company.

4. Vibro-Acoustics.
5. Or approved equal.

C. General Requirements:

1. Factory fabricated.
2. Fire-Performance Characteristics: Adhesives, sealants, packing materials, and accessory materials shall have flame-spread index not exceeding 25 and smoke-developed index not exceeding 50 when tested according to ASTM E 84.
3. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2013.

CI. Shape:

1. Rectangular straight with splitters or baffles.
2. Round straight with center bodies or pods.
3. Rectangular elbow with splitters or baffles.
4. Round elbow with center bodies or pods.
5. Rectangular transitional with splitters or baffles.

CII. Rectangular Silencer Outer Casing: ASTM A 653/A 653M, G90, galvanized sheet steel, 0.040 inch thick.

CIII. Round Silencer Outer Casing: ASTM A 653/A 653M, G90, galvanized sheet steel.

1. Sheet Metal Thickness for Units up to 24 Inches in Diameter: 0.034 inch thick.
2. Sheet Metal Thickness for Units 26 through 40 Inches in Diameter: 0.040 inch thick.
3. Sheet Metal Thickness for Units 42 through 52 Inches in Diameter: 0.052 inch thick.
4. Sheet Metal Thickness for Units 54 through 60 Inches in Diameter: 0.064 inch thick.

CIV. Inner Casing and Baffles: ASTM A 653/A 653M, G90 galvanized sheet metal, 0.034 inch thick, and with 1/8-inch- diameter perforations.

CV. Special Construction:

1. Suitable for outdoor use.
2. High transmission loss to achieve STC 45.

CVI. Connection Sizes: Match connecting ductwork unless otherwise indicated.

CVII. Principal Sound-Absorbing Mechanism:

1. Controlled impedance membranes and broadly tuned resonators without absorptive media.
2. Film-lined type with fill material.
 - a. Fill Material: Inert and vermin-proof fibrous material, packed under not less than 15 percent compression.

- b. Erosion Barrier: Polymer bag enclosing fill, and heat sealed before assembly.
- 3. Lining: Mylar or Tedlar.
- K. Fabricate silencers to form rigid units that will not pulsate, vibrate, rattle, or otherwise react to system pressure variations. Do not use mechanical fasteners for unit assemblies.
 - 1. Lock form and seal or continuously weld joints.
 - 2. Suspended Units: Factory-installed suspension hooks or lugs attached to frame in quantities and spaced to prevent deflection or distortion.
 - 3. Reinforcement: Cross or trapeze angles for rigid suspension.
- L. Accessories:
 - 1. Factory-installed end caps to prevent contamination during shipping.
 - 2. Removable splitters.
 - 3. Airflow measuring devices.
- M. Source Quality Control: Test according to ASTM E 477.
 - 1. Record acoustic ratings, including dynamic insertion loss and generated-noise power levels with an airflow of at least 2000-fpm face velocity.
 - 2. Leak Test: Test units for airtightness at 200 percent of associated fan static pressure or 6-inch wg static pressure, whichever is greater.
- N. Capacities and Characteristics:
 - 1. See schedule on the drawings.

2.11 TURNING VANES

- A. 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:
 - 1. Ductmate Industries, Inc.
 - 2. Duro Dyne Inc.
 - 3. METALAIRE, Inc.
 - 4. SEMCO Incorporated.
 - 5. Or approved equal.
- B. Manufactured Turning Vanes for Metal Ducts: Curved blades of galvanized sheet steel; support with bars perpendicular to blades set; set into vane runners suitable for duct mounting.
 - 1. Acoustic Turning Vanes: Fabricate airfoil-shaped aluminum extrusions with perforated faces and fibrous-glass fill.

- C. Manufactured Turning Vanes for Nonmetal Ducts: Fabricate curved blades of resin-bonded fiberglass with acrylic polymer coating; support with bars perpendicular to blades set; set into vane runners suitable for duct mounting.
- D. General Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"; Figures 2-3, "Vanes and Vane Runners," and 2-4, "Vane Support in Elbows."
- E. Vane Construction: Single wall for ducts up to 30 inches wide and double wall for larger dimensions.

2.12 DUCT-MOUNTED ACCESS DOORS

- A. 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:
 - 1. American Warming and Ventilating; a division of Mestek, Inc.
 - 2. Ductmate Industries, Inc.
 - 3. Flexmaster U.S.A., Inc.
 - 4. McGill AirFlow, LLC.
 - 5. Or approved equal.
- B. Duct-Mounted Access Doors: Fabricate access panels according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"; Figures 2-10, "Duct Access Doors and Panels," and 2-11, "Access Panels - Round Duct."
 - 1. Door:
 - a. Double wall, rectangular.
 - b. Galvanized sheet metal with insulation fill and thickness as indicated for duct pressure class.
 - c. Vision panel.
 - d. Hinges and Latches: 1-by-1-inch butt or piano hinge and cam latches.
 - e. Fabricate doors airtight and suitable for duct pressure class.
 - 2. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.
 - 3. Number of Hinges and Locks:
 - a. Access Doors Less Than 12 Inches Square: No hinges and two sash locks.
 - b. Access Doors up to 18 Inches Square: Two hinges and two sash locks.
 - c. Access Doors up to 24 by 48 Inches: Three hinges and two compression latches with outside and inside handles.
 - d. Access Doors Larger than 24 by 48 Inches: Four hinges and two compression latches with outside and inside handles.

2.13 FLEXIBLE CONNECTORS

- A. 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:
1. Ductmate Industries, Inc.
 2. Duro Dyne Inc.
 3. Ventfabrics, Inc.
 4. Ward Industries, Inc.; a division of Hart & Cooley, Inc.
 5. Or approved equal.
- B. Materials: Flame-retardant or noncombustible fabrics.
- C. Coatings and Adhesives: Comply with UL 181, Class 1.
- D. Metal-Edged Connectors: Factory fabricated with a fabric strip 3-1/2 inches wide attached to 2 strips of 2-3/4-inch-wide, 0.028-inch-thick, galvanized sheet steel or 0.032-inch-thick aluminum sheets. Provide metal compatible with connected ducts.
- E. Indoor System, Flexible Connector Fabric: Glass fabric double coated with neoprene.
1. Minimum Weight: 26 oz./sq. yd.
 2. Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
 3. Service Temperature: Minus 40 to plus 200 deg F.
- F. Outdoor System, Flexible Connector Fabric: Glass fabric double coated with weatherproof, synthetic rubber resistant to UV rays and ozone.
1. Minimum Weight: 24 oz./sq. yd.
 2. Minimum Tensile Strength: 500 lbf/inch in the warp and 440 lbf/inch in the filling.
 3. Service Temperature: Minus 50 to plus 250 deg F.
- G. High-Corrosive-Environment System, Flexible Connectors: Glass fabric with chemical-resistant coating.
1. Minimum Weight: 14 oz./sq. yd.
 2. Tensile Strength: 450 lbf/inch in the warp and 340 lbf/inch in the filling.
 3. Service Temperature: Minus 67 to plus 500 deg F.
- H. Thrust Limits: Combination coil spring and elastomeric insert with spring and insert in compression, and with a load stop. Include rod and angle-iron brackets for attaching to fan discharge and duct.
1. Frame: Steel, fabricated for connection to threaded rods and to allow for a maximum of 30 degrees of angular rod misalignment without binding or reducing isolation efficiency.
 2. Outdoor Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 3. Minimum Additional Travel: 50 percent of the required deflection at rated load.

4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
6. Elastomeric Element: Molded, oil-resistant rubber or neoprene.
7. Coil Spring: Factory set and field adjustable for a maximum of 1/4-inch movement at start and stop.

2.14 FLEXIBLE DUCTS

- A. 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:
 1. Flexmaster U.S.A., Inc.
 2. McGill AirFlow LLC.
 3. Ward Industries, Inc.; a division of Hart & Cooley, Inc.
 4. Or approved equal.
- B. Insulated, Flexible Duct: UL 181, Class 1, 2-ply vinyl film supported by helically wound, spring-steel wire; fibrous-glass insulation; aluminized vapor-barrier film.
 1. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
 2. Maximum Air Velocity: 4000 fpm.
 3. Temperature Range: Minus 10 to plus 160 deg F.
 4. Insulation R-value: Comply with ASHRAE/IESNA 90.1-2013.
- C. Insulated, Flexible Duct: UL 181, Class 1, multiple layers of aluminum laminate supported by helically wound, spring-steel wire; fibrous-glass insulation; polyethylene vapor-barrier film.
 1. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
 2. Maximum Air Velocity: 4000 fpm.
 3. Temperature Range: Minus 20 to plus 210 deg F.
 4. Insulation R-value: Comply with ASHRAE/IESNA 90.1-2013.
- D. Flexible Duct Connectors:
 1. Clamps: Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action in sizes 3 through 18 inches, to suit duct size.

2.15 DUCT ACCESSORY HARDWARE

- A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct-insulation thickness.
- B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous-glass ducts.
- B. Install duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel and fibrous-glass ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.
- C. Install control dampers at inlet of exhaust fans or exhaust ducts as close as possible to exhaust fan unless otherwise indicated.
- D. Install volume dampers at points on supply, return, and exhaust systems where branches extend from larger ducts. Where dampers are installed in ducts having duct liner, install dampers with hat channels of same depth as liner, and terminate liner with nosing at hat channel.
 - 1. Install steel volume dampers in steel ducts.
 - 2. Install aluminum volume dampers in aluminum ducts.
- E. Set dampers to fully open position before testing, adjusting, and balancing.
- F. Install test holes at fan inlets and outlets and elsewhere as indicated.
- G. Install fire and smoke dampers according to UL listing.
- H. Connect ducts to duct silencers rigidly.
- I. Install duct access doors on sides of ducts to allow for inspecting, adjusting, and maintaining accessories and equipment at the following locations:
 - 1. On both sides of duct coils.
 - 2. At outdoor-air intakes and mixed-air plenums.
 - 3. At drain pans and seals.
 - 4. Downstream from manual volume dampers, control dampers, backdraft dampers, and equipment.
 - 5. Adjacent to and close enough to fire or smoke dampers, to reset or reinstall fusible links. Access doors for access to fire or smoke dampers having fusible links shall be pressure relief access doors and shall be outward operation for access doors installed upstream from dampers and inward operation for access doors installed downstream from dampers.
 - 6. Control devices requiring inspection.
 - 7. Elsewhere as indicated.

- J. Install access doors with swing against duct static pressure.
- K. Access Door Sizes:
 - 1. One-Hand or Inspection Access: 8 by 5 inches.
 - 2. Two-Hand Access: 12 by 6 inches.
 - 3. Head and Hand Access: 18 by 10 inches.
 - 4. Head and Shoulders Access: 21 by 14 inches.
 - 5. Body Access: 25 by 14 inches.
 - 6. Body plus Ladder Access: 25 by 17 inches.
- L. Label access doors according to Division 23 Section "Identification for HVAC Piping and Equipment" to indicate the purpose of access door.
- M. Install flexible connectors to connect ducts to equipment.
- N. For fans developing static pressures of 5-inch wg and more, cover flexible connectors with loaded vinyl sheet held in place with metal straps.
- O. Connect terminal units to supply ducts with maximum 12-inch lengths of flexible duct. Do not use flexible ducts to change directions.
- P. Connect diffusers or light troffer boots to ducts with maximum 60-inch lengths of flexible duct clamped or strapped in place.
- Q. Connect flexible ducts to metal ducts with draw bands.
- R. Install duct test holes where required for testing and balancing purposes.
- S. Install thrust limits at centerline of thrust, symmetrical on both sides of equipment. Attach thrust limits at centerline of thrust and adjust to a maximum of 1/4-inch movement during start and stop of fans.

3.2 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 - 1. Operate dampers to verify full range of movement.
 - 2. Inspect locations of access doors and verify that purpose of access door can be performed.
 - 3. Operate fire, smoke, and combination fire and smoke dampers to verify full range of movement and verify that proper heat-response device is installed.

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4. Inspect turning vanes for proper and secure installation.
5. Operate remote damper operators to verify full range of movement of operator and damper.

END OF SECTION 23 33 00

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SECTION 23 37 13

DIFFUSERS, REGISTERS, AND GRILLES

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. Rectangular and square ceiling diffusers.
 - 2. Perforated diffusers.
 - 3. Louver face diffusers.
 - 4. Linear bar diffusers.
 - 5. Linear slot diffusers.
 - 6. Ceiling-integral continuous diffusers.
 - 7. Drum louvers.
 - 8. Modular core supply grilles.
 - 9. Adjustable bar registers and grilles.
 - 10. Linear bar grilles.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated, include the following:
 - 1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
 - 2. Diffuser, Register, and Grille Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.
- B. Coordination Drawings: Reflected ceiling 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. Ceiling suspension assembly members.
 - 2. Method of attaching hangers to building structure.
 - 3. Size and location of initial access modules for acoustical tile.
 - 4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
 - 5. Duct access panels.
- C. Source quality-control reports.

PART 2 - PRODUCTS

2.1 CEILING DIFFUSERS

A. Rectangular and Square Ceiling Diffusers (CD):

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 - d. Or approved equal.
2. Devices shall be specifically designed for variable-air-volume flows.
3. Material: Steel.
4. Finish: Baked enamel, white.
5. Face Size: 24 by 24 inches and 12 by 12 inches.
6. Face Style: Four cone Plaque.
7. Mounting: T-bar or surface.
8. Pattern: Adjustable.
9. Dampers: Radial opposed blade.
10. Accessories:
 - a. Equalizing grid.
 - b. Plaster ring.
 - c. Sectorizing baffles.

B. Perforated Diffuser (CD):

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 - d. Or approved equal.
2. Devices shall be specifically designed for variable-air-volume flows.
3. Material: Steel backpan and pattern controllers, with steel face.
4. Finish: Baked enamel, white.
5. Face Size: 24 by 24 inches.
6. Duct Inlet: Round.
7. Face Style: Flush or Drop extended.
8. Mounting: T-bar.
9. Pattern Controller: Four louvered deflector patches.
10. Dampers: Radial opposed blade.
11. Accessories:
 - a. Equalizing grid.
 - b. Plaster ring.
 - c. Sectorizing baffles.

C. Louver Face Diffuser:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Kruger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 - d. Or approved equal.
2. Devices shall be specifically designed for variable-air-volume flows.
3. Material: Steel.
4. Finish: Baked enamel, white.
5. Face Size: 24 by 24 inches.
6. Mounting: T-bar.
7. Pattern: One-way Two-way Three-way Four-way core style.
8. Dampers: Radial opposed blade.
9. Accessories:
 - a. Adjustable pattern vanes.
 - b. Equalizing grid.
 - c. Sectorizing baffles.

2.2 CEILING LINEAR SLOT OUTLETS

A. Linear Bar Diffuser:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey
2. Devices shall be specifically designed for variable-air-volume flows.
3. Material: Steel.
4. Finish: Baked enamel, color selected by Architect.
5. Wide Core Spacing Arrangement: 1/8-inch- thick blades spaced 1/2 inch apart, 15-degree deflection.
6. Pencil-Proof Core Spacing Arrangement: 3/16-inch- thick blades spaced 7/16 inch apart, 15-degree deflection.
7. One-Way Deflection Vanes: Extruded construction fixed louvers with removable core.
8. Frame: 1 inch wide.
9. Mounting: Countersunk screw, concealed bracket or spring clip.
10. Damper Type: Adjustable opposed-blade assembly.
11. Accessories: Alignment pins, Core clips and Blank-off strips.

B. Linear Slot Diffuser (LD):

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey Titus.
 - d. Donco.

- e. Or approved equal.
2. Devices shall be specifically designed for variable-air-volume flows.
 3. Material - Shell: Steel,.
 4. Material - Pattern Controller and Tees: Aluminum.
 5. Finish - Face and Shell: Baked enamel, black.
 6. Finish - Pattern Controller: Baked enamel, black.
 7. Finish - Tees: Baked enamel, white.
 8. Slot Width: 3/4 inch.
 9. Number of Slots: Two.
 10. Length: 48 inches.
 11. Accessories: T-bar slot Center notch.
- C. Ceiling-Integral Continuous Diffuser:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 - d. Or approved equal.
 2. Slot Width: 3/4 inch.
 3. Section Length: as indicated on drawings.
 4. Straight and curved sections as required to accommodate layout.
 5. Mitered tees and corners.
 6. Pattern Controllers: 24 inches o.c.
 7. Material: Aluminum, extruded, heavy wall.
 8. Finishes:
 - a. Exterior: Standard white.
 - b. Interior: Standard black.
 9. Mounting: Ceiling or Sidewall.
 10. Plenum: Insulated.
 11. Other Features:
 - a. Painted interior.
 - b. Blank-offs.

2.3 HIGH-CAPACITY DIFFUSERS

- A. Drum Louver:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 2. Airflow Principle: Extended distance for high airflow rates.
 3. Material: Aluminum, heavy gage extruded.
 4. Finish: White baked acrylic.

5. Border: 1-1/4-inch width with countersunk screw holes.
6. Gasket between drum and border.
7. Body: Drum shaped; adjustable vertically.
8. Blades: Individually adjustable horizontally.
9. Mounting: Surface to duct.
10. Inlet Width: 6 inches and 10 inches.
11. Inlet Length: As shown on the drawings.
12. Accessories:
 - a. Opposed-blade steel damper.
 - b. Duct-mounting collars with countersunk screw holes.

B. Modular Core Supply Grilles:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 - d. Or approved equal.
2. Throw: Extended distance for airflow rates.
3. Material: Steel.
4. Grilles per Unit: One.
5. Finish: White baked acrylic.
6. Border: 1-1/2-inch width with countersunk screw holes.
7. Blades:
 - a. Set in modules.
8. Modules: Removable; rotatable.
9. Mounting: Surface.
10. Accessory: Opposed-blade steel damper.

2.4 REGISTERS AND GRILLES

A. Adjustable Bar Register:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 - d. Or approved equal.
2. Material: Steel.
3. Finish: Baked enamel, color selected by Architect.
4. Face Blade Arrangement: Horizontal spaced 1/2 inch apart.
5. Core Construction: Removable.
6. Rear-Blade Arrangement: Vertical spaced 1/2 inch apart.
7. Frame: 1 inch wide.
8. Mounting: Countersunk screw, concealed lay in.

9. Damper Type: Adjustable opposed blade.
10. Accessories:
 - a. Front-blade gang operator.
 - b. Filter.

B. Adjustable Bar Grille:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
2. Material: Steel.
3. Finish: Baked enamel, color selected by Architect.
4. Face Blade Arrangement: Horizontal spaced 1/2 inch apart.
5. Core Construction: Removable.
6. Rear-Blade Arrangement: Vertical spaced 3/4 inch and 1/2 inch apart.
7. Frame: 1 inch wide.
8. Mounting: Countersunk screw, concealed lay in.

C. Linear Bar Grille:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Titus or comparable product by one of the following:
 - a. Krueger.
 - b. Price Industries.
 - c. Tuttle & Bailey.
 - d. Or approved equal.
2. Material: Steel.
3. Finish: Baked enamel, color selected by Architect.
4. Face Arrangement: 1/2-by-1/2-by-1/2-inch grid core.
5. Distribution plenum.
 - a. Internal insulation.
 - b. Inlet damper.
6. Frame: 1 inch wide.
7. Mounting: Concealed.
8. Damper Type: Adjustable opposed blade.

D. For special model numbers and accessories, see schedule on drawings.

2.5 SOURCE QUALITY CONTROL

- A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas where diffusers, registers, and grilles are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install diffusers, registers, and grilles level and plumb.
- B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
- C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.3 ADJUSTING

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 23 37 13

08 January 2021

The College of New Jersey
Roscoe Hall West Interior Alterations
PSA 8500

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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

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, up-grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code (NJAC 17:27-1.1 et seq).**

IF AWARDED A CONTRACT YOUR COMPANY/FIRM WILL BE REQUIRED TO COMPLY WITH THE AFFIRMATIVE ACTION REQUIREMENTS LISTED ABOVE.

Firm Name: _____

Signature: _____

Title: _____

Date: _____

Additional Mandatory Construction Contract Language For State Agencies, Independent Authorities, Colleges and Universities Only

The Executive Order No. 151 (Corzine, August 28, 2009) and P.L. 2009, Chapter 335 include a provision which require all state agencies, independent authorities and colleges and universities to include additional mandatory equal employment and affirmative action language in its construction contracts. It is important to note that this language is in addition to and does not replace the mandatory contract language and good faith efforts requirements for construction contracts required by N.J.A.C. 17:27-3.6, 3.7 and 3.8. The additional mandatory equal employment and affirmative action language is as follows:

It is the policy of the **[Reporting Agency]** that its contracts should create a workforce that reflects the diversity of the State of New Jersey. Therefore, contractors engaged by the **[Reporting Agency]** to perform under a construction contract shall put forth a good faith effort to engage in recruitment and employment practices that further the goal of fostering equal opportunities to minorities and women.

The contractor must demonstrate to the **[Reporting Agency]**'s satisfaction that a good faith effort was made to ensure that minorities and women have been afforded equal opportunity to gain employment under the **[Reporting Agency]**'s contract with the contractor. Payment may be withheld from a contractor's contract for failure to comply with these provisions.

Evidence of a "good faith effort" includes, but is not limited to:

1. The Contractor shall recruit prospective employees through the State Job bank website, managed by the Department of Labor and Workforce Development, available online at <http://NJ.gov/JobCentralNJ>;
2. The Contractor shall keep specific records of its efforts, including records of all individuals interviewed and hired, including the specific numbers of minorities and women;
3. The Contractor shall actively solicit and shall provide the **[Reporting Agency]** with proof of solicitations for employment, including but not limited to advertisements in general circulation media, professional service publications and electronic media; and
4. The Contractor shall provide evidence of efforts described at 2 above to the **[Reporting Agency]** no less frequently than once every 12 months.
5. The Contractor shall comply with the requirements set forth at N.J.A.C. 17:27-1.1 et seq.

To ensure successful implementation of the Executive Order and Law, state agencies, independent authorities and colleges and universities must forward an Initial Project Workforce Report (AA 201) for any projects funded with ARRA money to the Dept. of LWD, Construction EEO Monitoring Program immediately upon notification of award but prior to execution of the contract.



STATEMENT OF OWNERSHIP DISCLOSURE

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

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

Name of Organization: _____

Organization Address: _____

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

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

Part II

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

OR

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

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

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

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

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

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

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

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Home Address (for Individuals) or Business Address

Part IV Certification

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

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



NON-COLLUSION STATEMENT

Date: _____

The College of New Jersey
The Office of Budget and Finance, Department of Purchasing
Administrative Services Building, Room 201
P.O. Box 7718
Ewing, New Jersey 08628-0718

To Whom It May Concern:

This is to certify that the undersigned bidder _____ as not, either 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 proposal submitted to The College of New Jersey on the _____ day of _____, 20_____.

Signature: _____

Corporate Seal:

Attest by: _____

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

My commission Expires: _____

Notary Public

THIS STATEMENT MUST BE COMPLETED AND SIGNED

INFORMATION AND INSTRUCTIONS

For Completing the “Two-Year Vendor Certification and Disclosure of Political Contributions” Chapter 51 Form

Background Information

On September 22, 2004, then-Governor James E. McGreevey issued E.O. 134, the purpose of which was to insulate the negotiation and award of State contracts from political contributions that posed a risk of improper influence, purchase of access or the appearance thereof. To this end, E.O. 134 prohibited State departments, agencies and authorities from entering into contracts exceeding \$17,500 with individuals or entities that made certain political contributions. E.O. 134 was superseded by Public Law 2005, c. 51, signed into law on March 22, 2005 (“Chapter 51”).

On September 24, 2008, Governor Jon S. Corzine issued E.O. 117 which is designed to enhance New Jersey’s efforts to protect the integrity of procurement decisions and increase the public’s confidence in government. The Executive Order builds upon the provisions of Chapter 51.

Two-Year Certification Process

Upon approval by the State Chapter 51 Review Unit, the Certification and Disclosure of Political Contributions form is valid for a two (2) year period. Thus, if a vendor receives approval on January 1, 2014, the certification expiration date would be December 31, 2015. Any change in the vendor’s ownership status and/or political contributions during the two-year period will require the submission of new Chapter 51/Executive Order 117 forms to the State Review Unit. **Please note that it is the vendor’s responsibility to file new forms with the State should these changes occur.**

State Agency Instructions: Prior to the awarding of a contract, the State Agency should first use NJSTART (<https://www.njstart.gov/bsol>) to check the status of a vendor’s Chapter 51 certification before contacting the Review Unit’s mailbox at CD134@treas.nj.gov. If the State Agency does not find any Chapter 51 Certification information in NJSTART and/or the vendor is not registered in NJSTART, then the State Agency should send an e-mail to CD134@treas.nj.gov to verify the certification status of the vendor. If the response is that the vendor is NOT within an approved two-year period, then forms must be obtained from the vendor and forwarded for review. If the response is that the vendor is within an approved two-year period, then the response so stating should be placed with the bid/contract documentation for the subject project.

Instructions for Completing the Form

Part 1: BUSINESS ENTITY INFORMATION

Business Name – Enter the full legal name of the vendor, including trade name if applicable.

Address, City, State, Zip and Phone Number -- Enter the vendor's street address, city, state, zip code and telephone number.

Vendor Email – Enter the vendor’s primary email address.

Vendor FEIN – Please enter the vendor’s Federal Employment Identification Number.

Business Type - Check the appropriate box that represents the vendor's type of business formation.

Listing of officers, shareholders, partners or members - Based on the box checked for the business type, provide the corresponding information. (A complete list must be provided.)

Part 2: DISCLOSURE OF CONTRIBUTIONS

Read the three types of political contributions that require disclosure and, if applicable, provide the recipient's information. The definition of "Business Entity/Vendor" and "Contribution" can be found on pages 3 and 4 of this form.

Name of Recipient - Enter the full legal name of the recipient.

Address of Recipient - Enter the recipient's street address.

Date of Contribution - Indicate the date the contribution was given.

Amount of Contribution - Enter the dollar amount of the contribution.

Type of Contribution - Select the type of contribution from the examples given.

Contributor's Name - Enter the full name of the contributor.

Relationship of the Contributor to the Vendor - Indicate the relationship of the contributor to the vendor. (e.g. officer or shareholder of the company, partner, member, parent company of the vendor, subsidiary of the vendor, etc.)

NOTE: If form is being completed electronically, click "Add a Contribution" to enter additional contributions. Otherwise, please attach additional pages as necessary.

Check the box under the recipient information if no reportable contributions have been solicited or made by the business entity. **This box must be checked if there are no contributions to report.**

Part 3: CERTIFICATION

Check Box A if the representative completing the Certification and Disclosure form is doing so on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity.

(No additional Certification and Disclosure forms are required if BOX A is checked.)

Check Box B if the representative completing the Certification and Disclosure form is doing so on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity with the exception of those individuals and/or entities that submit their own separate form. For example, the representative is not signing on behalf of the vice president of a corporation, but all others. The vice president completes a separate Certification and Disclosure form. **(Additional Certification and Disclosure forms are required from those individuals and/or entities that the representative is not signing on behalf of and are included with the business entity's submittal.)**

Check Box C if the representative completing the Certification and Disclosure form is doing so on behalf of the business entity only. **(Additional Certification and Disclosure forms are required from all individuals and/or entities whose contributions are attributable to the business entity and must be included with the business entity submittal.)**

Check Box D when a sole proprietor is completing the Certification and Disclosure form or when an individual or entity whose contributions are attributable to the business entity is completing a separate Certification and Disclosure form.

Read the five statements of certification prior to signing.

The representative authorized to complete the Certification and Disclosure form must sign and print her/his name, title or position and enter the date.

State Agency Procedure for Submitting Form(s)

The State Agency should submit the completed and signed Two-Year Vendor Certification and Disclosure forms either electronically to: cd134@treas.nj.gov or regular mail at: Chapter 51 Review Unit, P.O. Box 230, 33 West State Street, Trenton, NJ 08625-0230. Original forms should remain with the State Agency and copies should be sent to the Chapter 51 Review Unit.

Business Entity Procedure for Submitting Form(s)

The business entity should return this form to the contracting State Agency.

The business entity can submit the Certification and Disclosure form directly to the Chapter 51 Review Unit only when:

- The business entity is approaching its two-year certification expiration date and is seeking certification renewal;
- The business entity had a change in its ownership structure; OR
- The business entity made any contributions during the period in which its last two-year certification was in effect, or during the term of a contract with a State Agency.

Questions & Information

Questions regarding Public Law 2005, Chapter 51 (N.J.S.A. 19:44A-20.13) or E.O. 117 (2008) may be submitted electronically through the Division of Purchase and Property website at: <https://www.state.nj.us/treas/purchase/eo134questions.shtml>.

Reference materials and forms are posted on the Political Contributions Compliance website at: <http://www.state.nj.us/treasury/purchase/execorder134.shtml>.



State of New Jersey
Department of the Treasury

Division of Purchase and Property

Two-Year Chapter 51/Executive Order 117 Vendor Certification and
Disclosure of Political Contributions

FOR STATE USE ONLY

Solicitation, RFP, or Contract No. _____ Award Amount _____

Description of Services _____

State Agency Name _____ Contact Person _____

Phone Number _____ Contact Email _____

Check if the Contract / Agreement is Being Funded Using FHWA Funds

**Please check if requesting
recertification**

Part 1: Business Entity Information

Full Legal Business Name _____
(Including trade name if applicable)

Address _____

City _____ State _____ Zip _____ Phone _____

Vendor Email _____ Vendor FEIN (SS# if sole proprietor/natural person) _____

**Check off the business type and list below the required information for the type of business selected.
MUST BE COMPLETED IN FULL**

- Corporation: LIST ALL OFFICERS and any 10% and greater shareholder (If the corporation only has one officer, please write "sole officer" after the officer's name.)
- Professional Corporation: LIST ALL OFFICERS and ALL SHAREHOLDERS
- Partnership: LIST ALL PARTNERS with any equity interest
- Limited Liability Company: LIST ALL MEMBERS with any equity interest
- Sole Proprietor

Note: "Officers" means President, Vice President with senior management responsibility, Secretary, Treasurer, Chief Executive Officer or Chief Financial Officer of a corporation, or any person routinely performing such functions for a corporation.

Also Note: "N/A will not be accepted as a valid response. Where applicable, indicate "None."

All Officers of a Corporation or PC

**10% and greater shareholders of a corporation
or all shareholders of a PC**

All Equity partners of a Partnership

All Equity members of a LLC

If you need additional space for listing of Officers, Shareholders, Partners or Members, please attach separate page.

Part 2: Disclosure of Contributions by the business entity or any person or entity whose contributions are attributable to the business entity.

1. **Report below all contributions solicited or made during the 4 years immediately preceding the commencement of negotiations or submission of a proposal to any:**

Political organization organized under Section 527 of the Internal Revenue Code and which also meets the definition of a continuing political committee as defined in N.J.S.A. 19:44A-3(n)

2. **Report below all contributions solicited or made during the 5 ½ years immediately preceding the commencement of negotiations or submission of a proposal to any:**

Candidate Committee for or Election Fund of any Governorial or Lieutenant Governorial candidate
State Political Party Committee
County Political Party Committee

3. **Report below all contributions solicited or made during the 18 months immediately preceding the commencement of negotiations or submission of a proposal to any:**

Municipal Political Party Committee
Legislative Leadership Committee

Full Legal Name of Recipient _____
Address of Recipient _____
Date of Contribution _____ Amount of Contribution _____
Type of Contribution (i.e. currency, check, loan, in-kind) _____
Contributor Name _____
Relationship of Contributor to the Vendor _____
If this form is not being completed electronically, please attach additional contributions on separate page. Click the "Add a Contribution" tab to enter additional contributions.

Remove Contribution

Add a Contribution

Check this box only if no political contributions have been solicited or made by the business entity or any person or entity whose contributions are attributable to the business entity.

Part 3: Certification (Check one box only)

- (A) I am certifying on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity as listed on Page 1 under **Part 1: Vendor Information**.
- (B) I am certifying on behalf of the business entity and all individuals and/or entities whose contributions are attributable to the business entity as listed on Page 1 under **Part 1: Vendor Information**, except for the individuals and/or entities who are submitting separate Certification and Disclosure forms which are included with this submittal.
- (C) I am certifying on behalf of the business entity only; any remaining persons or entities whose contributions are attributable to the business entity (as listed on Page 1) have completed separate Certification and Disclosure forms which are included with this submittal.
- (D) I am certifying as an individual or entity whose contributions are attributable to the business entity.

I hereby certify as follows:

- I have read the Information and Instructions accompanying this form prior to completing the certification on behalf of the business entity.**
- All reportable contributions made by or attributable to the business entity have been listed above.**

3. The business entity has not knowingly solicited or made any contribution of money, pledge of contribution, including in-kind contributions, that would bar the award of a contract to the business entity unless otherwise disclosed above:

- a) Within the 18 months immediately preceding the commencement of negotiations or submission of a proposal for the contract or agreement to:
 - (i) A candidate committee or election fund of any candidate for the public office of Governor or Lieutenant Governor or to a campaign committee or election fund of holder of public office of Governor or Lieutenant Governor; OR
 - (ii) Any State, County or Municipal political party committee; OR
 - (iii) Any Legislative Leadership committee.
- b) During the term of office of the current Governor or Lieutenant Governor to:
 - (i) A candidate committee or election fund of a holder of the public office of Governor or Lieutenant Governor; OR
 - (ii) Any State or County political party committee of the political party that nominated the sitting Governor or Lieutenant Governor in the last gubernatorial election.
- c) Within the 18 months immediately preceding the last day of the sitting Governor or Lieutenant Governor's first term of office to:
 - (i) A candidate committee or election fund of the incumbent Governor or Lieutenant Governor; OR
 - (ii) Any State or County political party committee of the political party that nominated the sitting Governor or Lieutenant Governor in the last gubernatorial election.

4. During the term of the contract/agreement the business entity has a continuing responsibility to report, by submitting a new Certification and Disclosure form, any contribution it solicits or makes to:

- (a) Any candidate committee or election fund of any candidate or holder of the public office of Governor or Lieutenant Governor; OR
- (b) Any State, County or Municipal political party committee; OR
- (c) Any Legislative Leadership committee.

The business entity further acknowledges that contributions solicited or made during the term of the contract/agreement may be determined to be a material breach of the contract/agreement.

5. During the two-year certification period the business entity will report any changes in its ownership structure (including the appointment of an officer within a corporation) by submitting a new Certification and Disclosure form indicating the new owner(s) and reporting said owner(s) contributions.

I certify that the foregoing statements in Parts 1, 2 and 3 are true. I am aware that if any of the statements are willfully false, I may be subject to punishment.

Signed Name _____ Print Name _____

Title/Position _____ Date _____

Procedure for Submitting Form(s)

The contracting State Agency should submit this form to the Chapter 51 Review Unit when it has been required as part of a contracting process. The contracting State Agency should submit a copy of the completed and signed form(s), to the Chapter 51 Unit and retain the original for their records.

The business entity should return this form to the contracting State Agency. The business entity can submit this form directly to the Chapter 51 Review Unit only when it -

- Is approaching its two-year certification expiration date and wishes to renew certification;
- Had a change in its ownership structure; OR
- Made any contributions during the period in which its last two-year certification was in effect, or during the term of a contract with a State Agency.

Forms should be submitted either electronically to: cd134@treas.nj.gov , or regular mail at: Chapter 51 Review Unit, P.O. Box 230, 33 West State Street, Trenton, NJ 08625.

State of New Jersey

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Solicitation Number: Bidder/Offeror:

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 the person or entity, or one of the person or entity's parents, subsidiaries, or affiliates, is not identified on a list created and maintained by the Department of the Treasury as a person or entity engaging in investment activities in Iran.

I certify, pursuant to Public Law 2012, c. 25, that the person or entity listed above for which I am authorized to bid/renew:

- is not providing goods or services of \$20,000,000 or more in the energy sector of Iran, including a person or entity that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran, AND
is not a financial institution that extends \$20,000,000 or more in credit to another person or entity, for 45 days or more, if that person or entity will use the credit to provide goods or services in the energy sector in Iran.

In the event that a person or entity is unable to make the above certification because it or one of its parents, subsidiaries, or affiliates has engaged in the above-referenced activities, a detailed, accurate and precise description of the activities must be provided in part 2 below to the Division of Purchase and Property under penalty of perjury. 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, PLEASE ADD AN ADDITIONAL SHEET.

Name Relationship to Bidder/Offeror
Description of Activities
Duration of Engagement Anticipated Cessation Date
Bidder/Offeror Contact Name Contact Phone Number

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

Full Name (Print): Signature:

Title: Date:



VENDOR QUALIFICATION SHEET

Vendors are required to submit evidence of qualifications to meet all requirements as required by the Office of Finance & Business Services at The College of New Jersey by providing the information listed below.

If this information is being requested as part of an RFP or RFQ, vendors may be requested to furnish additional information for clarification purposes. This will in no way change the vendor's original proposal.

TO BE COMPLETED BY VENDOR

1. Please list the types of commodities that your company can provide.

A.

B.

C.

2. The number of years your firm has been providing these services. _____ Year(s)

3. Location of vendor's office that will be responsible for managing contract/service:

Name: _____

Telephone: _____ Fax: _____

Email Address: _____

Street Address: _____

City/State/Zip: _____

Federal Identification Number: _____

4. Address where all purchase orders and payment are to be mailed by users of any contract(s) resulting from this proposal (if different from above).

Purchase Orders:

Firm Name: _____

Street Address: _____

City/State/Zip: _____

Remittances:

Firm Name: _____

Street Address: _____

City/State/Zip: _____

VENDOR QUALIFICATIONS- continued

5. Name of insurance company:

Street Address: _____

City/State/Zip: _____

Types of Insurance: _____

6. Name of individual to contact for sales/services information:

Name: _____

Telephone: _____

Email Address: _____

Street Address: _____

City/State/Zip: _____

7. List the names and titles of personnel who will service this contract:

8. Is your firm registered with the Secretary of State of New Jersey? **Yes** ____ **No** ____

9. Is your firm incorporated? **Yes** ____ **No** ____

A) In What State? _____

10. Is your firm considered a small business in the State of New Jersey? **If yes, please attach a certificate or certification statement from the New Jersey Commerce and Economic Growth Commission.** If no and you would like to register, please contact the New Jersey Commerce and Economic Growth Commission at 609-777-0885.

Small Business: **Yes** ____ **No** ____

A) What category does your firm fall under?

Gross Revenues do not exceed \$500,000 _____

Gross Revenues do not exceed \$5 million _____

Gross Revenues do not exceed \$12 million _____

Under Executive Order 34, TCNJ is responsible for soliciting demographic information from its vendors. TCNJ is required to seek the following information from each firm under contract with us:

1. Is more than fifty percent (50%) of your company minority owned? (circle one) YES NO
(African-American, Hispanic, Asian, and/or Native American)

2. Is more than fifty percent (50%) of your company woman owned? (circle one) YES NO

3. What is the ethnicity of the owner of your company: (check applicable according to 51% ownership)
 - ... Asian American
 - ... Multiple Ethnicities
 - ... Non-Minority
 - ... Hispanic American
 - ... African American
 - ... Caucasian American Female
 - ... Native American
 - ... Unspecified

TCNJ is required to solicit the foregoing information. Your response, however, is **strictly voluntary**. Please be advised that any contracting decisions made by TCNJ will **not** be influenced in any way by your decision to provide the above information.

EXECUTIVE ORDER #34: MINORITY AND WOMEN BUSINESS ENTERPRISES

On September 15, 2006, Governor Corzine signed Executive Order 34 establishing a Division of Minority and Women Business Development. The Division is charged with administering and monitoring policies, practices, and programs to ensure that New Jersey owned minority and women business enterprises (MWBE) are afforded an equal opportunity to participate in New Jersey's purchasing and procurement processes.

State entities are required to report to the Division the ethnic and gender composition of the vendors with which we do business.

VENDOR QUALIFICATIONS-

11. Please provide a list of former or present clients. Also, indicate the name of a contact person and telephone number for reference purposes. **Any personnel from The College of New Jersey listed as a reference will not be considered a valid reference.**

A. Client Name:

Contact Name:

Telephone Number:

Fax Number:

Email Address:

B. Client Name:

Contact Name:

Telephone Number:

Fax Number:

Email Address:

C. Client Name:

Contact Name:

Telephone Number:

Fax Number:

Email Address:

D. Client Name:

Contact Name:

Telephone Number:

Fax Number:

Email Address:

VENDOR QUALIFICATIONS- continued

12. Please answer the following questions related to your prior experience:

- a. Has the bidder been found, through either court adjudication, arbitration, mediation, or other contractually stipulated alternate dispute resolution mechanism, to have: failed to provide or perform goods or services; or failed to complete the contract in a timely manner; or otherwise performed unsatisfactorily under a prior contract with the contracting unit? If yes, attach summary of details on a separate sheet.

Yes _____ No _____

- b. Has the bidder defaulted on a contract, thereby requiring the local unit to utilize the services of another contractor to provide the goods or perform the services or to correct or complete the contract? If yes, attach summary of details on a separate sheet.

Yes _____ No _____

- c. Has the bidder defaulted on a contract, thereby requiring the local unit to look to the bidder's surety for completion of the contract or tender of the costs of completion? If yes, attach summary of details on a separate sheet.

Yes _____ No _____

- d. Has the bidder been debarred or suspended from contracting with any of the agencies or departments of the executive branch of the State of New Jersey at the time of contract award, whether or not the action was based on experience with the contracting unit. If yes, attach summary of details on a separate sheet.

Yes _____ No _____

Firm Name: _____

Signature: _____

Title: _____

Date: _____



CONTRACT FOR CONSTRUCTION

This AGREEMENT is entered into as of the ____ day of _____, _____, between

The College: The College of New Jersey (“TCNJ” or the “College”)
PO Box 7718
2000 Pennington Road
Ewing, New Jersey 08628-0718

and

the Contractor: _____ (the “Contractor”)

in connection with

the Project: [_____] (the “Project”)

The Architect: _____

ARTICLE 1

EMPLOYMENT OF THE CONTRACTOR/THE PROJECT DESCRIPTION

1.1 The College employs the Contractor and the Contractor agrees to perform the construction for the Project identified above. The Project is described in more detail in the College’s Plans and Specifications prepared by the Architect.

ARTICLE 2

THE CONTRACT DOCUMENTS

2.1 The Contract Documents consist of this Contract for Construction and the Exhibits attached hereto (“Contract for Construction”), the General Conditions of the Contract for Construction (the “General Conditions”) (and any other General, Supplementary and other Conditions), the Plans and Specifications, and also the following documents:

- (a) The Contractor's Bid excluding limitations and qualifications unless such limitation or qualification is specifically accepted in writing by the College;
- (c) Addenda and Clarifications issued before the bid due date;
- (d) The Project Bidding Schedule; and
- (e) Modifications issued after execution of this Contract for Construction.

These documents all form the "Contract," and are as fully a part of this Contract as if attached hereto or repeated herein. This Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral.

ARTICLE 3 **SCOPE OF WORK**

3.1 The Contractor shall fully perform the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others. The Contractor shall assume full responsibility for constructing and completing the Project and all the Work, including providing all labor, Subcontractors, materials, equipment, and services reasonably inferable from the Contract Documents and all applicable laws, codes and professional standards, and providing all supervision, management, and scheduling required in the General Conditions and as noted throughout the Contract Documents.

ARTICLE 4 **CONTRACT TIMES**

4.1 TIME OF THE ESSENCE. All dates and durations specified in this Contract, including the Construction Start Date(s), any Milestones Dates, any Substantial Completion Date(s) and any Final Completion Date(s) (collectively, "Contract Times") are agreed to be of the essence.

4.2 CONSTRUCTION START. The Work shall start no later than ten (10) calendar days after the College issues a Notice to Proceed to the Contractor ("Construction Start Date"). If the Work is to be performed in phases, the College may issue a separate Notice to Proceed with respect to each phase (e.g., Phase 1 Notice to Proceed, Phase 2 Notice to Proceed, etc.) thereby establishing different Construction Start Dates for each phase (e.g., Phase 1 Construction Start Date, Phase 2 Construction Start Date, etc.). The College may, in its sole discretion and at no cost to the College, choose to delay the issuance of a Notice to Proceed and the Construction Start Date for any phase until after the Contractor has achieved Substantial or Final Completion of any other phase.

4.3 MILESTONES. The construction tasks or activities shall be completed within the number of calendar days after the Construction Start Date as set forth in the Notice to Proceed ("Milestone Dates"). If the Work is to be performed in phases, each phase may have

separate Milestone Dates (e.g., Phase 1 Milestone Dates, Phase 2 Milestone Dates, etc.), which dates shall be set forth in the Notice to Proceed for that phase.

4.4 SUBSTANTIAL COMPLETION. The Contractor shall diligently prosecute the Work and shall achieve Substantial Completion of the entire Work as set forth in the Notice to Proceed (“Substantial Completion Date”). If the Work is to be performed in phases, each phase may have a separate Substantial Completion Date (e.g., Phase 1 Substantial Completion Date, Phase 2 Substantial Completion Date, etc.), which date shall be set forth in the Notice to Proceed for that phase. The definition and requirements of Substantial Completion are set forth in the General Conditions. The Substantial Completion Date(s) shall only be changed by a written change order.

4.5 FINAL COMPLETION. The Contractor shall achieve Final Completion of the entire Work as set forth in the Notice to Proceed (“Final Completion Date”). If the Work is to be performed in phases, each phase may have a separate Final Completion Date (e.g., Phase 1 Final Completion Date, Phase 2 Final Completion Date, etc.), which date shall be set forth in the Notice to Proceed for that phase. The requirements for Final Completion are defined in the General Conditions as well as the Specifications of the Project. The Final Completion Date(s) shall only be changed by written change order.

4.6 LIQUIDATED DAMAGES FOR DELAY. If the Contractor fails to achieve Substantial Completion of a phase of the Work or of the entire Work by the Substantial Completion Date(s) set forth in the applicable Notice to Proceed (as extended by Change Order, if applicable), and the delay is not excused by the College, then the Contractor shall pay the College the following amounts as liquidated damages for delay (“Liquidated Damages”) for each calendar day that the phase of the Work or the entire Work is not substantially completed beyond the applicable Substantial Completion Date:

\$ _____ per calendar day.

The College and the Contractor agree that the actual loss to the College from construction delays and the inability to use the Project or any phase of the Project in a substantially completed state are for the most part difficult to quantify, and that the foregoing Liquidated Damages formula results in damages amounts that are a reasonable estimate of the damage to the College for not being able to use the Project in a substantially completed state and are not penalties and are not intended to be penalties. The College may deduct Liquidated Damages from payments due under this Contract, but its failure to withhold Liquidated Damages or to assert a claim for Liquidated Damages shall not be deemed a waiver of the College’s right to withhold or to assert a claim for damages for any delay that occurs at any time on the Project.

ARTICLE 5
CONTRACT PRICE

5.1 CONTRACT PRICE. The Contractor shall be paid \$_____ for the complete performance of this Contract, which was proposed by the Contractor in its bid and accepted by the College (the "Contract Price"). The Contractor shall be entitled to additional compensation for authorized changes which include the cost of the changes and mark-ups included in change orders approved in writing by the College in accordance with the change order provision set forth in the General Conditions.

5.2 ALTERNATES. The Contract Price is based upon and includes the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the College:

[_____]

5.3 UNIT PRICES. The Contract Price is based upon and includes the following unit prices, if any, which are described in the Contract Documents:

[_____]

5.4 ALLOWANCES. The Contract Price is based upon and includes the following allowances, if any, which are described in the Contract Documents:

[_____]

ARTICLE 6
PAYMENTS TO THE CONTRACTOR

6.1 PAYMENT. The Contractor will be paid by the College in accordance with this Article and the payment provision in the General Conditions.

6.2 MONTHLY PROGRESS PAYMENTS. The College will make progress payments as the Work proceeds based on written invoices submitted monthly by the Contractor and approved by the Architect and the College. No payments will be made until the Contractor submits a unit schedule break down showing the portions of the total Contract Price for each principal category of Work and value loaded CPM schedule allocating the Contract Price among the schedule activities. Monthly progress payment amounts shall be based on the percentages of the Work completed as of the end of the pay period (less earlier payments). All payment requests or invoices and all payments shall be governed by the payment provision of the General Conditions as well as any special requirements of this Contract, including the requirement that progress payments shall be based on a unit schedule breakdown and a value loaded CPM schedule.

6.3 RETAINAGE. The College will retain 2% of the amount due on each progress payment pending Final Completion of the Work. The holding and release of retainage shall be governed by the payment provision of the General Conditions.

6.4 CHANGE ORDERS. The Contractor shall invoice for change order work in the monthly progress payment invoices as the change order work is performed, but only after a written change order and TCNJ issued Purchase Order has been signed by the College. Changes in the Work shall be governed by the change order provision of the General Conditions.

6.5 FINAL PAYMENT. Upon final completion of all Work included in the Contract Documents including all change orders, acceptance of the Work by the Architect and the College, the satisfactory completion of all of the requirements in the General Conditions for final completion, and the issuance of the Certificate of Final Completion, the Contractor will be paid the fully adjusted Contract Price including any retainage withheld (less earlier payments). The invoice for final payment and final payment shall also be subject to the payment provision of the General Conditions and any special requirements of this Contract.

6.6 PAYMENT TERMS. All invoices and payments shall also be subject to the General Conditions, including the provisions regarding payments, to the right of the College to withhold payments or to make deductions from payments, and to the Prevailing Wage Act requirements set forth in the General Conditions. The College will pay proper final invoices within thirty (30) days of their submission to the College with the approval of the Architect.

6.7 SUBMISSION OF INVOICES. Prior to the submission of the invoice, the Contractor will submit to the College and the Architect, in draft form, a “pencil copy” of the monthly invoice for review and approval setting forth each line item for which the Contractor intends to request payment in that invoice based on the claimed percent completed for that line item. Upon receipt of said “pencil copy”, the College and the Architect shall observe the Work in place and, on the basis of such observations, will either approve the amounts requested or modify the Contractor’s request, based on the College’s independent assessment of the Work in place. The College will then return the pencil copy invoice to the Contractor for the Contractor to then adjust and submit the final invoice with the agreed to percentages completed per line item to the College for payment. No invoice shall be submitted for payment until all amounts and completion percentages have been determined in this manner.

6.8 PROMPT PAYMENT ACT. For the purposes of the State’s Prompt Payment Act, N.J.S.A. 2A:30A-1, et seq.:

(a) An invoice will be deemed to have been received when it is received by the College at the address designated in the pre-construction conference for receipt of the invoices.

(b) The “billing date” as that term is used in N.J.S.A. 2A:30A-2 shall be the earlier of the date upon which an invoice for payment is approved for payment or 20 days after the invoice is received, unless within such 20 day period the invoice is found to be incomplete or

otherwise unacceptable and returned to the Contractor, with a written explanation of deficiencies, the amount withheld and the reasons for withholding payment.

(c) In the event that an invoice is found to be deficient and returned to the Contractor, the “billing date” shall be calculated from the date that a corrected invoice is received.

(d) Payment shall be considered to have been made on the date on which a check for such payment is dated.

(e) Payment terms (e.g., “net 20”) offered by the Contractor shall not govern the College’s obligation to make payment.

(f) The following periods of time will not be included in the calculation of the due date of the Contractor’s invoice:

(i) Any time elapsed between receipt of an improper invoice and its return to the Contractor, not to exceed 20 calendar days; or

(ii) Any time elapsed between the College’s return of an improper invoice to the Contractor and the College’s receipt of a corrected invoice.

If the State’s Prompt Payment Act is amended, or the language stated herein is inconsistent with the language contained in the State’s Prompt Payment Act, the language of the State’s Prompt Payment Act shall control.

6.9 LIMITATIONS ON APPLICABILITY. The provisions of this Article shall not govern the College’s payment obligations nor shall they supersede or modify any other contractual provision allowing the withholding of monies from the Contractor to the extent that the Contractor has not performed in accordance with the provisions of the Contract Documents. This Article also shall not govern the College’s payment obligations nor supersede or modify any other contractual provision governing the Contractor claims for additional compensation beyond the base Contract Price and approved change orders.

6.10 INTEREST. Interest shall be payable on amounts due the Contractor if not paid within thirty (30) calendar days after the billing date specified above, as provided under the State’s Prompt Payment Act, N.J.S.A. 2A:30A-1, et seq. Interest on amounts due shall be payable to the Contractor for the period beginning on the day after the required payment date and ending on the date on which the check for payment is drawn. Interest may be paid by separate payment to the Contractor, but shall be paid within 30 days of payment of the principal amount of the approved invoice. Nothing in this Article shall be construed as entitling the Contractor to payment of interest on any sum withheld by the College for any reason permitted under the Contract Documents or applicable law, or on any claim for additional compensation, over and above sums due under the base Contract Price or approved change orders.

ARTICLE 7
DISPUTE RESOLUTION

7.1 If a dispute or claim arises out of or relates to this Contract, or the breach thereof, and if the dispute cannot be settled through negotiation, the method for resolution of such dispute or claim shall be as provided in the dispute resolution provision of the General Conditions.

ARTICLE 8
TERMINATION OR SUSPENSION

8.1 This Contract may be terminated by the College as provided in the termination and suspension provision in the General Conditions.

8.2 The Work may be suspended by the College or the Contractor as provided in termination and suspension provision in the General Conditions.

ARTICLE 9
INSURANCE AND BONDS

9.1 CONTRACTOR'S INSURANCE. The Contractor shall purchase and maintain insurance as set forth in the insurance and bonds provision of the General Conditions. To the extent the Contractor shall be required to purchase and maintain additional insurance or insurance that differs from that set forth in the General Conditions, such requirements are set forth below:

[_____]

9.2 SUBCONTRACTOR'S INSURANCE. The Contractor shall ensure that its Subcontractors purchase and maintain insurance as set forth in the insurance and bond provision of the General Conditions.

9.3 PAYMENT AND PERFORMANCE BOND. The Contractor shall furnish the College with a payment bond and a performance bond as set forth in the insurance and bond provision of the General Conditions.

ARTICLE 10
OTHER PROVISIONS

10.1 CONTRACTOR REPRESENTATIONS. The Contractor represents to the College that it has:

(a) **Examination of the Contract Documents.** Examined and carefully studied the Contract Documents and the other documents in the bid documents, and that they are sufficient for performing the Work at the Contract Price.

(b) **Examination of Site.** Visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect the cost, progress, and performance of the Work.

(c) **Familiarity with Law.** Familiarized itself with all federal, state, and local laws and regulations that may affect the cost, progress, and performance of the Work.

(d) **Familiarity with Other Information and Other Documents.** Carefully studied all reports of investigations and tests of the site and subsurface conditions at or contiguous to the site and all drawings of physical conditions at the site including surface or subsurface composition, water, structures and utilities at or near to the site.

(e) **Additional Information Not Required for Bidding or Contract Performance.** Does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price.

10.2 ASSIGNMENT OF CONTRACT. The Contractor may not assign this Contract or any rights under or interests in this Contract including its right to payments under this Contract.

10.3 CONTRACTOR PERSONNEL ASSIGNED. The Contractor's team for this Project shall consist of the following personnel, who shall not be reassigned without the College's prior written consent:

<u>Name</u>	<u>Position</u>
_____	<u>Project Executive</u>
_____	<u>Project Manager</u>
_____	<u>Project Superintendent</u>
_____	<u>Project Scheduler</u>

The College reserves the right to request and have any member of the Contractor's or Subcontractor's staff replaced on the Project for any non-discriminatory reason.

10.4 NOTIFICATIONS/AUTHORIZED REPRESENTATIVE. All Notices required under this Contract shall be in writing, signed by the party giving same, and shall be deemed properly given only if hand delivered, sent by reputable overnight courier, or by registered or certified U.S. mail, return receipt requested, postage pre-paid and addressed as provided below.

Notice to the Contractor/Contractor's Representative. Written notices from the College and/or the Architect to the Contractor should be addressed to the Contractor's Representative:

Attn: _____

Notice to the College/College's Representative: Written notices from the Contractor to the College should be addressed to the College's Representative:

The College of New Jersey
PO Box 7718,
Ewing, New Jersey 08628
Attn: _____

with a copy to the College's General Counsel as follows:

Thomas Mahoney, Esq.
Vice President and General Counsel
The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

The College's Contracting Officer hereby authorizes the College's Representative to receive all Contract related correspondence.

Notice to the Architect: Written notices from the Contractor to the Architect should be addressed to:

Attn: _____

Neither the College's nor the Contractor's Authorized Representatives shall be changed without 7 days' written notice to the other party.

10.5 CONTRACT TERMS, CHANGES, AND LAW. This Contract constitutes the entire agreement between the College and the Contractor, and it shall be governed by the law of the State of New Jersey. The terms and conditions of this Contract may not be changed except by a writing signed by the Contractor and the College.

10.6 COUNTERPARTS AND SIGNATURES. This Contract may be executed in counterparts. All executed counterparts shall constitute one contract, and each counterpart shall be deemed an original. The parties hereby acknowledge and agree that facsimile signatures or signatures transmitted by electronic mail in so-called “pdf” format shall be legal and binding and shall have the same full force and effect as if an original of this Contract had been delivered. The College and the Contractor (1) intend to be bound by the signatures on any document sent by facsimile or electronic mail, (2) are aware that the other party will rely on such signatures, and (3) hereby waive any defenses to the enforcement of the terms of this Contract based on the foregoing forms of signature.

10.7 NO IMPLIED COVENANTS OR WARRANTIES. The Contractor acknowledges that there are no implied covenants or warranties from the College under this Contract.

10.8 SEVERABILITY. If any term or provision of the Contract Documents are to any extent held invalid or unenforceable, and if the provisions of the Contract Documents that are essential to each party’s interests otherwise remain valid and enforceable, then (i) the remaining terms and provisions in the Contract Documents will not be affected thereby, (ii) each term and provision of the Contract Documents will be valid and enforceable to the fullest extent permitted by law, and (iii) the court/arbitrator(s) will give the offending provision the fullest meaning and effect permitted by law.

10.9 HEADINGS. The headings used in this Contract are for convenience and reference only, and are not part of this Contract, and do not in any way control, define, limit or add to the terms and conditions hereof.

10.10 INTERPRETATION/RULES OF CONSTRUCTION. The parties acknowledge that each party, and if it so chooses, its counsel, have reviewed and revised this Contract and that the normal rule of construction to the effect that any ambiguities be resolved in favor of the non-drafting party shall not be employed in the interpretation of this Contract or any amendments or exhibits thereto.

THE COLLEGE OF NEW JERSEY

By _____
William Rudeau,
Director of Construction

By _____
Lloyd Ricketts,
Vice President and Treasurer

Date _____

Date _____

By _____
Michael Dixon,
Vice President for Facilities

By _____
Anup Kapur,
Executive Director of Procurement

Date _____

Date _____

CONTRACTOR:

By _____

Title _____

Date _____



GENERAL CONDITIONS
OF THE
CONTRACT FOR CONSTRUCTION

Last Revised January 2019

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ARTICLE 1
**CONTRACT DOCUMENTS, INTERPRETATION, INFORMATION FOR BIDDERS,
CLAIMS BASED ON BID AND CONTRACT DOCUMENTS**

1.1 Definitions.

Terms defined in the Contract for Construction shall have the meaning provided therein. Definitions for the purpose of these General Conditions include the following:

Addendum: A document issued to bidders by the College prior to the bid due date which supplements, revises or modifies the bid solicitation documents furnished for bidding purposes, and which must be identified and included in bids for the Contract.

Architect: The Architect (A/E) engaged by the College to design the Project, to prepare the design documents and assist with bid documents, and may administer the Contract and act as the agent of the College as described in the Contract.

Bulletin: A document prepared by the Architect describing proposed changes or additions to the Work in the Contract Documents that is issued after Contract award. If the College decides to implement the change, it will provide the bulletin to the Contractor and ask it to submit a change order proposal or request (in accordance with the change order provisions in the Contract for Construction, these General Conditions and other sections of the bidding documents).

Change Order Proposal or Change Order Request: A written proposal or request submitted by the Contractor in accordance with the change order provision of the Contract for Construction, these General Conditions and other sections of the bidding documents, including proposals submitted in response to Contract Change Directives, which proposes cost, time and other terms under which the Contractor will perform changed work under the Contract. If accepted by the College, a written change order signed by the Vice President for Administration and a TCNJ Purchase Order signed by the Contracting Officer of the College, and if accepted by the Contractor in writing, it will become part of the Contract as a change order.

The College's Representative: The College's Representative is a person or persons designated by the College to act on its behalf in administering the Contract for the College. The College's Representative may include the Director of Campus Construction, the Project Manager or an independent construction manager working for the Office of Campus Construction.

College Site Superintendent: The College Site Superintendent is a person or persons designated by the College to witness, observe, record and report on activities in and around the construction site. The Site Superintendent does not have the authority to stop or change the scope of the Work of the Contract Documents.

Contract: The Contract Documents all form the Contract. 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 College and a Subcontractor or a Sub-subcontractor, (3) between the College and the Architect or the Architect's consultants or (4) between any persons or entities other than the College 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 Contractor's duties.

Contract Amendment: The Contract can only be amended by (1) a written amendment identified as such that is signed by the College and the Contractor, (2) a change order signed in accordance with the Contract Documents, (3) a written Contract Change Directive (CCD) issued by the College that should result in a change order unless issued to address some fault of the Contractor, (4) a written approval or acceptance by the College or the Architect of a change requested by the Contractor in writing, provided the request for a change is specifically identified in a submittal.

Contract Change Directive (CCD): A Contract Change Directive (CCD) is a written directive issued by the College which orders an addition, deletion, clarification of a disputed item or revision in the Work, or a response to an emergency. A CCD does not by itself change the Contract, but it should result in a change order which does change the Contract Price or Contract Times if warranted. A CCD should specify the terms of the change order (if deemed warranted by the College) which will result, and/or specify a deadline for the submission by the Contractor of a proper change order request, and/or contain other similar terms.

Contract Documents: The Contract Documents are enumerated in Article 2 of the Contract for Construction.

Contract Limit Lines: The lines shown on the Plans that limit the boundaries of the Project site, and beyond which no construction work or activities shall be performed by the Contractor unless otherwise specified in the Contract Documents, including the Plans and Specifications and supplemental General Conditions.

Contracting Officer: The Associate Treasurer of the College shall be the Contracting Officer in connection with the Contract and the Project. The Contracting Officer and other designee shall have authority to act on behalf of the College under the Contract.

Field Order (FO): A written order issued by the Architect or the College which requires minor changes in the Work that do not result in a change in the Contract Price or the Contract Times. If the Contractor believes that a field order warrants the issuance of a change order that changes the Contract Times or Contract Price, it must notify the College and the Architect in writing within 48 hours, and its notice must specify the terms of the change order that it believes are warranted, including specific time and price change requests.

Plans: The Plans 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, and diagrams.

Project: The Project is the total construction of the Work performed under the Contract Documents and may include construction by the College and by separate contractors that the College has specifically identified.

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 prepared by the Architect or the College.

Supplemental General Conditions: The part of the Contract Documents which amends or supplements these General Conditions for the Project.

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

1.2 Intent Of Contract Documents.

The intent of the Contract Documents is to describe a functionally complete and aesthetically acceptable Project to be constructed and completed by the Contractor in every detail in accordance with the Contract Documents. Any Work, services, materials, equipment or documentation that may be reasonably inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce a complete Project shall be supplied by the Contractor whether or not specifically identified at no additional cost to the College. Where the Contract Documents describe portions of the Work in general terms but not in complete detail, only the best construction practices and only materials and workmanship of the first quality are to be used. Only where the Contract Documents specifically describe a portion of the Project as being performed by others is the Work to be considered to include less than the entire Project.

1.3 Interpretation Of Contract Documents.

When two or more interpretations of a Specification for the Work are possible, the most stringent or the highest cost interpretation shall apply as determined by the Architect. The Architect (or in the absence of the Architect, the College) shall be the sole interpreter of the Plans and Specifications and the Contractor's performance therewith. It is the intent of these Plans and Specifications to provide materials of a quality consistent with the highest standards provided under similar circumstances in the same general geographical area and that will result in long-term use and efficient operation.

1.4 Law And Referenced Standards.

The Contractor is required to comply with all federal, state and local laws and regulations that apply to the Project, the Work and the Contract. Where the Contract Documents refer to any publication, including but not limited to any standard, which affects any portion of the Work or the Project, it shall be considered to mean the edition or revision in effect on the bid due date unless otherwise specified in the Contract Documents. No provision in any publication including

any standard shall create an obligation on the part of the College or the Architect to supervise or direct the Contractor's Work.

1.5 Plans And Specifications.

The Plans will include general plans and such details as deemed necessary to give a comprehensive representation of the construction required. The Contractor shall keep one set of Plans available at the Project site, which shall be available for inspection by the College and the Architect at all times. All alterations affecting the requirements in the Plans must be authorized by the College and the Architect in writing, and shall be promptly noted on the Contractor's record set of Plans, which are maintained at the site for inspection by the Contractor, the College and the Architect.

1.6 Order Of Precedence Of Contract Documents.

Each of the Contract Documents is an essential part of the Contract, and a requirement specified in one part of the documents is binding as if specified in all. The Contract Documents are intended to be complementary and to describe and provide for a complete Project. The obligations of the Contractor under the various Contract Documents shall be cumulative and to the extent that one of the Contract Documents imposes a stricter or more costly requirement or higher standard upon the Contractor than does another Contract Document, the more stringent or more costly requirement or higher standard, as determined by the Architect, shall apply. Otherwise, if there is any conflict among the Contract Documents, the signed Contract for Construction and all approved change orders shall control. As to the other Contract Documents, the order of precedence shall be as follows:

- (a) Contract for Construction
- (b) Addenda
- (c) Supplemental General Conditions
- (d) General Conditions
- (e) Specifications
- (f) Plans
 - i. Notes
 - ii. Large Scale Details
 - iii. Sections
 - iv. Elevations
- (g) Scope of Work Description

1.7 Organization Of Plans And Specifications.

The arrangement of the Plans and the organization of the Specifications into divisions, sections or articles shall not be construed by the Contractor as being intended to divide or allocate the Work among Subcontractors or trades or to establish the scope of the Work to be performed by particular Subcontractors or trades. The College is not liable for the Contractor dividing and separating the Contract Documents into individual packages to Subcontractors. Items that the Contractor fails to include or provide for shall be at the Contractor's sole risk and

cost. The Contract Documents work together as a whole and, therefore, the Contractor is required to coordinate the entire package with all its Subcontractors.

1.8 Required Approvals.

In all cases where approvals or decisions under the Contract Documents are required from the College, the Work shall not proceed without the required approvals and decisions in writing.

1.9 Conformity Of Work To Contract Documents.

All Work performed shall conform to the lines, grades, cross-sections, dimensions, material requirements, tolerances, details and other information in the Contract Documents. The purpose of tolerances is to accommodate occasional minor variations from the middle portion of the tolerance range that are unavoidable despite reasonable construction practices. When a maximum or minimum tolerance value is specified, the material and the Work shall be controlled so that they shall not be preponderantly of borderline quality or dimension.

1.10 Work Involving Existing Structures.

On projects involving alterations, remodeling, repairs, installations or other work in pre-existing structures or systems, the Contractor shall by personal inspection of the existing structures and systems satisfy itself as to the accuracy of any information provided that may affect the quantity, size and/or quality of materials required for a satisfactorily completed Project, including information that is not identified or included in the Plans and Specifications. The Contractor shall provide all material and labor required to complete the Work based on conditions that can be reasonably observed by a competent and diligent contractor before bidding.

1.11 Verification Of Dimensions.

The Contractor shall verify all dimensions at the job site and shall take any and all measurements necessary to verify the information in the Plans. The Contractor shall properly and accurately layout and survey the Work. Any errors or discrepancies affecting the layout of the Work shall be reported to the Architect and the College immediately in writing. No Work affected by any error or discrepancy shall proceed until such discrepancy is resolved by a written decision of the Architect with the consent of the College.

1.12 Manufacturer Literature.

Manufactured articles, materials and equipment shall be installed, applied, connected, erected, used, cleaned and conditioned in accordance with the manufacturer's written instructions unless otherwise specified in the Contract Documents. If there is any conflict between manufacturer literature and the Contract Documents, it shall be reported by the Contractor to the Architect and the College in writing, and the Contractor shall not proceed without a written decision by the Architect with the consent of the College.

1.13 Quality -- General Requirement.

Where no explicit quality or standard are specified for Work, materials or equipment, they shall be new, of good quality, free of defects, suitable for their intended use, in conformity with the Contract Documents, and consistent with the highest quality of the surrounding Work and of the construction of the Project generally.

1.14 Examination Of Contract Documents Before Bidding/Errors.

The Contractor represents and warrants that before bidding it examined and carefully studied the Contract Documents and other documents included or referred to in the bid documents. The Contractor also represents and warrants that the documents are sufficient for bidding and performing the Work at the Contract Price. Should it appear that any of the Work or materials are not sufficiently or properly detailed or explained in the Contract Documents, the Contractor shall notify the College in writing before the bid deadline for submitting questions.

Errors, omissions, conflicts, discrepancies, inconsistencies or other defects in the Contract Documents or between the Contract Documents and any codes, standards or other applicable documents which are capable of being discovered by a diligent and competent contractor before bidding shall be reported to the College in writing before the bid deadline for submitting questions. If errors, omissions, inconsistencies or other defects in the Contract Documents are not discovered until after the bid due date, the Contractor shall promptly notify the College and the Architect of them in writing, provide written recommendations regarding changes or corrections to resolve any such errors, omissions, inconsistencies or defects, and obtain the Architect's written interpretation and approval with the consent of the College before proceeding with the Work affected.

1.15 Site Information.

Soil borings, test pits or other subsurface or site information regarding the physical site and subsurface conditions on or near the site may have been obtained from independent contractors for the purpose of preparing the design documents for the Project rather than for the purpose of contractor estimating or bidding. Such information may be identified or included in the Contract Documents so that it can be reviewed by bidders during the bidding phase, but because of the limited nature and purpose of the information, it shall not be considered to be part of the Contract Documents, and the Contractor must assume responsibility for interpreting and relying upon the information.

1.16 Sufficiency Of Documents Provided For Bidding.

The Contractor represents and warrants that before bidding it carefully studied all reports, surveys and documents included or identified in the bid documents regarding observations, inspections, investigations and tests of the site and subsurface conditions at or near the site, and all information provided to bidders regarding physical conditions at or near the site, including surface and subsurface composition, water, structures and utilities, and that it determined that no further examinations, investigations, tests, studies or data were necessary for bidding or the performance of the Work at the Contract Price. If the Contractor concluded that additional

information is required, it must notify the College in writing before the bid deadline for submitting questions.

1.17 Examination Of Site Before Bidding.

The Contractor represents and warrants that before bidding it visited the site and familiarized itself with and was satisfied as to the general, local and site conditions which may affect the cost, progress and performance of the Work and the Contract, and that its bid and bid price take into account all such conditions. No additional costs will be borne by the College for conditions that existed and were reasonably observable or described at the time of bidding.

1.18 Hazardous Materials On Site.

The Contractor will not be responsible for hazardous environmental conditions uncovered or discovered on the site that were not disclosed in the Contract Documents and that were not caused by the Contractor or anyone working through or under the Contractor. If such conditions are discovered, the Contractor shall stop work and notify the College in writing immediately. The College may issue a written directive to the Contractor requiring it to stop work until the hazardous environmental condition is remedied, and the Contractor will be entitled to an extension of the Contract Times if an extension is warranted under the provisions of the Contract for Construction and these General Conditions regarding extensions. The College may also make changes in the Contract in response to the conditions, and the Contract will be changed in accordance with the change order provisions in the Contract for Construction and these General Conditions.

1.19 Limitation On Claims Based On Contract Documents And Information Provided For Bidding.

The Contractor may not assert claims for extra compensation beyond the bid and Contract Price for constructing the completed Project by reason of any errors, omissions, inconsistencies, or defects in the Contract Documents that are discoverable by a diligent and competent contractor, because of (i) its obligation to review and study the bid documents before submitting its bid, (ii) its representation in the Contract Documents that it did so, and (iii) its obligation to notify the College in writing of any such errors, omissions, inconsistencies, or defects before submitting its bid,. In addition, the Contractor may not assert claims for extra compensation beyond the bid and Contract Price for constructing the completed Project by reason of any lack of information affecting the construction of the Project at the time of bidding, or errors in the information included or referenced in the bid documents except to the extent explicitly permitted by the Contract for Construction or these General Conditions. The Contractor shall notify the College in writing before submitting its bid of any errors or omissions in the information provided or be precluded from seeking extra compensation or asserting a claim. This limitation on claims may be modified and further restricted in the signed Contract for Construction when the Contract Documents explicitly require the Contractor to participate in any aspect of the design phase.

The Contractor may assert claims for extensions and additional compensation in accordance with the provisions of the Contract for Construction and these General Conditions if

information regarding the site that is identified in the bid or Contract Documents is factually inaccurate, and the inaccuracy is one that a reasonably competent and diligent contractor would not discover in preparing a bid. The Contractor may not assert a claim for an extension or extra compensation when it claims, not that the information is factually inaccurate, but rather that conclusions, inferences or judgments made in reliance on accurate information prove to be incorrect.

ARTICLE 2 **THE COLLEGE**

2.1 General Rights And Responsibilities Of The College.

The College as the owner of the Project is entitled to have the Contractor perform and complete the Work in accordance with the Contract Documents, including the time of completion, quality and documentation requirements of the Contract. The College for its part undertakes to furnish the site, to notify the Contractor of any restrictions on the site that could affect the Contractor's performance of the Contract, to obtain approvals relating to the site that are needed for the construction to proceed, to pay the Contractor in accordance with the Contract, and to act reasonably in reviewing all documentation, claims and questions properly submitted to it under the Contract. The College also undertakes to provide the information and items that it expressly agrees in the Contract Documents to provide.

The College shall also have such other rights and responsibilities as are specified in the Contract Documents. The College will not supervise the Contractor's Work or be responsible for the Contractor's construction means and methods, or the Contractor's safety practices, or any failure of the Contractor to comply with the Contract Documents or any laws or regulations.

2.2 The College's Representative, Authority To Decide Contract Questions.

The Contracting Officer delegates its authority to the College's Representative who is authorized to act and make decisions on behalf of the College regarding matters specified in the Contract Documents. However, the College's Representative is not authorized to make or agree to material changes to the Contract Documents or changes involving the Contract Times or Contract Price.

All changes to the Contract Documents including change orders that modify Contract Price, Contract Times or other material change to the Contract Documents must be reviewed and approved by the Contracting Officer or his/her designee. The Contracting Officer designates that the Vice President for Administration is authorized to approve change orders.

The College's Representative, in consultation with the Architect, is authorized to decide on behalf of the College, all questions regarding the quality, acceptability and rate of progress of the Work, all questions regarding the interpretation of the Contract Documents, the acceptability of the performance of the Contract by the Contractor, and the compensation due to the Contractor. Where the College's Representative is authorized to render decisions under the

Contract for Construction or these General Conditions regarding disputes or claims, he/she shall consult with the Architect and shall not act arbitrarily so as to unfairly benefit either the College or the Contractor.

2.3 Required Approvals.

In all cases where approvals or decisions are required from the College under the Contract Documents, such approvals or decisions shall be made reasonably, except in cases where a specific standard applies such as, for example, situations where the College is entitled to exercise unqualified discretion in selecting the types of materials, products or construction which it decides to procure.

2.4 Information Required From The College.

Information which the Contract Documents specify the College will provide shall be provided with reasonable promptness.

2.5 Permits.

The College will arrange and pay for permits and permit inspections, including building code permits except to the extent that the Specifications specify otherwise. The Contractor will arrange for and coordinate all inspections and the dates and times for all inspections with local, state and independent agencies and include the College's Representative or the Site Superintendent.

2.6 The College's Inspection Of The Project.

The College shall have the right to be represented at the site by the College's Representative(s), the Site Superintendent and other College employees designated by the College, the Architect, and other consultants designated by the College or the Architect. The College and its representatives shall have the right to visit the site, inspect Work and materials, inspect Project documentation, conduct tests, attend meetings, meet with the Contractor' and the Subcontractors' representatives, investigate problems, conduct studies, and make reports. The College and its representatives shall be allowed access to all parts of the Work, and the Contractor shall furnish them with information and assistance when they request it.

The Contractor shall give the College and the Architect timely notice of readiness of Work for observation, inspection and testing, and shall cooperate with these efforts. The Contractor shall also comply with any inspection and testing procedures specified in the Contract Documents.

The Contracting Officer, the Architect and the College's Representative shall have the right to direct the Contractor to remove or uncover unfinished Work if deemed necessary to inspect Work or materials in place.

If Work is covered before it is inspected because the College, the Architect or any consultant were not afforded reasonable notice and an opportunity to inspect, or where the

Contract Documents or any law require an inspection, the Contractor shall uncover and replace Work at its own expense if required to do so by the College.

If any other portion of the Work not specifically required to be inspected is covered, and the College or the Architect did not ask to observe or inspect the Work before it was covered, the College may nonetheless ask to inspect the Work. If the College makes such a request, the Contractor shall uncover the Work for inspection. If the Work uncovered is found to be in accordance with the Contract Documents, the cost of uncovering and replacement shall be paid by the College by a change order. If the Work uncovered is found not to be in compliance with the Contract Documents, the Contractor shall pay all costs of uncovering and replacement, and also remedy the defect or deficiency at its own cost.

The College at all times retains the right to stop all or part of the Work by a written direction because of defective Work until the defect is eliminated. This right shall not give rise to any duty on the part of the College to exercise the right for the benefit of the Contractor or those performing its Contract.

The College at all times retains the right to stop all or part of the Work due to concerns with the effectiveness of the Contractor's safety program required under Article 5.2. The College may require the Contractor to provide a written plan to correct safety deficiencies, an on-site safety supervisor, or other administrative or engineering controls to ensure the safety of personnel impacted or potentially impacted by Contractor operations. The Contractor shall indemnify, defend and hold the College harmless from fines issued by Federal, State or Local OSHA enforcement.

2.7 The College's Inspectors, Duties And Limitations

If the College designates inspectors to inspect Work and materials and Project documentation, they will not be authorized to alter or waive any requirements or provisions in the Contract Documents. The College's inspectors will not be authorized to issue instructions contrary to the Contract Documents or to act as foremen or employees of the Contractor. The College's inspectors have the authority to reject unsuitable Work or materials, subject to written confirmation by the College's Representative. If the Contractor believes that any action of a College inspector is contrary to the Contract Documents, it shall notify the College's Representative and the Architect in writing within 48 hours. The College does not undertake to have inspectors sufficient in number to inspect every item of Work or material as it is provided, or to have inspectors with the expertise needed to judge every aspect of the Work.

The Contractor shall remain responsible for defective Work or materials irrespective of any inspections or lack of inspections during the Work. If the Contractor seeks a binding determination of the acceptability of Work or materials during the performance of the Contract, it shall do so by making a written request for such a determination to the College's Representative with a copy to the Architect.

2.8 The College's Rejection Of Defective Work.

The College shall have the right to reject defective Work, materials, or equipment at any time, and to require the Contractor to remove and replace it at the Contractor's expense. The Contractor shall also be responsible for repairing damage to other work caused by defects or deficiencies in its Work. The College's Representative, upon consultation with the Architect, may elect to accept Work or materials that do not conform to the Contract Documents and to credit or reduce the Contract Price, but the College shall have no contractual obligation to elect this remedy. Changes to the Contract Documents in these circumstances shall be recorded as a change order under the change order provision of the Contract for Construction and these General Conditions.

ARTICLE 3 **THE ARCHITECT**

3.1 The Architect's General Role.

The Architect is, by contract with the College, responsible for the design of the Project. During construction, the Architect is responsible for reviewing the Contractor's submittals to determine if they conform to the Contract Documents and good industry practice, to provide some level of inspection to determine if Work and materials provided by the Contractor conform to the Contract Documents and good industry practice, and to review the Contractor's payment applications. During the performance of the Work, the Architect may investigate any defects and deficiencies in the Work or materials provided and make recommendations to the College regarding the defects or deficiencies. The Architect will conduct inspections to determine if the Contractor has achieved proper Substantial and Final Completion and submitted all documents required at Substantial and Final Completion. The Contractor shall cooperate with and render assistance to the Architect in the performance of these duties.

3.2 The Architect's Access And Facilities.

The Contractor shall allow the Architect and its consultants access to the Project at all times and shall facilitate their access to inspect Work and materials and Project documentation. The Architect and its consultants shall be permitted to attend job meetings, scheduling meetings and other meetings at the site and the Contractor shall facilitate their ability to do so. The Contractor shall provide an office at the site for the Architect if the Specifications require it to do so.

3.3 Limitation Of The Architect's Responsibilities.

The Architect will not be responsible for or have control of construction means and methods or safety precautions and programs in connection with the Work. The Architect will not be responsible for or have control of acts or omissions of the Contractor, its Subcontractors, or any of their agents or employees, or any other person performing any of the Contract Work.

3.4 The Architect's Rejection Of Work.

The Architect may recommend rejection of Work or materials that it believes does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, it may recommend to the College special inspections or testing of Work or materials, including completed Work and materials.

3.5 The Architect's Review Of The Contractor's Submittals.

The Architect will review, approve or take other appropriate action regarding the Contractor's submittals, such as shop drawings, product data and samples, to assure that they conform with the design requirements and Contract Documents. The approval of a specific item shall not be deemed to constitute approval of an assembly of which the item is a component.

3.6 The Architect's Review Of The Contractor's As-Built Plans.

The Architect will periodically review the Contractor's as-built plans maintained at the site to ensure that they are up-to-date, and shall review the completed as-built plans at Project completion to ensure that they are complete and are provided to the College.

3.7 The Architect's Determination Of Substantial and Final Completion.

The Architect will conduct inspections to determine the dates of Substantial and Final Completion and to determine if the Contractor has properly Substantially and Finally completed the Project. The Architect will obtain from the Contractor all written warranties and all other documents that the Contractor is required to provide at Substantial and Final Completion of the Project.

ARTICLE 4 **THE CONTRACTOR**

4.1 The Contractor's Responsibility For Performance Of The Contract And Work.

The Contractor is the person or entity identified as such in the Contract. The Contractor shall be lawfully licensed in the jurisdiction where the Project is located.

The Contractor shall perform all of the duties in the Contract Documents, shall furnish the labor, materials and equipment to complete the construction of the Project in accordance with the Contract Documents, and furnish all services, labor, materials and equipment necessary or appropriate to construct the Project. The Contractor shall manage, supervise, schedule, direct, and inspect the Work as competently, skillfully, and efficiently as possible, and shall be solely responsible for all construction means, methods, techniques, safety, security, sequences, procedures, and coordination.

The Contractor shall comply with all applicable laws, and shall establish and maintain reasonable quality assurance and safety programs in connection with its Work. The Contractor shall complete the Work in compliance with the Contract Documents and by Milestone, Substantial Completion and Final Completion Dates in the Contract for Construction or any authorized extensions thereof. The Contractor shall maintain good order and discipline at the site at all times.

4.2 The Contractor's Key Personnel.

The Contractor shall assign to the Project a Project executive, Project manager, superintendent, and scheduler, and such other key personnel as are specified in the Contract for Construction or as required to carry out the requirements of the Project. The Contractor shall not remove or replace such key personnel without the College's written approval. The College has the authority to reject and have replaced any staff member of the Contractor or any of the Subcontractors for any non-discriminatory reason.

4.3 The Contractor's Supervision Of Contract Work/The Superintendent.

The Contractor shall supervise and be responsible for the acts and omissions of the Contractor's employees, agents, Subcontractors, sub-subcontractors, suppliers and other persons performing portions of the Work and the Contract. The Contractor's designated Project superintendent shall be at the Project site at all times when Work is in progress. The Contractor may designate in writing an alternate superintendent who must be approved in writing by the College. The superintendent (or alternate) shall have full authority to represent and act for the Contractor at the site and shall have full authority to execute orders and directives of the College without delay.

Communications from the College or the Architect to the superintendent shall be deemed to have been given to the Contractor. The superintendent shall be capable of and authorized to respond to all hazardous and unsafe conditions at the Project site and to implement prompt corrective measures to eliminate all unsanitary, hazardous or dangerous conditions at the site. The College may suspend all or part of the Work at the Project site if the superintendent (or alternate) is not present at the Project site. Such a suspension shall not be the basis of a claim against the College, including without limitation any claim for additional time or extra cost.

The superintendent shall attend all meetings at the Project site including job meetings, scheduling meetings, and meetings with the College and/or the Architect. The superintendent shall have a written plan that must be approved in writing by the College for responding to emergencies when the Work is not in progress. The Contractor shall also utilize qualified competent craftsmen on the Project.

4.4 Cooperation With The College And Other Contractors.

The College reserves the right to contract for and perform other or additional work on or adjacent to the Project site. When separate contracts are let within the limits of the Project site, or in areas adjacent to the site, the Contractor shall perform its Work so as not to interfere with or

hinder the progress or completion of the work being performed by other contractors. The Contractor shall also affirmatively cooperate with such other contractors and coordinate its activities with theirs, and include coordination measures in the Project Schedule. The Contractor shall arrange its Work and shall place and dispose of materials being used so as not to interfere with the operation of other contractors within the limits of the Project site. The Contractor shall join its Work with that of the other contractors in an acceptable manner and shall perform its Work in proper sequence with that of other contractors.

If there is a disagreement as to the respective rights of the Contractor and others doing work within the limits of or adjacent to the Project site, the College shall determine the respective rights of the contractors involved to secure the satisfactory completion of all affected work. The Contractor shall not be entitled to additional compensation beyond its Contract Price that may arise because of inconvenience, delay, or loss experienced by it as a result of the presence and operations of other contractors working within the limits of or adjacent to the Project site.

The College reserves the right to occupy any portion of the Project that is ready for occupancy prior to Final Completion and acceptance of the Project, after Local and State Construction Enforcing Agency approval.

The occupancy of any portion of the Project does not constitute an acceptance of any Work nor does it waive the College's right to liquidated damages or constitute an acceptance of any Work, as the Project will be accepted as a whole and not in units. Prior to such occupancy, however, the Architect, a representative of the College, and the Contractor shall fully inspect the portions of the Project to be occupied, preparing a complete list of omissions of materials, faulty workmanship, or any items to be repaired, torn out or replaced. The College will assume responsibility for damage to premises so occupied of any items not on this list when such damage is due to greater than normal wear and tear, but does not assume responsibility for improper or defective workmanship or materials.

4.5 Performance Of The College Directives.

When the College issues a written directive to the Contractor under the authority of any provision in the Contract for Construction or these General Conditions, the Contractor shall perform as directed in a diligent manner and without delay. Compliance with written directives shall not adversely affect the rights of the Contractor under the Contract for Construction, these General Conditions or law, but if the Contractor objects to a directive of the College, or claims that a directive infringes upon its rights or entitles it to a change order, it shall notify the College in writing within 2 business days of any directive and describe any objection it has to the directive and the reasons for its objection. Objection to a written directive does not relieve the Contractor of the obligation to comply with the directive and proceed in a diligent manner to implement the directive without delay.

ARTICLE 5
PERFORMANCE OF WORK

5.1 Protection Of Work/Materials.

The Contractor, shall at its own expense, protect all finished Work and materials from damage and keep them protected until the Project is accepted as Substantially Completed, and shall repair or replace any Work or material damaged before acceptance. After the Project is accepted as Substantially Complete, the Contractor will remain responsible up through Final Completion for damage to Work and materials caused by it or its Subcontractors or others participating in the performance of its obligations under the Contract Documents. The Contractor shall also secure and protect its own tools, equipment, materials and supplies, and the College shall have no liability for damage, theft or injury to the Contractor's property.

5.2 Safety And Safety Programs.

The Contractor shall have full responsibility for safety at the Project site at all times up to Final Completion and acceptance of the Project and the Contract. The Contractor shall provide for the safety of all individuals on the Project site, and take measures to ensure that individuals on or near the Project site are not injured by the performance of the Contract. The Contractor shall establish and maintain a Project safety program in accordance with all applicable laws including OSHA, good industry practice, and any additional requirements in the Contract Documents. If the College or the Architect become aware of an unsafe situation, the Contractor will immediately respond to remedy the safety concern and shall take all other actions necessary to comply with Article 2.6.

5.3 Emergencies Affecting Safety.

If there is an emergency affecting the safety of persons or property, the Contractor shall take immediate action to prevent damage, injury or loss. The Contractor shall notify the College in writing of the situation and all actions being taken immediately or as soon as possible. If, in the opinion of the Contractor, immediate action is not required, the Contractor shall notify the College in writing of the emergency situation and proceed in accordance with the College's instructions. However, if loss, damage, injury or death occurs that could have been prevented by the Contractor's prompt and immediate action, the Contractor shall be liable for all costs, damages, claims, actions, suits, attorney's fees and other expenses that result.

Any additional compensation or extension of time claims by the Contractor on account of emergency Work shall be determined in accordance with the change provisions of the Contract for Construction and these General Conditions. The Contractor shall be responsible for emergencies and costs and delays resulting therefrom that could have been foreseen or prevented with normal diligence, planning, and supervision of the Work, or that are caused by the Contractor's failure to properly perform the Contract.

The Contractor shall provide the College with a list of the names and telephone numbers of its employees and employees of each Subcontractor designated to be contacted in case of an emergency during non-working hours. A copy of this list shall be displayed prominently at the

Project site so that it is visible when the Project site is secured and shall be provided to the College's campus police department.

5.4 Working Hours.

Except as required for the safety or protection of persons or property, or as specified in the Contract Documents, all Work at the site shall be performed during regular working hours, and not on Saturdays, Sundays, legal holidays, the College's commencement days, resident move-in and move-out days or other days specifically noted in the Contract Documents without the prior written consent of the College, which will not be unreasonably withheld.

5.5 Site Security.

The Contractor shall provide, maintain and oversee security at the site if required in the Specifications. The Project site shall be fenced as specified in the Specifications, and the Contractor shall control access when gates are unlocked or open. The fence shall provide a physical barrier to the site and protection from visible nuisance. At a minimum, the fence shall be firmly secured with buried posts or weighted feet, top rails, metal fabric, and locking gates. Contractor shall immediately notify the College in the event of unauthorized entry to the site.

5.6 Site Use.

The Contractor shall confine construction equipment, storage and Work to the Project site absent written approval from the College. Any request by the Contractor to use areas outside the Project site must be described in written form and included with the Contractor's bid.

5.7 Building Access.

The Contractor shall be responsible for the sign out, distribution, safe use and return of all building keys and/or access cards, and shall be responsible for all costs associated with failure to return these items (e.g., the cost to re-key/re-implement the system).

5.8 Minimize Interruption.

The Contractor acknowledges that the College is an existing educational facility and that classes may be in session during construction. The Contractor agrees to conduct its Work with as little disruption as reasonably possible to the College's students, faculty, employees and guests, and will maintain a safe environment for the College's students, faculty, employees and guests, in addition to the Contractor's employees and workers of all tiers. The Contractor and its Subcontractors and employees of all tiers must display courtesy and consideration with and shall refrain from discriminating against or harassing the College's students, faculty, employees, visitors and guests at all times. The Contractor will not allow smoking, vaping, alcohol, drugs, any firearms, or other weapons on the College's property at any time. The Contractor shall abide by all campus traffic regulations.

5.9 Submittals (Shop Drawings, Product Data, Samples).

Prior to the beginning of Work on the Project, the Contractor shall furnish to the Architect and the College for their review and approval, a schedule setting forth all the submittals, including shop drawings, product data and samples required by the Contract Documents, that the Contractor intends to submit to the Architect for review and approval, the date upon which the Contractor shall make each such submittal and the date upon which the Architect shall complete its review of each such submittal, which in no event shall be less than ten (10) days from receipt (“Submittal Schedule”). The Architect and the College shall identify all submittals that will require more than ten (10) days to review and notify the Contractor of the required review period. The Contractor shall adjust the Submittal Schedule to accommodate the extended review period. The Architect shall endeavor to conduct its review and approval of all submittals in accordance with the Submittal Schedule. In the event that a submittal is made that is not set forth on the Submittal Schedule, the Architect shall review and return such submittal within ten (10) working days from receipt.

Submittals shall be complete as to quantities, details, dimensions and design criteria. The Architect will approve and the College will review submittals if they conform to the Contract Documents, the design concept and good industry practice. The Contractor shall note its approval of all submittals and the date for any submittals prepared by any Subcontractor or supplier, and it shall be responsible for determining and verifying all materials, field dimensions, field construction criteria, and coordination requirements pertaining to the submittal.

The Contractor will not be relieved of responsibility of deviations in submittals from the requirements in the Contract Documents by reason of approvals of the submittals unless the Contractor specifically identifies the deviation in the submittal and the Architect and the College expressly approve the deviation in writing. The Contractor shall be responsible for errors or omission in its submittals. No Work or materials included in a submittal shall begin until the submittal is approved by the Architect and the College.

5.10 Layout And Dimensional Control.

The Contractor shall be responsible for locating and laying out the Project components and all of the Project parts on the Project site in strict accordance with the Plans, and shall accurately establish and maintain dimensional control. The Contractor shall employ a competent and licensed New Jersey engineer or land surveyor as appropriate to perform all layout Work and to fix the level and location of excavations, footing base plates, columns, walls, floors and roof lines. The Contractor shall furnish to the College and the Architect certifications that each such level is as required by the Plans as the Work progresses.

The plumb lines of vertical surfaces shall be tested and certified by the Contractor's engineer or surveyor as the Work proceeds. The engineer or surveyor shall establish all points, lines, elevations, grades and bench marks for the proper control and execution of the Work. The engineer or surveyor shall establish a single permanent benchmark to be approved by the Architect, to which all three coordinates of dimensional control can and shall be based. The engineer or surveyor shall verify all topographical and utility survey data, and all points, lines, elevations, grades and benchmarks furnished by the College.

Should any discrepancies be found between information in the Plans and the actual site or field conditions, the Contractor shall notify the Architect and the College in writing, and shall not proceed with any Work affected until it receives written instructions from the College.

The Contractor is required to provide a final “as built” survey from a New Jersey licensed/certified surveyor of the Project site showing all structures, elevations, grades and required information on the Project site and submit to the College in CADD format.

5.11 Construction Access, Roads, Walks, And Parking.

The Contractor shall construct and keep all roadways, drives, walkways and parking areas within or near the site free and clear of debris, gravel, mud or any other site materials, including, for example, the cleaning of muddy wheels and undercarriages on vehicles before they exit the site. The Contractor shall be responsible for any citations, fines, or penalties imposed on it or the College for failing to comply with applicable local rules or laws regarding its use of roads and the like.

The Contractor shall obtain permission in writing from the College before using for construction purposes any existing driveways, parking areas, walkways or areas not specifically designated for such use in the Contract Documents. The Contractor shall maintain such driveways and areas in good and clean condition during construction and not damage them. At Final Completion, the Contractor shall leave them in the same condition as they were at the start of the Work. Conditions of such facilities before use shall be photographed and otherwise documented by the Contractor. The Contractor shall not commence construction of permanent driveways, parking areas or walks on the Project site without the written approval of the College.

Any existing walkways, driveways, aprons, or curbs damaged by the Work of the Contract Documents shall be replaced in kind, at the Contractor’s expense, immediately upon Project completion, or as required to maintain campus safety and campus aesthetics.

5.12 Construction Site Condition, Storage, Dust Control.

The Contractor shall provide reasonable, safe and orderly storage for its equipment, tools and materials, and shall not unreasonably encumber the site. The Contractor shall keep the site and the Project free from the accumulation of refuse, debris and scrap materials caused by its operations so that the site has a neat, orderly and workman-like appearance. Loading, cartage, hauling and dumping will be at the Contractor’s expense. The Contractor shall provide, at its expense, temporary dust-proof partitions around areas of work in existing buildings, and where reasonably required, in new building areas.

5.13 Photographs.

The Contractor shall provide, at its expense, monthly progress photographs of the Project. The photographs shall be 8 inches by 10 inches and shall be submitted to the College in duplicate monthly. Unless otherwise specified in the supplemental general requirements, four photographs

shall be submitted each month which provide views of the Project taken from the same four points each, which points shall be selected by the Architect.

5.14 Project Sign.

The Contractor shall, at its expense, provide, erect and maintain two Project signs at the site, which shall be described in the Contract Documents. The College will specify the location of the signs. The signs shall be painted by a professional sign painter or prepared by a professional graphic artist. No other signage will be permitted at the site. The signs shall include the name and cell phone number of a Contractor-designated project lead that is available for 24-hour contact in case of emergency. The Contractor shall remove the signs when the Project is finally accepted unless the College requests that they be removed earlier.

5.15 Soil Conservation.

The Contractor shall employ reasonable measures to conserve the soil at the site, and determine and comply with all soil conservation measures required by the Mercer County Soil Conservation District.

The Contractor shall coordinate and schedule all soil conservation inspections, shall provide the College with written notice of all such inspections so that the College may attend the inspections if it chooses in its sole discretion to do so, and shall provide the College with all site inspection notes, approvals or notices.

5.16 Temporary Facilities, Services, Electric, Heat And Enclosures.

The Contractor shall provide storage areas, temporary drives and sidewalks, employee parking areas, staging areas, excavation borrow/spoil areas, commercial canteen areas, field offices including a meeting room, telephones, toilet facilities, and other temporary facilities that are necessary to perform the Work or that may be required by the Project Specifications. The Contractor shall locate these facilities on the Project site, and the location shall be subject to the approval of the College.

The Contractor shall provide adequate and clean temporary toilet facilities on the Project site in locations to be approved by the College, and they shall be serviced at least twice a week by a firm qualified and experienced in such functions. The Contractor shall provide such temporary electricity, water, and other utilities that are necessary to perform the Work, or that may be required by the Project Specifications. The Contractor shall also supply such temporary enclosures and heat that are necessary to perform the Work or that may be required by the Project Specifications. The Contractor and the Subcontractors will not enter or use any College facilities not required by the Work of the Contract.

Temporary electric and heat shall be furnished by the Contractor for the benefit of other contractors working on the Project if specified in the Project Specifications.

The Contractor shall not anticipate using the permanent heating or air conditioning system in a building for temporary heat or air conditioning prior to the acceptance of the Project as Substantially Complete unless specified otherwise.

Any natural gas, combustible material, or hazardous material containers utilized by the Contractor must be stored in a safe, ventilated location approved by the College. The Contractor must also submit for approval a reasonable safety plan for the operation of temporary heat equipment. The Contractor shall be solely responsible for any natural gas, combustible material or hazardous materials containers utilized by the Contractor or any of its Subcontractors and shall indemnify, defend and hold harmless the College from any fines, costs, expenses, liabilities, damages, etc. resulting from the Contractor's or any of its Subcontractors' use of such materials.

5.17 Substitutions.

To the extent that the Contractor includes in its bid substitute materials or equipment or construction methods in lieu of those specified in the Contract Documents, it does so at its own risk. Any substitution must be equal in type, function and quality to the item required in the Contract. The Contractor must submit all information required within 20 days of the Contract award to determine if the proposed substitute is equal to the requirements of the Contract Documents, and any substitution must be approved in writing by the Architect and the College.

The College shall have complete discretion to decide whether it will accept any substitution. No substitution shall result in any increase in the Contract Price or Contract Times. The Contractor in its application for the substitution must certify in writing that the substitution is equal to what is specified in the Contract Documents in all material respects and will not increase the Contract Times or Contract Price of the Work.

Should the substitution be rejected, the Contractor will then be required to provide the specified product, material or method at no additional cost to the College and no change in the Project Schedule.

5.18 License Fees.

The Contractor shall be responsible for obtaining the right to use any equipment, design, device or material required to perform the Contract, and shall include in its Contract Price any license fee or royalty required.

ARTICLE 6 **SUBCONTRACTORS**

6.1 The Contractor's Responsibility For Subcontracted Work.

The Contractor shall be fully responsible to the College for the proper performance of the Contract irrespective of whether the Work is performed by the Contractor's own forces or by Subcontractors employed by the Contractor. The Contractor shall be responsible for the acts and

omissions of its Subcontractors and suppliers on the Project and shall take appropriate measures if they are not properly supervising or performing their Work.

6.2 Subcontractor Identification And Approval.

The Contractor shall have included with its bid for the Contract, the names, addresses and license numbers of all Subcontractors that it proposes to utilize on the Project for plumbing and gas fitting work, HVAC work, electrical work, structural steel and ornamental iron work. No Subcontractor may perform Work on the Project until it has been approved in writing by the College.

Within 20 days after issuance of the Notice to Proceed, the Contractor shall furnish to the Architect and the College in writing for review by the Architect and the College a list of the names of all Subcontractors, sub-subcontractors, fabricators, manufacturers, sources of supply, articles, devices, fixtures, pieces of equipment, materials and processes proposed for each item of Work using AIA Document G705-2001, List of Subcontractors. The Architect and the College will notify the Contractor in writing if either the College or the Architect, after due investigation, has reasonable objection to any names on such list.

In submitting the names of Subcontractors, the Contractor shall (1) list the name and address of the Subcontractor, (2) provide the name and address of all sub-subcontractors for each significant subdivision of the trade or work, and (3) reference in the form of a list at least 3 jobs similar in size and quality to the Project performed by the subcontractor in the last 5 years, with name and location of work, dollar value and names of the College and the Architect.

In submitting sources of supply, articles, devices, fixtures, piece of equipment and materials, including those under subcontracts and sub-subcontracts, the Contractor shall list (1) the name and address of the source of supply, and (2) the name of the manufacturer of the items.

If the College disapproves of a proposed Subcontractor, it will provide the reason for its decision in writing. The College will not be liable for any extra cost or delays caused by the reasonable disapproval of proposed Subcontractors. The approval of Subcontractors by the College shall not relieve the Contractor of the responsibility for complying with all of the provisions of the Contract Documents including those performed by the Subcontractors. Subcontractors approved by the College may not be changed without prior notice to and written approval by the College.

Payment to the Contractor shall not be made until the list of Subcontractors (as required above) has been provided to the Architect and College.

6.3 Subcontractor Qualifications.

The College may disapprove of a proposed Subcontractor if (i) it has a reasonable objection to the Subcontractor, (ii) there is evidence of poor performance on other Projects or financial problems, (iii) the Subcontractor has been suspended or debarred by any public agency within the State of New Jersey, (iv) the Subcontractor is not properly licensed and registered to do business in New Jersey or with the New Jersey Department of Labor regarding prevailing

wages, or (v) the Subcontractor has been charged with or convicted of violating any laws, including but not limited to, the New Jersey Prevailing Wage Act, criminal laws, public procurement laws, anti-trust laws, election laws, laws against employment discrimination, environmental laws, tax laws, professional licensing laws, or laws regarding attempts to improperly influence the College or other public officials.

Subcontractors shall utilize qualified, competent craftsmen on the Project.

6.4 Subcontractor Compliance With Contract/Subcontractor Supervisors.

The Contractor shall require its Subcontractors on the Project to comply with all pertinent terms of the Contract Documents, and shall include all appropriate terms and provisions in written subcontracts on the Project to achieve proper Contract performance. Each Subcontractor shall have competent superintendents and foremen supervising their work, and the Contractor shall take appropriate measures if they fail to do so.

6.5 No Contractual Relationship Between The College And Subcontractors.

The Contractor shall enter into written subcontracts with each and every Subcontractor and supplier solely in its own name. No approval by the College of any Subcontractor or supplier and nothing in the Contract Documents shall create any contractual relationship or duties between the Contractor's Subcontractors and the College. Nothing in the Contract Documents shall cause any of the Contractor's Subcontractors or suppliers to be deemed a third-party beneficiary of the Contract between the College and the Contractor, and nothing herein shall give any of the Contractor's Subcontractors or suppliers any rights or claims directly against the College.

6.6 Contingent Assignment of Subcontracts.

Each subcontract agreement for a portion of the Work and any purchase order for materials or equipment may, in the College's sole discretion, be assigned by the Contractor to the College, provided that

- (a) assignment is effective only after termination of the Contract by the College for cause or for convenience and only for those subcontract agreements that the College accepts by notifying the Subcontractor and the Contractor in writing and only on such terms and conditions acceptable to the College;
- (b) assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract;
- (c) if the College elects to take an assignment of any subcontract or purchase order, the Contractor shall execute all papers necessary to effectuate the assignment; and
- (d) the assignment shall not relieve the Contractor of its existing obligations to any Subcontractor or Supplier, nor shall it cause the College to assume

any of the Contractor's obligations to any Subcontractor or Supplier that arose prior to the termination.

When the College accepts the assignment of a subcontract agreement or purchase order, the College assumes the Contractor's rights and obligations under the subcontract going forward. Upon such assignment to the College, the College may further assign the subcontract to a successor contractor or other entity.

ARTICLE 7
TIME, LIQUIDATED DAMAGES, DELAY CLAIMS AGAINST THE COLLEGE.

7.1 Contract Times.

The Contractor shall begin the Work within 10 days after the issuance of a Notice to Proceed by the College, and shall perform the Work in the Contract Documents by the dates specified in the Notice to Proceed, including Construction Start, Milestone, Substantial Completion and Final Completion Dates (collectively, "Contract Times"). As specified in the Contract for Construction, if the Work is to be performed in phases, the College may issue separate Notices to Proceed for each phase, which shall specify the Construction Start, Milestone, Substantial Completion and Final Completion Dates for that phase. The College may, in its sole discretion and at no cost to the College, choose to delay the issuance of a Notice to Proceed and the Construction Start Date for any phase until after the Contractor has achieved Substantial or Final Completion of any other phase.

7.2 Liquidated Damages For Delay.

If the Contractor fails to Substantially Complete any phase of the Work or the entire Work by the Substantial Completion Date(s) set forth in the applicable Notice to Proceed (as extended by Change Order, if applicable), and the delay is not excused by the College, then the Contractor shall pay the College the amounts specified in the Contract for Construction as liquidated damages for delay for each calendar day that the phase of the Work or the entire Work is not Substantially Completed beyond the applicable Substantial Completion Date

**7.3 Delay Claims By The Contractor Against The College --
Limitations.**

The Contractor may not assert claims against the College for extra compensation by reason of any delays in its Work resulting from acts or omissions of any third parties irrespective of extensions granted under the Contract, including but not limited to delays caused by third parties such as the Architect, other contractors, utilities and governmental authorities.

The College shall only be required to pay additional compensation for delays caused by the College itself, and only to the extent required by N.J.S.A. 2A:58B-3 (delayed performance caused by the College's own negligence, bad faith, active interference or other tortious conduct, but not for reasons contemplated by the parties and not for the negligence of others including

others under contract with the College on the theory that such negligence should be imputed to the College). The College shall not be liable for any period of delay when there is a concurrent delay for which the College is not responsible.

When the Contractor is entitled to extra compensation for delay under the Contract for Construction and these General Conditions, it can only assert claims for extra costs at the job site, and may not assert claims for extra costs for home office expenses, home office overhead, lost profit or revenue, or consequential losses as that term is defined by New Jersey law. Any additional compensation under this Article shall also be subject to the provisions in the Contract for Construction and these General Conditions regarding claims, and the provisions in the Contract for Construction and these General Conditions regarding the maintenance and availability of cost records.

ARTICLE 8 **PROJECT SCHEDULE**

8.1 General Project Schedule Requirements.

The Contractor shall schedule the construction Work and determine the most feasible means and order for the Work to complete the Project within the times required by the Contract. The Contractor shall prepare a Project Schedule and monthly schedule updates, which must be approved in writing by the College and the Architect. The Contractor shall perform the Contract and the Work in accordance with the Project Schedule. The Project Schedule should include a schedule of submittals for approval as required herein. The Project Schedule must be submitted before any Work (other than mobilization to site and general layout and site preparatory work) on the Project can begin under the Notice to Proceed. When the Contractor's Project Schedule is approved in writing by the College, it shall become an additional Contract Document and the Contractor shall be required by the Contract to comply with it. The Project Schedule and any updates to it shall be used in determining the amount of the monthly progress payments to the Contractor. The College may also use the Project Schedule and updates to determine if the Contractor is adequately planning and performing the Work in accordance with the Contract Documents.

8.2 Form And Content Of Project Schedule.

The Contractor shall prepare the Project Schedule using Critical Path Method (CPM) scheduling techniques. The Contractor shall utilize the latest revision of Primavera P3 or Microsoft Scheduling software. The Contractor shall prepare a detailed schedule which shows how it will plan, organize, execute and complete the Work. The Project Schedule shall be in the form of an activity oriented network diagram (CPM). The principles and definitions used in this Article shall be as set forth in the Associated General Contractors of America (AGC) publication "Construction Planning and Scheduling", copyright 1994.

The detailed network diagram shall provide sufficient detail and clarity of form and technique so that the Contractor can plan, schedule and control the Work properly, and the College and the Architect can readily monitor and follow the progress of all portions of the

Work. The network diagram shall comply with the limitations imposed by the scope of the Work and contractually specified Milestone, Substantial Completion, and Final Completion Dates. The Project Schedule shall include the arrow or network diagram and the computer produced schedule with dates. The Project Schedule shall include and reflect the following factors:

- (a) Project phasing, contract Milestone, Substantial and Final Completion Dates.
- (b) The structural breakdown of the Project.
- (c) The types of Work to be performed and the labor trades involved.
- (d) Reasonable logic and activity durations.
- (e) Reasonable coordination of all activities.
- (f) Purchase, manufacture and delivery activities for all major materials and equipment.
- (g) Deliveries of equipment furnished by the College.
- (h) Allowances for work by separate contractors identified in writing by the College at the time of Contract award.
- (i) Submittals and approvals of shop drawings, material samples, and other required submittals.
- (j) Subcontract Work.
- (k) Crew flows and sizes (manpower).
- (l) Assignment of responsibility for performing all activities.
- (m) Access and availability to Work areas.
- (n) Identification of interfaces and dependencies with preceding, concurrent and follow-on contractors, and sequences and interdependence of activities.
- (o) Testing and inspections.
- (p) Phased or total inspection, acceptance, and takeover by the College.
- (q) Utilization of the Project Schedule to determine amounts of monthly progress payments.
- (r) Activities required of the College and the Architect such as approvals, including reasonable durations for the activities.

Activities should be set forth in working days and have a maximum duration of 60 days, except for non-construction activities such as the procurement and delivery of materials and equipment. All durations shall be the result of definitive manpower and resource planning by the Contractor. The level of detail in the Project Schedule shall be subject to the approval of the College. The Project Schedule shall include a reasonable approach to achieve Milestone, Substantial Completion and Final Completion Dates in the Contract. Any failure of the Contractor to include any element of the Work in the Project Schedule shall not excuse the Contractor from completing that Work and all of the Work needed to complete the Project by the Milestone, Substantial Completion and Final Completion Dates in the Contract.

The network diagram is to be prepared by a computer plotter. The logic diagram will be pure logic and shall not be drawn to time scale. The logic diagram shall be drawn on 30" x 42" size sheets and prepared on a tracing/mylar or similar material suitable for reproducing high quality prints.

8.3 Computerization Of Project Schedule.

The mathematical analysis of the detailed network diagram shall be made by computer, and the tabulation for each activity shall include the following:

- (a) Activity numbers.
- (b) Activity descriptions.
- (c) Durations in work days for each activity.
- (d) Earliest start date (by calendar date).
- (e) Earliest finish date (by calendar date).
- (f) Latest start date (by calendar date).
- (g) Latest finish date (by calendar date).
- (h) Slack or total float in work days.

The following computer documents shall be prepared as part of the initial Project Schedule submission and each update:

- (a) Activity file sort, including sorts listing activities required of the College and the Architect, such as approvals.
- (b) Eight week "lookahead" detailed bar chart.
- (c) Eight week summary bar chart.
- (d) Additional computer sorts requested by the College.
- (e) High density CDs or thumb drives of all computer files.

8.4 Weather Inclusion In Project Schedule.

Seasonal weather conditions shall be included in the Project Schedule, including average precipitation, temperature and other weather conditions typical in the geographic area over a 5 year period by month.

8.5 Project Schedule Updates.

The Contractor shall prepare Project Schedule updates monthly until the Project is completed. The first update shall be issued 30 calendar days after the Construction Start Date specified in the Notice to Proceed. Updates shall include the following information:

- (a) Actual start and completion dates for activities.
- (b) Activity percent completion.
- (c) Remaining durations for activities in progress.

Each Project Schedule update shall also include a narrative report that includes the following information:

- (a) Summary of Work completed during update period.
- (b) Comparison of actual progress and status to activities and dates in original Project Schedule.

- (c) Analysis of critical path including effect of activity progress on the Project critical path.
- (d) Analysis of secondary critical paths, meaning float within 10 days of the Project critical path.
- (e) Analysis of time lost or gained during the update period.
- (f) Identification of problem areas.
- (g) Identification of change orders and delays impacting or delaying the Project under the Project Schedule.
- (h) Solutions or proposed solutions to current problems and delays.
- (i) Extensions requested by the Contractor, including activities affected and the amounts, and the reasons for the requests.
- (j) Extensions granted by the College for delays and changes, including the activities affected and the amounts, and any effect on the critical path and Contract Milestone, Substantial Completion and Final Completion Dates.
- (k) Delays in activities required of the College and the Architect, and activities that they are required to complete in the update period following the issuance of the update.

All Project Schedule updates must be submitted to the College and the Architect for written approval. Project Schedule updates, including the reports which are approved by the College, shall be deemed to be official records of the progress and status of the Project under the Project Schedule and the Contract, and may be utilized by the College in determining if the Contractor is adequately planning and performing the Work under the Contract Documents.

8.6 Meetings/Eight Week Bar Charts.

The Contractor's Project Manager and Scheduler shall arrange for and attend monthly progress and scheduling meetings with the College and the Architect. Monthly progress meetings shall be scheduled 3 to 7 days after monthly Project Schedule updates and reports are issued and provided to the College and the Architect. The purpose of these meetings will be to review past progress, current status, problem areas, delays, measures to reduce delays, future progress, and the Contractor's most recent Project Schedule update and report. At the monthly progress meetings, the Contractor shall provide a look ahead summary and detailed bar charts showing the Work and activities to be performed and/or completed during the 8 week period following the Project Schedule update.

8.7 Project Schedule Documentation For Contract Payments.

The Contractor will not be entitled to payments under the Contract until a Project Schedule has been submitted to and approved in writing by the College. No payment will be made under the Contract if, when the payment is due, a Project Schedule update and narrative report is due under this Article but has not been submitted to and approved in writing by the College. The original Project Schedule shall include a breakdown allocating the total Contract Price among the network activities in the Project Schedule, which must be approved by the College.

8.8 Progress and Recovery Project Schedules.

The Contractor shall perform its Work in accordance with the Project Schedule. If the Contractor's Work falls behind the requirements of the Project Schedule, it shall, at its own cost, institute measures to improve its progress and bring its Work in compliance with the Project Schedule, including but not limited to increasing manpower, increasing work hours per shift, increasing shifts, increasing working days per week, and rescheduling Work activities to perform them concurrently where feasible.

If monthly Project Schedule updates show that the Contractor's progress has fallen behind the Project Schedule so as to jeopardize the achievement of Milestone, Substantial Completion or Final Completion Dates by more than 10 work days, the Contractor shall, if requested by the College in writing, prepare a recovery schedule with acceleration measures to regain the lost time, and shall proceed in accordance with the recovery schedule in addition to the Project Schedule at its own cost.

8.9 The Contractor's Failure to Provide Project Schedule Updates.

If the Contractor fails to provide monthly Project Schedule updates and reports when required, the College can elect in its sole discretion to employ any of the following remedies: (i) not make progress payments; (ii) on 10 days written notice to the Contractor, retain its own consultant to provide Project Schedule updates and reports and deduct the cost from the Contract Price; (iii) terminate the Contract for default in accordance with the termination provisions in the Contract for Construction and these General Conditions and/or (iv) make a claim on the performance bond.

8.10 Scheduler Qualifications.

The Contractor must utilize a Project Scheduler that satisfies the qualification requirements for the Project. If at any time during the Project it appears that the Contractor's Project Scheduler is not competent to provide the scheduling services required in this Article, the Contractor shall, within 10 days after a written notice and demand from the College, retain a replacement scheduler that is competent to provide the services required. The College may also utilize any of the remedies provided in the Contract for Construction or these General Conditions for the Contractor's failure to provide proper Project Schedule updates and reports.

ARTICLE 9

EXTENSIONS, COMPENSATION FOR CERTAIN EXTENSIONS.

9.1 Delays Warranting Extensions Of Contract Times.

If the Contractor is unavoidably prevented from completing any part of the Work within the Milestone, Substantial Completion or Final Completion Dates by causes beyond the control and without the fault of the Contractor or its Subcontractors, those Contract Times will be extended by amounts equal to the time lost due to such delays, provided the Contractor requests extensions in accordance with this Article. Delays warranting extensions of the Contract Times

include unforeseeable and unavoidable delays caused by the College, the Architect, other contractors employed by the College, utility owners or other third parties, acts of God, acts of governmental authorities, wars, abnormally severe weather conditions of unusual duration (specifically excluding weather conditions of the type and duration that have been encountered in the area in which the Project is located) that prevent timely delivery of materials or equipment necessary to the completion of portions of the Work or hamper access to the Work by workmen or Subcontractors, fires, floods, earthquakes, epidemics, plagues, and other unavoidable casualties.

Apart from an extension of time, no payment or allowance of any kind shall be made to the Contractor as compensation for damages on account of hindrance or delay from any cause in the progress of the Work, whether such delay be avoidable or unavoidable. The Contractor agrees that it will make no claim for compensation, damages for any such delays, and will accept in full satisfaction for such delays said extension of time.

9.2 Weather Delays.

The Project Schedule shall take into account normally anticipatable adverse weather plus an additional five (5) days of severe and unusual weather conditions that will materially interfere with the timely prosecution of the Work. No time extensions will be granted for time lost due to weather conditions that do not meet the criteria set forth in Article 9.1, and then only to the extent more than five (5) days of delay result from such severe and unusual weather conditions. Owner shall not be required to keep a record of days of precipitation or low temperatures and the burden of proof with respect to weather delays shall be upon Contractor. No time extensions will be considered for any weather conditions that do not affect Work on the critical path or Contract Times.

9.3 Float Time Use.

Float time in the Project Schedule is not for the exclusive use of either the Contractor or the College. Float time is available for use by both parties to facilitate the effective use of available resources and to minimize the impact of problems and delays that may arise during construction. No time extension will be granted as a result of any problem, change order or delay which only results in the loss of available positive float on the Project Schedule. Float time shown on the Project Schedule shall not be used by the Contractor in a manner that is detrimental to the interests of the College or the Project.

9.4 Calculation Of Extensions.

Extensions will be calculated based on the effect of delays on the Project Schedule and the activities in the Project Schedule. If the Contractor is entitled to an extension for a delay based on the nature of the delay under this Article, the activities in the Project Schedule affected by the delay will be extended by the amount they are affected. If extensions of activities in the Project Schedule affect the critical path and delay the Contract Milestone, Substantial Completion or Final Completion Dates, they too will be extended to the extent affected. The critical path and Contract Times will only be extended to the extent that they are actually

affected under the Project Schedule by a delay for which the Contractor is entitled to an extension.

If, for any scheduled activity or period, there are concurrent delays that include delays for which the Contractor is entitled to an extension and delays for which the Contractor is not entitled to an extension, the Contractor will be given an extension for the delays for which it is entitled to extension so that it will not be liable to pay liquidated damages for delay, unless the College eliminates or reduces that delay. A concurrent delay will not justify an extension to the Contractor if it has minimal effect on the completion of the Project, and/or if it would likely have been avoided if it had become apparent that it was having an effect on the progress of the Project and the Final Completion Date.

9.5 Elimination of Delays and Extensions (Acceleration).

If the effect of a delay for which the Contractor is entitled to an extension can be reduced or eliminated by changes in the Project Schedule or other measures which have no material adverse impact on the Contractor in terms of cost or otherwise, the Contractor shall employ those measures so that no extension is required or so that a shorter extension is required. If the Contractor is entitled to extensions for delays, and if the College (in its sole discretion) notifies the Contractor in writing that it prefers to eliminate the lost time to avoid or reduce the extension required, by changes or additional efforts such as acceleration efforts, the Contractor shall perform those measures as a change to the Contract to be compensated under the change order provisions in the Contract for Construction and these General Conditions.

9.6 Requests For Extensions Required.

The Contractor must provide the College with a written notice of delay and request for an extension within 24 hours of the beginning of a delay. The written notice of delay and request for extension must include the nature and cause of the delay, the known extent of the delay, the Work activities on the Project Schedule affected by the delay, and the extent of the effect to each, and suggestions or proposals to reduce or eliminate the delay. This limited time frame is to provide the College the opportunity to immediately address the issue and limit the amount of time in the potential delay and its potential impact on the Project Schedule.

9.7 Compensation For Certain Extensions And Limitations.

Under the Contract for Construction and these General Conditions, the College does not assume responsibility for many types of delays, including additional costs resulting from extensions granted because of those delays. Where the College is responsible for a delay under the express terms of the Contract for Construction and these General Conditions, it will pay extra compensation for any extension granted because of the delay.

Compensation by the College for delays (and extensions) for which it is responsible under the Contract for Construction and these General Conditions shall only include additional costs actually incurred at the site, and shall not include home office expense, home office overhead, lost profit or consequential losses. Any additional compensation under this Article shall be subject to the provisions in the Contract for Construction and these General Conditions

regarding claims, and the provisions in the Contract for Construction and these General Conditions regarding the maintenance and availability of cost records.

No compensation will be paid if an extension for a delay for which the College is responsible is concurrent with another delay for which the Contractor is not entitled to an extension, or is concurrent with another delay for which the Contractor is entitled to an extension but the College is not responsible for the other delay.

If the College requests a change in the Contract Work, potential delays and extensions that result from the change and any resulting extra compensation for the change shall be addressed under the change order provisions in the Contract for Construction and these General Conditions in addition to this Article.

ARTICLE 10 **PAYMENTS TO THE CONTRACTOR.**

10.1 Contract Price.

The College will pay the Contractor as full compensation for performing the Work the Contract Price as adjusted by approved change orders that increase or decrease the Contract Price. The College will do so in accordance with this Article, any supplemental General Conditions regarding payment, and the payment terms in the Contract for Construction. Payment provisions in the supplemental General Conditions that add to or modify this Article shall take precedence over this Article. Payment provisions in the Contract for Construction that add to or modify payment terms shall take precedence over the supplemental General Conditions and this Article.

10.2 Monthly Progress Payments.

The College will pay the Contractor monthly progress payments as the Work proceeds and will pay for the Work completed, less retainage. The Contractor shall submit monthly invoices using the College's invoice form for the Work completed in each calendar month, and the monthly invoice shall be submitted in accordance with the Contract. The Contractor shall be entitled to monthly progress payments based on the percentage of the Work completed (less earlier payments), and that amount shall be based on the Unit Schedule Breakdown and the update of the Project Schedule for the billing period showing schedule activities completed and progress on incomplete activities, in conjunction with the values assigned to those activities. If there is a discrepancy between the amount due based on the Unit Schedule Breakdown and the amount due based on the Project Schedule update, the Contractor shall only be entitled to the lesser amount unless the College's Representative, in his/her sole discretion, decides otherwise. Payments made by the College shall be used by the Contractor solely for purposes of this Project and for paying Subcontractors, suppliers, and for labor and materials, and shall not be used to pay debts owed by the Contractor outside of the Project.

10.3 Unit Schedule Breakdown/CPM Activity Price Breakdown.

Before the Contract for Construction is signed, the Contractor shall submit to the College and the Architect a Unit Schedule Breakdown (schedule of values) utilizing the College's form (AIA Documents G702/G703) which reasonably allocates the Contract Price among the principal categories of Work and materials in the Contract. The Unit Schedule Breakdown must be signed by the Contractor and is subject to written approval by the Architect and the College for use in calculating monthly progress payments under the Contract. The Contractor shall not "front end load" the Unit Schedule Breakdown. The Unit Schedule Breakdown may include line items for mobilization, bonds and insurance.

The Contractor's proposed Project Schedule shall reasonably allocate the Contract Price among the activities in the schedule so that monthly Project Schedule updates can be utilized in connection with the Unit Schedule Breakdown in determining the amount of monthly progress payments. The Contractor's Unit Schedule Breakdown and Project Schedule activity price breakdown must be approved in writing by the Architect and the College before any payments are made under the Contract.

10.4 Invoices For Monthly Progress Payments: Form and Content.

The Contractor must utilize the College's invoice form and the invoice forms (AIA Documents G702/G703 and waiver attachments) must be completed before they are submitted for payment. Each invoice must be signed by the Contractor, and shall certify that the Work and materials represented as having been provided have been provided, and that all Subcontractors and suppliers on the Project have been paid all amounts legitimately due for Work and materials billed to the College in earlier invoices that were paid by the College. The Contractor's submission of an invoice constitutes an affirmative representation and warranty by the Contractor that it performed the Work in compliance with the Contract Documents and applicable laws, codes and regulations.

Invoices for monthly Project payments must include the status of the Work in the Unit Schedule Breakdown and the Project Schedule update for the billing period that shows the activities completed or started and the value of them based on the Project Schedule. Invoices must also include certified payrolls for the Contractor and all Subcontractors for the billing period, affirmative action monthly manning reports, a certification of Subcontractor/supplier payments, the College's acknowledgment of progress payment and release of liens and claims form duly executed by the Contractor, the College's acknowledgment of progress payment and release of liens and claims form duly executed by each Subcontractor and supplier who has furnished labor or materials that are the subject of the current invoice, a list of all materials stored to date including descriptions, values, quantities and location, and any other documents required in the Contract Documents.

The Contractor will be entitled to have an invoice paid if the Architect and the College approve in writing the invoice including the percentage of Work completed, and if the quality of the Work and materials conform to the Contract Documents. The approval of invoices shall not waive claims for defects or deficiencies in the Work or materials provided, or the right to subsequently inspect the Project as a complete and functioning whole.

10.5 Payment For Materials And Equipment Procured But Not Installed.

The Contractor may seek payment in monthly invoices for materials and equipment delivered to the Project site but not yet incorporated into the Work. The Contractor shall include with its monthly invoices a list of the stored equipment, the amount and type of stored materials, and the place where they are stored. Each invoice that seeks payment for materials and equipment delivered to the Project site but not installed or incorporated into the Work shall include a signed bill of sale to the College and an invoice from the supplier. All risk of loss or damage for materials and equipment delivered to the Project site shall remain with the Contractor.

The College will only rarely pay for material or equipment stored offsite, and only when it determines, in its sole discretion, that there is good cause. The College will consider no request to pay for materials or equipment stored off site unless the Contractor includes a written request for such payment with its bid for the Project. If the College does agree to pay for material or equipment stored offsite during the performance of the Contract, it will do so when the Contract for Construction is signed.

If the College does agree to pay for materials and equipment stored offsite, such payments shall be subject to any conditions in the signed Contract, and in all cases, a bill of sale to the College, a paid invoice, insurance and proof the storage facility is bonded will have to be provided to the College when each payment is sought. The location will have to be specified in writing and the material or equipment will have to be inspected by the College. The Contractor and its performance bond surety must agree in writing that they retain all risk of loss or damage, and each payment application must contain a consent to payments for materials stored offsite signed by the Contractor's bonding company.

Payments on account of materials or equipment not incorporated into the Work but delivered and suitably stored at the site, or at some other location agreed upon in writing, may be made by the College subject to the following conditions:

- (a) Such materials or equipment shall have been fabricated or assembled specifically for the Project and delivered to storage no earlier than needed for the orderly progress of the Work as demonstrated by the Project Schedule.
- (b) Title to such materials or equipment shall pass to the College pursuant to the Contractor's bill of sale, which shall contain guarantee of replacement thereof in the event of damage thereto or disappearance thereof due to any cause. The Contractor shall also affirm that it will pay for such materials or equipment immediately upon receipt of payment therefore from the College.

In the case of offsite storage, the Contractor shall also provide Consent of Surety to such payment and insurance of such materials or equipment against the perils set forth in these General Conditions both while storage and during transportation to the site. Raw materials or other materials or equipment readily duplicated or usable on other projects will be paid for only

after the materials are incorporated into the construction.

10.6 Retainage.

The College will retain 2% of the amount due on each partial payment pending Final Completion of the Contract.

Retainage amounts being withheld by the College shall be released and paid in full to the Contractor within 45 days of the Final Completion Date agreed upon by the Contractor and the College, without further withholding of any amounts for any purpose whatsoever, provided that the Work has been Finally Completed as indicated.

10.7 Payment For Change Order Work.

The Contractor shall invoice for change order work in the monthly progress payment invoices as the change order work is performed, but may only do so after a written change order has been signed by the appropriate College personnel and a TCNJ Purchase Order is issued by the College.

10.8 Final Payment.

Upon Final Completion of all the Work including all change orders, upon final acceptance of the Work by the Architect and the College, and upon the issuance of the Certificate of Final Completion, the Contractor will be paid the fully adjusted Contract Price including any retainage. The Contractor shall submit an invoice for the final payment. The final invoice must be accompanied by the College's acceptance of final payment and release of liens and claims form duly executed by the Contractor, the College's acceptance of final payment and release of liens and claims form duly executed by each Subcontractor and supplier who has furnished labor or materials that are the subject of the final invoice, all warranties, guarantees, manufacturer literature, approved as-built drawings, shop drawings required, and any other documents that the Contractor is required by the Contract Documents to provide to the College at the time of Final Completion. The final invoice must also include a written signed consent to the final payment signed by the Contractor's bonding company.

10.9 Payment Terms.

All invoices and payments shall be subject to the terms of the Contract for Construction and these General Conditions, including the provisions regarding payments, and to the right of the College to withhold payments or to make deductions from payments for damages, defective work, liquidated damages, third-party claims, failure to complete Work, failure to comply with requirements of the Contract Documents, failure to comply with Prevailing Wage Act requirements set forth in the Contract for Construction and these General Conditions, failure to comply with Project Schedule obligations, or other causes authorized by the Contract Documents.

10.10 Payment Based On Partial Acceptance (Limitation).

The College will not accept portions of the Project as Substantially or Finally Complete unless specified elsewhere in the Contract Documents. If the Specifications authorize partial acceptances, they will also specify the terms and conditions of such acceptances.

10.11 Failure To Pay Amounts In Dispute Not To Affect Performance.

The failure of the College to pay any amount requested by the Contractor in an invoice based on a determination that the invoice is improper or some other dispute shall not entitle the Contractor to stop or slow down the performance of the Work.

10.12 Reasons For Withholding Payment.

In addition to the reasons set forth elsewhere in the Contract for Construction and these General Conditions, the Architect or the College may also withhold payments to the Contractor, or, because of subsequently discovered evidence, may nullify the whole or a part of a payments previously issued to the Contractor, to such extent as may be necessary in the Architect's or the College's opinion to protect the College from loss for which the Contractor is responsible because of

- (a) defective Work not remedied;
- (b) third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the College is provided by the Contractor;
- (c) failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- (d) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
- (e) damage to the College or a separate contractor;
- (f) reasonable evidence that the Work will not be completed within the Contract Times, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- (g) failure to comply with requirements for monthly progress payments pursuant to Article 10.4; or
- (h) failure to carry out the Work in accordance with the Contract Documents.

When the above reasons for withholding payment are removed, payment will be made for amounts previously withheld.

If the College withholds or the Architect recommends that the College should withhold payment from the Contractor under subsection (c) above, the College may, after providing the Contractor with written notice and an opportunity to cure, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. However, by doing so, the College is not undertaking any payment obligation on the part of the

Contractor, nor does any Subcontractor have any claims against the College or any right to future joint check payments.

10.13 Set-Off For State Tax Indebtedness.

Pursuant to N.J.S.A. 54:49-19, and notwithstanding any other provision of law to the contrary, if the Contractor or any of its Subcontractors or suppliers are indebted to the State of New Jersey for any State tax, the College may withhold and/or set off any payments due to the Contractor as may be necessary to satisfy such indebtedness and/or pending resolution of the indebtedness.

10.14 Maintenance Of Cost And Accounting Records.

The Contractor shall maintain and retain weekly payroll, material, Subcontractor, supplier, overhead and other cost and accounting records for the Project, and for additional services or extras required by the College, including all costs that the Contractor is entitled to be paid under the Contract. The Contractor shall require its Subcontractors on the Project to do likewise. The Contractor shall also maintain all estimates and takeoffs used in preparing and calculating its bid price for the Contract and change orders. Pursuant to N.J.A.C. 17:44-2.2, the Contractor shall also maintain all documentation related to products, transactions or services under the Contract. The records shall be maintained and shall be made available to the College or its representatives when requested. These records shall be maintained in accordance with generally accepted accounting principles and practices for a period of 5 years after final payment is received by the Contractor, or the duration of any dispute or lawsuit arising out of the Project, whichever is later, and shall be made available to the College or its representatives and the New Jersey Office of the State Comptroller when requested.

Any failure to maintain or produce the records required by this Article shall preclude the Contractor from claiming or being paid or retaining any payments or being paid on any claims that are based on costs or that should be, and expenses or losses incurred by the Contractor or its Subcontractors including extra costs that are or that should be reflected in the records required by this Article or good business practices. This record keeping requirement applies to records related to the basic Contract Price as well as extra compensation for change orders and claims of all kinds.

No claim by the Contractor against the College for payment, whether for Contract Work, extras, changes or claims that is based to any degree on costs that should be recorded in cost records required by this Article or good business practices may be asserted against the College to the extent the cost records do not exist or are not provided to the College upon demand.

The College reserves the right to audit the records of the Contractor and its Subcontractors at any time and for up to 3 years after the Final Completion of the Project. If an audit reveals overpayment by the College, the Contractor shall refund the cost of the audit and the overpayment to the College, or the College may deduct the cost of the audit and the overpayment from future payments under the Contract, or the College may assert claims against the Contractor and/or its surety for the cost of the audit and such overpayments.

10.15 Written Evidence of Payment to Subcontractors.

The College has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers' amounts paid by the College to the Contractor for subcontracted Work. Such evidence shall include acknowledgment of progress payment and release of liens and claims forms duly executed by each Subcontractor and supplier for payments previously made to the Contractor. If the Contractor fails to furnish the College with the written evidence that it has properly paid Subcontractors and material and equipment suppliers, the College shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the College nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law. The College may, in its sole discretion, issue checks made payable jointly to the Contractor and a Subcontractor; however, by doing so, the College is not undertaking any obligation on the part of the Contractor, nor does the Subcontractor have any claims against the College nor any right to future joint check payments.

ARTICLE 11 **CHANGES.**

11.1 Changes Authorized.

The College may at any time authorize and direct changes in the Work or accelerations of the Work that change the scope of the Work and that increase or decrease the Contract Price. All changes including changes in the Contract Price shall be governed by this Article. All changes must be in a written change order signed by the Vice President for Administration, the College's Representative, the Architect and the Contractor. A TCNJ Purchase Order will then be issued by the College and signed by the Contracting Officer, after which time, the Contractor can then bill for the completed change order Work. Any extensions in the Contract Times and increases in the Contract Price because of extensions resulting from changes shall be governed by Article 9 of these General Conditions regarding extensions, but the authorization for the extra compensation itself resulting from an extension must be contained in a change order that complies with this Article as well. The College may elect to have changed Work on the Project that is within the scope of the Contract Documents performed by another contractor. Changes in the Work shall not affect the surety bond protection or insurance coverage required by the Contract Documents.

11.2 Change Request Or Directive.

The College may request a change in the Work or materials to be provided under the Contract Documents by a written Contract Change Directive ("CCD") signed by the College's Representative. If the College is of the opinion that no change in the Contract Price or Contract Times is required because of the change request, it shall so state in the CCD. A CCD may include provisions regarding the scope of the changed Work or materials, and may also include conditions including time parameters. A CCD may provide that specified Work shall stop until further notice, but the Contractor shall not stop or delay any Work because of a CCD unless the CCD provides that Work should stop because of the change. A CCD may provide that the performance of changes shall not commence until a change order is issued and a subsequent

TCNJ Purchase Order is issued and signed by the Contracting Officer, or that changed Work should proceed before a change order and TCNJ Purchase Order are issued by the College to maintain the progress of the Project.

11.3 Change Orders Which Are Protested.

If the Contractor protests the terms of a change order, it shall notify the College of its protest in writing within 2 business days of the issuance of the Change Order. It shall describe the terms that it objects to and the reasons for its protest. It shall include supporting documentation if appropriate, including detailed justification for any Contractor requested additional compensation based upon unavoidable additional costs. The College may elect to direct the Contractor in writing to perform the change order requirements despite the protest. If it does so, the Contractor's right to pursue further relief based on the protest shall be preserved and the Contractor shall immediately proceed with the change Work

11.4 Changes Affecting Contract Times.

Changes and change orders shall not affect or extend any of the Contract Times unless the change order itself specifies that it changes Contract Times. If a change order issued by the College delays the completion of any activity in the Project Schedule, the time allowed for that activity shall be extended, and if a delay in that activity delays other activities, the critical path or the Completion Dates in the Contract, they too will be extended. The Contractor shall make reasonable efforts in scheduling changed Work so that it does not delay or extend activities in the Project Schedule critical path, including any Milestone Dates, the Substantial Completion Date and the Final Completion Date. The Contractor shall also make alternate proposals for change order Work that include acceleration for the changed Work where feasible to achieve this goal, and shall include the cost of such efforts in its change order requests and proposals.

Change orders must specify whether they result in any delay (or extension) to any critical path activities in the Project Schedule, including an identification of the activities and the amount of delay in each. If no delay or extension is set forth in a change order, it will be deemed an agreement by the College and the Contractor that no delay or extension results from the change order.

11.5 Contractor Initiated Change Order Requests.

If the Contractor contends that any directive or communication from the College or Architect, or any condition, event or circumstance entitles it to a change order changing the scope of the Work, terms of the Contract Documents, Contract Price or Contract Times, it shall submit a written change order request to the College's Representative within 5 days of the event upon which the request is based. The written request shall specify the terms of the change order requested, and include all documentation and information that the Contractor seeks to have considered in support of the request, or that is necessary to a proper consideration of the request.

11.6 Change Order Amounts.

All price changes or amounts in change orders shall be based on (i) lump sum, (ii) actual work time and materials plus mark-ups for overhead and profit, or (iii) unit prices times actual quantities that may or may not include separate mark-ups for overhead and profit. If a change order price is to be based on a lump sum price or a unit price, the College may request the submission of such documentation regarding market price or cost which it reasonably deems necessary to determine a lump sum or unit price. If a change order is based on actual work time and material costs, it will include a not-to-exceed price.

Applications for payment for change order Work shall be included in monthly progress payment invoices as the change order work is performed, but only after a TCNJ Purchase Order has been issued to the Contractor by the College. For change orders based on time and material costs or unit prices times actual quantities, the time spent, material provided, and quantities performed shall be recorded in daily time slips, material invoices, and quantity of work performed tickets that are signed by the College's Representative to certify that the Work and materials were provided, and the quantities. Labor costs and material costs for change orders shall be based on actual costs to the Contractor without any mark-ups except as provided in this Article.

Mark-ups may be added to time and material costs where a change order is authorized to be paid on a time and material basis, and also unit price change orders if the change order price term expressly authorizes mark-ups as a separate additional charge to be added to the unit price. When mark-ups for overhead and profit are authorized, the standard mark-up for overhead and profit shall be 15% of net costs properly invoiced in the change order. The schedule for mark ups is as follows:

- 15% of direct costs for overhead, profit, bond, and insurance for Work performed directly by the Contractor;
- 15% of direct costs for overhead, profit, bond, and insurance for Work performed directly by the Subcontractor and 5% of the direct and indirect costs of the Work performed by the Subcontractor for the Contractor; and
- 15% of direct costs for overhead, profit, bond, and insurance for Work performed directly by the Subcontractor's subcontractor and 5% of the direct and indirect costs of the Work performed by the Subcontractor's subcontractor for the Subcontractor and 5% of the direct and indirect costs of the Work performed by the Subcontractor for the Contractor.

There shall be no additional mark-ups for materials or supplies. Bond and insurance costs are included in the noted mark ups above. Refer to Division 1 Specifications also for further delineation of items included in mark-ups.

THE CONTRACTOR MUST USE THE COLLEGE'S CHANGE ORDER FORM INCLUDED IN THE PAYMENT PROCEDURE DOCUMENTS.

11.7 Right To Audit Extra Costs (Before And After Payment).

The College reserves the right to audit all change orders and additional costs claimed and/or paid under the Contract at any time. The obligation of the Contractor, Subcontractors and suppliers to establish, maintain and produce cost records and remedies for failing to do as specified elsewhere in these General Conditions and the Contract for Construction shall govern. If an audit reveals that actual costs invoiced to the College and/or paid by the College in change orders exceed the actual costs incurred, the Contractor shall refund the excess, or the College may deduct the excess from future payments under the Contract, or the College may assert claims against the Contractor and/or its surety for such overpayments.

11.8 Change Orders With Both Price Increases and Decreases.

If a change order reduces the scope of the Work or materials to be provided by the Contractor under the Contract, the change order shall provide for a reduction in the Contract Price in the amount of the actual reduction in cost. If a change order results in both added costs and reduced costs, they shall be combined for a net plus or minus Contract Price adjustment, and when mark-ups are applicable, they shall only be added to a net increase in the Contract Price which results from a combination of additions and deductions in the change order.

11.9 Waiver Of Rights In Connection With Change Orders Issued Without Protest.

The Contractor shall not be entitled to seek any additional compensation or any extension of the Contract Times beyond the amounts and any extensions included in a change order signed by the College or a written change order request submitted by the Contractor to the College for approval, the intent being that the Contractor must disclose all additional costs and delays claimed to result from a change so that the College can take measures in considering the change to effect cost savings and avoid delays. The failure to include extra costs or delays in a change order request will preclude the Contractor from later claiming such costs or delays in connection with the change in any form or fashion.

ARTICLE 12 **COMPLETION.**

12.1 Substantial Completion.

When the Contractor believes that the Project (or a specific phase of the Work, if the Work is to be performed in phases) is Substantially Complete, meaning all essential requirements of the Work have been sufficiently completed so that the Project (or a specific phase) can be occupied and used for its intended purpose (and as further defined in the College's Division 1 specifications for capital projects), it can make a written request to the Architect and the College to conduct an inspection and to issue a Certificate of Substantial Completion. The Contractor's request shall list all Work and requirements of the Contract Documents that remain to be completed or corrected and an estimate of the value of the incomplete items and the dates by which those items of the Work will be completed, but in no event shall it be more than thirty (30) days from Substantial Completion.

The Architect and the College will conduct an inspection, and if they determine the Contractor has Substantially Completed the Project (or a specific phase of the Work, if the Work is to be performed in phases), the College will issue a Certificate of Substantial Completion. If the Architect and the College determine that the Contractor has not achieved Substantial Completion, the College will notify the Contractor in writing and will list the Work and requirements of the Contract Documents that must be completed for Substantial Completion and provide a punchlist. The Architect and the College will also assign a value to the incomplete items to be added to the 2% retainage held after the Certificate of Substantial Completion is issued. The College and the Architect will re-inspect when the Contractor notifies them in writing that those items have been completed.

Any failure of the College or Architect to include incomplete or deficient items in a Certificate of Substantial Completion or a notice regarding a Substantial Completion inspection shall not affect the Contractor's obligation to properly complete all requirements of the Contract.

The College will not issue a Certificate of Substantial Completion unless it can occupy and use the Project (or the phase of the Work) for its intended purpose, and the Contractor agrees that the College's use and occupancy of the Project (or the phase of the Work) shall not affect the Contractor's obligation to complete the Project and requirements of the Contract Documents. The Contractor also agrees that its completion of the Project will not unreasonably interfere with the College's occupancy and use of the Project (or the phase of the Work) and that the College's occupancy will not impede the Contractor's completion of the Work to Final Completion.

Unless otherwise specified in the supplemental General Conditions, a Certificate of Substantial Completion will not be issued unless an unqualified temporary or permanent certificate of occupancy is issued, and the College is able to use and occupy the Project (or the phase of the Work) without interruption.

The issuance of a Certificate of Substantial Completion shall not void or alter any of the other terms of the Contract Documents, including but not limited to terms relating to warranties, or relieve the Contractor of its obligation to complete the Work or remedy defective Work or materials, unless such terms are expressly modified by the Certificate of Substantial Completion.

Guarantee periods for equipment, workmanship and materials shall commence when the Certificate of Substantial Completion is issued or from the completion and acceptance of equipment, workmanship or materials, whichever is later, unless otherwise specified in the supplemental General Conditions or the Certificate of Substantial Completion.

The rights of the Contractor regarding payments upon the issuance of the Certificate of Substantial Completion shall be as provided in the payment provisions of the Contract for Construction and these General Conditions.

12.2 Final Completion.

The Contractor shall notify the Architect and the College in writing when it has completed the entire Project (or a specific phase of the Work, if the Work is to be performed in

phases) and has satisfied all of the requirements of the Contract Documents for Final Completion. The Architect and the College will then conduct an inspection, and if they determine that the Contractor has completed the entire Project (or a specific phase of the Work, if the Work is to be performed in phases) and has satisfied all of the requirements of the Contract Documents for Final Completion, the College will then issue a Certificate of Final Completion. If any items remain incomplete or unsatisfactory, the College will notify the Contractor in writing and list the incomplete or unsatisfactory items. The Contractor shall immediately complete and correct any unfinished items and notify the Architect and the College in writing and request a follow-up inspection for Final Completion.

The Certificate of Final Completion will not be issued until all documents required by the Contract Documents have been provided, including the College's acceptance of final payment and release of liens and claims forms duly executed by the Contractor and any Subcontractors and suppliers who have furnished labor or materials under the Contract, warranties, maintenance and operating instructions, certificates, insurance, shop drawings required, and as-built drawings approved by the Architect. Final Completion must include leaving the entire Project site and the Project (or the phase of the Work) clean, neat and orderly. All distortions, cracks, delaminating and deteriorations of finished surfaces must be remedied. All broken items shall be repaired. All paint spots, stains and plaster must be removed. All unused equipment and excess material shall be removed. The Project and the Project site (or the phase of the Work) shall be clean and finished.

If the Contractor unreasonably delays completing and correcting items needed for the issuance of the Certificate of Final Completion, the College may unilaterally issue a Certificate of Final Completion that lists incomplete and defective items, and that deducts any applicable liquidated damages and the cost of remedying incomplete and defective items from the final amount due to the Contractor under the Contract.

Final payment will not be made until the Certificate of Final Completion is issued, and the final payment shall be subject to the payment provisions in the Contract for Construction and these General Conditions.

ARTICLE 13 **SUSPENSION AND TERMINATION OF CONTRACT.**

13.1 Suspension By The College.

The College shall have the right to stop or suspend the Work in whole or in part at any time. The Work may only be stopped or suspended by a written directive of the College's Representative, except in an emergency. The College's Representative may stop or suspend the Work in whole or in part on an emergent basis, either verbally or in writing, but any such emergent suspension or stop Work order shall be confirmed by a written directive from the College's Representative within 48 hours. The College may stop or suspend the Work because of any conditions affecting health or safety on or off site, any dangerous condition, any environmental hazard, the convenience of the College, or the public interest. If a directive to

stop or suspend all or part of the Work includes directions to secure the site, the Contractor shall perform the Work required in the directive. The Contractor shall also maintain the safety and security of the Project during the suspension for the protection of the site, Work in place, materials and equipment on site, persons on or near the site, and the College's property.

If all or part of the Work is suspended in response to a problem or condition caused by the Contractor's performance of its Contract, or parties other than the College itself, or conditions over which the College has no control, the Contractor will not be entitled to any additional compensation for the suspension. If the College directs the suspension of Work because of the improper performance of the Contract by the Contractor or those performing its Contract, the Contractor will not be entitled to any extension of any Contract Times or additional compensation by reason of the suspension. If a suspension is directed for reasons other than the fault of the Contractor or others involved in its performance of the Contract, the Contractor will be entitled to an extension under and to the extent authorized in Article 9, and additional compensation under and to the extent authorized by Article 11.

13.2 Termination For Convenience.

The College may, by a written directive, terminate the Contract at any time before completion for the College's convenience or where it concludes that it is in the public interest to do so. The Contractor shall complete any items of Work specified in the notice of termination for convenience and any Work necessary to make the site safe for all persons and property at or near the Project site when the College terminates the Contract for convenience under this Article.

Absent the Contractor fault or violation of the Contract, the Contractor shall be paid in full for all properly completed Work, subject to the payment provisions in the Contract for Construction and these General Conditions. The Contractor will not be entitled to payment for costs and mark-ups for Work or materials not provided before the termination, or costs for Work and materials not provided unless the Contractor cannot avoid liability to pay those costs, or profit or overhead on the portion of the Contract that will not be performed because of the termination, or other types of damages. The extra compensation payable to the Contractor in connection with a termination for convenience may include the cost of materials or equipment purchased for the Project before termination but not installed if the Contractor cannot otherwise use or sell them.

The Contractor will also be entitled to reasonable termination costs in reasonable amounts for additional direct costs in connection with the termination, but not administrative, home office or overhead costs, lost profit, or consequential damages. In addition, any claims shall be subject to the provisions in the Contract for Construction and these General Conditions regarding claims and the maintenance of cost records.

The Contractor shall include provisions similar to this Article in subcontracts and supply contracts for the Project. When a termination for convenience is directed by the College, the Contract shall be closed out in accordance with the provisions of the Contract for Construction and these General Conditions regarding payment and Project completion.

13.3 Termination For Cause.

The College may terminate the Contract for cause if the Contractor (i) commits violations of the Contract Documents, (ii) fails to perform the Work in accordance with the Contract Documents including the Project Schedule, (iii) fails to comply with applicable laws, rules or regulations, (iv) fails to pay Subcontractors or suppliers to the extent reasonably required, (v) becomes insolvent or becomes a debtor in a bankruptcy proceeding, (vi) fails to pay its debts, (vii) is found to have made false or misleading statements to the College in writing in obtaining the Contract or payments, (viii) fails to comply with employment discrimination laws, (ix) fails to pay prevailing wages, (x) fails to maintain or renew the required insurance, (xi) fails to maintain proper protection for the safety of persons or property on the site, (xii) fails to comply with reasonable and authorized directives of the College under the Contract, or (xiii) assigns its rights or interests under the Contract or payments under the Contract to any third party.

If the College terminates the Contract for cause, it shall first send a notice of intent to terminate to the Contractor and the Contractor's surety. The notice shall direct the Contractor to remedy or eliminate the deficiency within a specified time if the problem is one that can be eliminated. If the Contractor fails to reasonably comply with the directive and notice, the College may after 10 days issue a notice of termination to the Contractor and its surety which terminates the Contract effective immediately and specifies the reason for the termination.

If the Contract is terminated, the Contractor shall secure the site and take measures to leave the site safe for persons, material, Work in place and equipment before departing the site, and shall remove all tools and equipment within 5 days of the termination effective date. The Contractor shall not remove any materials or equipment stored on site unless directed to do so by the College. When the Contract is terminated, the Contractor shall deliver materials purchased for the Project and paid for by the College, but not stored on site, together with all appropriate warranties and guaranties to any location designated by the College.

If the Contractor's surety does not take over the completion of the Work in accordance with this Article, the College may appropriate any or all materials on the site that may be suitable and acceptable and may enter into an agreement for the completion of the Work with another contractor, or use other methods to complete the Work.

All damages, costs and charges incurred by the College together with the cost of completing the Work, will be deducted from any monies due or which may become due to the Contractor for Work properly completed by it before the termination. If such expenses exceed the sum available from the unpaid Contract Price, the Contractor and its surety shall be liable and shall pay to the College the amount of such excess in addition to other damages.

The rights and remedies of the College in connection with a termination for cause shall be in addition to other rights and remedies which it has under law, the Contract, and the Contractor's bond.

If the College terminates the Contract for cause and it is subsequently determined by a court that the Contractor was not in default, or that the termination was legally unjustified, the termination will be deemed to be a termination for convenience under this Article, and the rights

and remedies of the Contractor and its surety for the termination will be limited to those which exist in connection with a termination for convenience. If the College terminates the Contract for cause, the Contractor may not file a suit to recover on any claims arising out of the Project before the Work is Substantially Complete.

13.4 Surety Takeover Following Termination For Cause.

If the College terminates the Contractor for cause, the Contractor's performance bond surety may elect to takeover and complete the Contractor's Work and obligations under its Contract. If the surety elects to take over the completion of the Contract, it may only do so on the following conditions:

- (a) The surety must notify the College that it will take over completion of the Contract by a written notice of intent signed by a representative authorized to bind the surety within 5 calendar days of the surety's receipt of the College's notice of termination.
- (b) The surety and the College must execute a written takeover agreement within 10 days after the surety sends its notice of intent to takeover. The takeover agreement signed by the surety and the College, must:
 - i. contain an acknowledgement and agreement by the surety to assume the obligation to complete the balance of the Work under the Contract and to perform all of the Contractor's obligations under the Contract at the surety's sole cost and expense, and to utilize only contractors approved by the College to complete the Work, which approval shall not be unreasonably withheld;
 - ii. provide that the surety is entitled to be paid the unpaid balance under the terminated Contractor's Contract in accordance with and subject to the terms of the Contract for Construction and these General Conditions;
 - iii. provide that the surety is not relieved of any of its obligations under its payment and performance bond for the Project, and that the College retains its right to withhold money for Contract payments to compensate for damages or for other reasons where authorized under the Contract for Construction or these General Conditions; and
 - iv. provide that it is without prejudice to and is subject to all of the rights and remedies of the College, the surety, and the defaulted Contractor, and the surety may not require the College to agree to a takeover agreement that seeks to extinguish any such rights.
- (c) The surety must also pay without delay all obligations of the terminated Contractor for Work and materials on the Project, subject to a reasonable allowance of time to investigate and verify claims.

13.5 Suspension By The Contractor For Non-Payment.

If the Contractor is not paid sums due under an approved invoice within thirty (30) days of the billing date, it may suspend performance without penalty for breach of Contract, but only

after providing the College with 7 days written notice of non-payment, and only in the event that the College fails to furnish the Contractor, within that 7 day period, with a written statement of the amount withheld and the reasons for the withholding. Nothing herein shall be construed to excuse the Contractor's nonperformance, or to limit the College's rights and remedies relating to such nonperformance, with regard to any monies withheld from the Contractor upon the proper notice provided under this Article, or with regard to any Contractor claim disputed by the College.

ARTICLE 14
WARRANTY/DEFECTIVE WORK AND MATERIALS

14.1 General Work One Year Warranty; HVAC Systems Two Year Warranty

The Contractor warrants and guarantees for a one year period that all Work, materials and equipment (and for a two year period that all HVAC work) conform to the Contract Documents and will not fail or manifest defects, that the Project and all its components will be fit for their intended functions, and that all material and equipment will be new and of good quality.

The general one year warranty period (or two year warranty period for HVAC work) shall commence when the Certificate of Substantial Completion is issued, and the one year period (or two year period for HVAC work) shall commence on that date for all components of the Project, including any equipment activated and operated before Substantial Completion, such as HVAC systems, electrical systems and elevators.

During the one year warranty period (or two year warranty period for HVAC work), the Contractor shall repair and remedy at its own expense any premature failure, defects or deficiencies in any Work, materials or equipment that are discovered or that develop during the one year period (or two year period for HVAC work), and shall do so within 5 days after receipt of a written warranty claim from the College. The Contractor shall also repair damages caused by any failure or defect covered by this warranty. A failure to provide the warranty service required shall constitute a breach of this warranty obligation as well as other applicable provisions of the Contract. This warranty shall not cover failures caused solely by substantial misuse or abuse by the College.

This general one year warranty (or two year warranty for HVAC work) is intended to provide the College with prompt warranty service for all aspects of the Project for the one year period (or two year period for HVAC work). It is not intended to limit or extinguish any additional warranties required by any of the Contract Documents, or provided by manufacturers of systems, equipment or materials provided under the Contract. It is not intended to eliminate or reduce the College's rights and remedies under the Contract Documents and law for defects and deficiencies in the Work, materials and equipment, or the time period of the Contractor's general responsibility and liability.

14.2 Defective Work, Materials And Equipment.

Apart from the general one year warranty (or two year warranty for HVAC work) provided for in this Article, the Contractor shall be responsible for defective Work, materials and equipment and any failure of these items to comply with the Contract Documents. This obligation shall extend beyond Substantial Completion, Final Completion and the general one year warranty (or two year warranty for HVAC work) in this Article.

If defects in the Work, materials or equipment or non-conforming items are discovered during construction and before Final Completion, the Contractor shall promptly correct them at its own expense. If the Contractor fails to correct defective or non-conforming Work, material or equipment in response to a written notice from the College, either during construction or after Final Completion, the College may employ others to provide the remedial work and the Contractor and its surety shall be liable for the cost thereof and damages incurred by the College. The Contractor and its surety shall also be liable for the cost of making good all Work and material destroyed or damaged by defects or the correction of defects.

If any portion of the Contractor's Contract Price remains in the custody of the College, either earned or unearned, the College may deduct money paid to others to remedy defects after notice is sent to the Contractor and damages incurred by the College when the Contractor fails to provide a remedy in response. The Contractor's responsibility for defects and non-conforming Work, material and equipment shall not be limited in time except by applicable law.

The Contractor's responsibility for defective Work shall not be affected by either the performance or the lack of performance of inspections by the College or the Architect. The issuance of payments, a Certificate of Substantial Completion or a Certificate of Final Completion shall not constitute acceptance of Work, material or equipment that is deficient or not in compliance with the Contract, or limit the Contractor's warranty or the other Contract obligations.

ARTICLE 15

INDEMNIFICATION/LIABILITY TO THIRD PARTIES.

15.1 The Contractor's Indemnification Obligation.

To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the College, the State of New Jersey, the New Jersey Educational Facilities Authority, Trenton State College Corporation, and any other persons or entities designated by the College, and the officers, directors, principals, attorneys, agents, servants, and employees of any of them (collectively the "Indemnified Parties") from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from: (1) performance of the Work, whether such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including loss of use resulting therefrom caused in whole or in part by the negligent or willful acts or omissions of the Contractor, 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 or (2) any one or more of the items set forth in

this Article. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Article.

In claims against any person or entity indemnified under this Article by an employee of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Article shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts, nor shall the same be limited by the types or limits of insurance carried or to be carried by the Contractor or any Subcontractor pursuant to the Contract Documents or otherwise.

The indemnity, defense, and hold harmless obligation set forth in this Article shall be supplemented by the following:

- (a) any claims or liens of Subcontractors, except to the extent that the non-payment upon which the claim or lien is predicated resulted solely from the College's wrongful failure to pay the Contractor sums due under the Contract;
- (b) any fines, penalties, liquidated damages, assessments or other executions imposed by any governmental authority having jurisdiction over the Project by reason of the Contractor's failure to comply with any requirement of the Contract;
- (c) any losses, damages, or expenses incurred by reason of the Contractor's failure to obtain and maintain in force or cause to be obtained and maintained, the insurance required by the terms of the Contract;
- (d) any losses, damages, or expenses incurred by reason of any failure (whether or not specifically identified herein) by the Contractor to perform its obligations under the Contract Documents or any breach of the Contract;
- (e) any claims, damages, or expenses incurred by reason of the Contractor's infringement or alleged infringement of any patent, copyright, or other intellectual property or similar rights; and
- (f) any claims, damages, liquidated damages, penalties, or fines assessed against the College, directly or indirectly, solely or partially by reason of the Contractor's failure to comply with any applicable laws, codes, statutes, or regulations.

If any judgment is rendered against the Indemnified Parties for which indemnification is required under this Article, the Contractor shall satisfy and discharge it. The Contractor shall reimburse the College for reasonable attorney fees, costs and expenses incurred by the Indemnified Parties in the defense of such suit or claim.

The College shall give written notice to the Contractor of claims and suits for which indemnification may be claimed pursuant to this Article.

The foregoing obligations shall survive the completion of the Work and final payment to the Contractor (or the sooner termination of the Contract) with respect to all matters accrued during the term of the Contract and such obligations shall not be construed to negate, abridge or reduce any other rights, obligations or indemnity which would otherwise exist as to a party or person indemnified by this Article.

15.2 The Subcontractor's Indemnification Obligation.

The Contractor shall cause the indemnification obligations set forth in this Article to be included in all contracts with its Subcontractors.

ARTICLE 16 **INSURANCE AND BONDS.**

16.1 The Contractor's Insurance.

The Contractor shall purchase from, and maintain with a company or companies lawfully authorized to do business in the State of New Jersey, insurance for protection from claims under workers' compensation and other employee benefit acts which are applicable, claims for damages because of bodily injury, including death, and claims for damages, including the Work itself, to property which may arise out of or result from the Contractor's operations and completed operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or anyone directly or indirectly employed by any of them, until at least 1 year after the Final Completion and acceptance of the Project. This insurance shall be written for not less than the limits set forth below or as required by law, whichever coverage is greater, and shall include contractual liability insurance applicable to the Contractor's obligations under Article 15 (Indemnification). The Contractor expressly agrees that any insurance protection required by the Contract Documents shall in no way limit the Contractor's obligations under the Contract, and shall not be construed to relieve the Contractor from liability in excess of such coverage. Nor shall it preclude the College from taking such actions as are available to it under any other provisions of the Contract for Construction, these General Conditions or the law.

16.1.1 Types and Minimum Amounts of Insurance:

- (a) **Commercial General Liability Insurance (CGL).** Commercial General Liability insurance ISO 1088 or later occurrence form of insurance including contractual liability with limits of at least _____ dollars (\$ _____) combined single limit for bodily injury and property damage liability for each occurrence. The CGL policy shall also include products/completed operations with limits of at least (\$ _____) per occurrence. This insurance shall be maintained for at least 1 year after the Final Completion of the Project.
- (b) **Automobile Liability Insurance.** Comprehensive Automobile Liability insurance covering owned, non-owned, and hired vehicles. The limits of liability shall not be less than _____ dollars (\$ _____) combined single limit for bodily injury and property damage for each occurrence.

- (c) **Workers Compensation/ Employer's Liability.** Worker's Compensation Insurance applicable to the laws of the State of New Jersey and other State or Federal jurisdictions required to protect the employees of the Contractor and any Subcontractor, sub-subcontractor or supplier who will be engaged in the performance of the Contract. The certificate must so indicate that no proprietor, partner, executive officer or member is excluded. This insurance shall include Employers' Liability Protection with a limit of liability not less than one million dollars (\$1,000,000) bodily injury, each occurrence, one million dollars (\$1,000,000) disease, each employer, and one million dollars (\$1,000,000) disease, aggregate limit.

All required insurance coverages must be written by insurance companies acceptable to the College. All insurance companies must have a minimum A.M. Best's financial strength rating of A- or better, or an equivalent rating from another respected rating agency, and an A.M. Best's size rating of VII or greater.

16.1.2 Additional Insureds. All insurance required herein, except Worker's Compensation, shall name The College of New Jersey, the State of New Jersey, the New Jersey Educational Facilities Authority, Trenton State College Corporation and any other persons or entities designated by the College as additional insureds.

16.1.3 Cancellation. The certificates of insurance shall provide for 30 days written notice to the College before any cancellation, expiration or non-renewal during the term the insurance is required by the Contract.

16.1.4 Evidence of Insurance. The Contractor shall when the Contract for Construction is signed and before beginning the Work required under the Contract, provide the College with valid certificates of insurance signed by an insurance provider or authorized agent or underwriter to evidence the Contractor's insurance coverage as required in this Article, and also copies of the policies themselves. The certificates of insurance shall specify that the insurance provided is of the types and in the amounts required in this Article, and that the policies cannot be canceled except after 30 days written notice to the College. The Contractor shall also be required to provide the College with valid certificates of renewal when policies expire. The Contractor shall also, when requested, provide the College with additional copies of each policy and all endorsements required under the Contract, which are certified by an agent or underwriter to be true copies of the policies and endorsements issued to the Contractor.

16.1.5 Remedies for Lack of Insurance. If the Contractor fails to renew any of its required insurance policies, or any policy is canceled, terminated or modified, the College may refuse to pay monies due under the Contract. The College, in its sole discretion and for its sole benefit, may use monies retained under this Article to attempt to renew the Contractor's insurance or obtain substitute coverage if possible for the College's sole benefit, and may invoke other applicable remedies under the Contract for Construction and these General Conditions including claims against the Contractor and its surety. During any period when the required insurance is not in effect, the College may also, in its sole discretion, either suspend the Work under the Contract or terminate the Contract.

16.2 The Subcontractor's Insurance.

The Contractor shall ensure that its Subcontractors purchase and maintain insurance on the same terms and with coverages customary for each trade as required by the Contractor under the Contract. The Contractor shall contractually obligate its Subcontractors to indemnify, defend, and hold harmless the College upon the same terms and conditions that the Contractor is required to do so as provided in Article 15 of these General Conditions (Indemnification).

16.3 Payment And Performance Bond.

The Contractor is required to furnish the College with a payment bond and a performance bond from an approved surety as described in this Article and in the bid documents. The bonds shall conform to N.J.S.A. 2A:44-147. The Contract will not become effective until these bonds are provided to and approved in writing by the College. The bonds must also be accompanied by the surety disclosure statement and certification required by N.J.S.A. 18A:64-68.

ARTICLE 17 **DISPUTE RESOLUTION.**

17.1 Mediation.

If a dispute or claim arises out of or relates to the Contract, or the breach thereof, and if the dispute cannot be settled through negotiation, the dispute or claim may, at the College's sole option, be subject to mediation administered by the American Arbitration Association under its Construction Industry Mediation Rules as a condition precedent to binding dispute resolution. The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in Mercer County, New Jersey, at the offices of the College's attorneys, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable in any court having jurisdiction thereof.

17.2 Method Of Binding Dispute Resolution.

For any dispute or claim, not resolved by mediation pursuant to this Article, the method of binding dispute resolution shall be litigation in the state or district courts of the State of New Jersey, unless the College, in its sole discretion, decides to submit the dispute or claim to arbitration pursuant to this Article.

17.3 Arbitration (If The College Elects To Arbitrate).

If the College decides, in its sole discretion, to submit a dispute or claim to arbitration rather than litigation as provided above, the arbitration shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Contract unless the parties mutually agree otherwise. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The arbitrator shall be a New Jersey licensed attorney with at least twenty (20) years' experience practicing in construction law. In the event that the parties mutually agree to use a panel of three arbitrators, then the construction attorney will be the

presiding arbitrator, one of the arbitrators will be a registered architect and the other will be a contractor, all of whom shall be neutral and independent. This Article shall not preclude the College or Contractor from instituting legal action to discharge an invalid construction lien. The arbitration hearing shall be held in Mercer County, New Jersey, at the offices of the College's attorneys, unless another location is mutually agreed upon.

A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the claim, dispute or other matter in question would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the claim, dispute or other matter in question.

The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by the parties to the Contract shall be specifically enforceable in accordance with applicable law in any court having jurisdiction thereof.

The award rendered by the arbitrator(s) shall be a reasoned award and shall include a statement of findings of fact and conclusions of law and shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

17.4 Consolidation Or Joinder.

The College, in its sole discretion, may consolidate an arbitration conducted under the Contract with any other arbitration to which it is a party provided that (i) the arbitration agreement governing the other arbitration permits consolidation, (ii) the arbitrations to be consolidated substantially involve common questions of law or fact, and (iii) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

The College, in its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

The College, in its sole discretion, may grant to any person or entity made a party to an arbitration conducted under this Article, whether by joinder or consolidation, the same rights of joinder and consolidation as the College under the Contract.

17.5 Work During Pendency Of Dispute.

Unless otherwise instructed by the College, the Contractor shall carry on its Work during the pendency of any dispute hereunder, and the College shall continue making payments to the Contractor of undisputed amounts.

17.6 Prompt Payment Claims.

Notwithstanding the foregoing, disputes regarding only whether a party has failed to make payments required pursuant to New Jersey's Prompt Payment Act may be submitted to alternative dispute resolution as provided in N.J.S.A. 2A:30a-2(f). In such event, the College and the Contractor shall share equally the fees and expenses of the selected mediator. Provided, however, that nothing herein shall be construed, in whole or in part, as a waiver, release or modification of the provisions of the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1, et seq., as it governs claims against the College.

17.7 The Contractor's Claims: Procedures And Limitations.

Claims by the Contractor against the College shall be subject to the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1, et seq., including the notice and time for suit provisions. For the purpose of determining the time within which the Contractor must file suit under the New Jersey Contractual Liability Act, "completion of the contract" shall be deemed to have occurred upon achievement of Substantial Completion as defined in these General Conditions.

The Contractor also agrees that it shall not be entitled to assert claims against the College for any compensation beyond that provided for in the Contract by reason of the acts or omissions of any third parties, including but not limited to the Architect and any other contractor on the Project. The Contractor may not assert claims for extra costs for home offices expenses, home office overhead, lost profits or revenue, or consequential damages as that term is defined in law. All claims shall also be subject to all other pertinent provisions of the Contract for Construction and the Contract Documents including these General Conditions. The Contractor also agrees that it may not assert any claims for extra costs or damages unless it maintains all the records of its estimated and actual costs as required by the Contract for Construction and these General Conditions.

17.8 Dispute Resolution Process In The Contractor's Subcontracts.

The Contractor shall include this dispute resolution process in all of its contracts with any Subcontractors or suppliers on this Project.

ARTICLE 18 **MISCELLANEOUS.**

18.1 Prevailing Wage.

The Contractor and its Subcontractors shall comply with the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 through 56.57. Workers employed by the Contractor or any Subcontractor or sub-subcontractor in the performance of services directly on the Project must be paid prevailing wages. As required by N.J.S.A. 34:11-56.27 and 56.28, the Contract cannot become effective until the College obtains from the New Jersey Department of Labor a determination of the prevailing wage rates applicable to the Project as of the Contract award date and attaches a copy to the Contract. As required by N.J.S.A. 34:11-56.27, the Contractor or any

Subcontractor may be terminated if any covered worker is not paid prevailing wages on the Project, and the Contractor and its surety shall be liable for any additional costs which result. The Contractor and its Subcontractors must be registered with the New Jersey Department of Labor (N.J.S.A. 34:11-56.51 et seq.), and the prevailing wage rates must be posted at the job site (N.J.S.A. 34:11-56.32). The Contractor and its Subcontractors must prepare accurate certified records of wages paid for each worker on the Project (N.J.S.A. 34:11-56.29), and copies for the period covered by each invoice must be attached to the invoice submitted under the Contract. In accordance with N.J.S.A. 34:11-56.33, the Contractor's final invoice must include a statement of all amounts still then due to workers on the Project. The Contractor is also cautioned that it must use job titles and worker classifications consistent with those approved by the Department of Labor, and that, if it intends to pay apprentice rates, it must comply with the Department of Labor's regulations at N.J.A.C. 12:60-7.1 through 7.4.

If the State's Prevailing Wage Act is amended, or the language stated herein is inconsistent with the language contained in the State's Prevailing Wage Act, the language of the State's Prevailing Wage Act shall control.

18.2 Employment Discrimination.

The Contractor and any Subcontractors employed by it shall comply with N.J.S.A. 10:2-1 through 10:2-4 and N.J.S.A. 10:5-1 et seq., including N.J.S.A. 10:5-31 through 10:5-35, which prohibit discrimination in employment in public contracts. The statute and the rules and regulations promulgated thereunder shall be considered to be part of the Contract and binding upon the Contractor and its Subcontractors. If the College is notified of any violation of the public contract awarding regulations in accordance with N.J.A.C. 17:27-7.4 concerning the financing of minority and women outreach and training programs, the College reserves the rights to deduct the outreach and training allocation from the Contract. During the performance of the Contract, the Contractor agrees that:

- (a) In the hiring of persons for the performance of Work under the 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 the Contract, neither the Contractor, its Subcontractors nor any person acting on behalf of the Contractor or any of its Subcontractors, shall, by reason of race, creed, religion, color, national origin, nationality, ancestry, age, sex (including pregnancy), familial status, marital status, domestic partnership or civil union status, affectional or sexual orientation, gender identity or expression, atypical hereditary cellular or blood trait, genetic information, liability for military service, and mental or physical disability, perceived disability, and AIDS and HIV status, discriminate against any person who is qualified and available to perform the Work to which the employment relates;
- (b) Neither the Contractor, its Subcontractors, nor any person acting on behalf of the Contractor or any of its Subcontractors shall, in any manner, discriminate against or intimidate any employee engaged in the performance of Work under the 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, religion, color, national origin, nationality, ancestry, age, sex (including pregnancy), familial status, marital status, domestic partnership or civil union status, affectional or sexual orientation, gender identity or expression, atypical hereditary cellular or blood trait, genetic information, liability for military service, and mental or physical disability, perceived disability, and AIDS and HIV status;

- (c) There may be deducted from the amount payable to the Contractor by the College, under the 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) The Contract may be canceled or terminated by the College, and all money due or to become due hereunder may be forfeited, for any violation of this Article of the Contract occurring after notice to the Contractor from the College of any prior violation of this Article of the Contract. The Contractor and its Subcontractors shall comply with all laws prohibiting discrimination against employees, and shall comply with the provision in the Contract regarding employment discrimination.

If the State's Law Against Discrimination is amended, or the language stated herein is inconsistent with the language contained in the State's Law Against Discrimination, the language of the State's Law Against Discrimination shall control.

18.3 Patents.

If any design, device, material or process covered by patents or copyright is used in the Work, the Contractor shall provide for such use by a suitable agreement with the patent or copyright owner. The Contractor shall bear all costs arising from the use of patented materials, equipment, or processes and all copyrighted materials used on or incorporated in the Work. The Contractor shall defend, indemnify and hold harmless the College and its representatives from any and all claims for infringement by reason of the use of any such patented or copyrighted items.

18.4 The Contractor's Compliance With Law.

The Contractor shall keep fully informed of all federal, state and local laws, ordinances, regulations and orders of agencies that have jurisdiction or authority that in any manner affect those employed on the Project or the Project. The Contractor shall at all times observe and comply with, and cause its agents and employees to observe and comply with, all such laws, ordinances, regulations, and/or orders. The Contractor shall also protect and indemnify, defend and hold harmless the College and its representatives against any claim or liability arising from the violation of any laws, ordinances, regulations, or orders, whether by the Contractor or its employees, agents, Subcontractors at any tier, suppliers or materialmen.

18.5 Environmental Protection – The Contractor’s Duty To Comply With Applicable Law.

The Contractor shall comply with all applicable federal, state and local laws and regulations and all conditions of permits pertaining to the protection of the environment. Necessary precautions shall be taken to prevent pollution of streams, lakes, ponds, rivers, wetlands, groundwater, reservoirs, and property by chemicals, fuels, oils, bitumens, or other harmful or hazardous materials as defined by law. The Contractor also shall not pollute the atmosphere from particulate or gaseous matter in violation of applicable law.

18.6 No Personal Liability Of College Officials.

In carrying out any of the provisions of the Contract, or in exercising any right or authority granted to them by or in connection with the Contract, there shall be no liability upon any trustee, officer or employee of the College, either personally or as officials of the College, it being agreed that in all such functions they act only as agents and representatives of the College.

18.7 Recovery Of Monies By The College From Other Contracts With The Contractor.

When the Contract Documents authorize the College to withhold or deduct money from any monies due to the Contractor, or require the Contractor to pay or return monies for any reason, the College may in its discretion withhold any monies due the Contractor under any other contracts between the Contractor and the College. This right shall not affect the rights of the College against the Contractor or its surety under the Contract, and the College shall not be obliged to exercise this right as to any other contract as a condition of exercising its rights against the Contractor or surety under the Contract.

18.8 Buy American Requirement.

The Contractor shall comply with N.J.S.A. 52:32-1 and N.J.S.A. 52:33-1 et seq., which prohibit the use by the Contractor or Subcontractors of materials or farm products produced and manufactured outside of the United States on any public Work. Notwithstanding any inconsistent provision of any law, and unless the head of the department, or other public officer charged with the duty by law, shall determine it to be inconsistent with the public interest, or the cost to be unreasonable, only domestic materials shall be acquired or used for any public work. This Article shall not apply with respect to domestic materials to be used for any public work, if domestic materials of the class or kind to be used are not mined, produced or manufactured, as the case may be, in the United States in commercial quantities and of a satisfactory quality. If the State’s “Buy American” laws are amended, or the language stated herein is inconsistent with the language contained in the State’s “Buy American” laws, the language of the State’s “Buy American” laws shall control.

18.9 Compliance With Grant Requirements. The Contractor acknowledges and agrees that if the College receives any grant monies in connection with the Project, the Contractor and its Subcontractors shall comply with all requirements associated with such grant or set forth in such grant agreement.

18.10 Modification Of Contract.

No modification or amendment of the Contract shall be effective unless it is in writing and signed by both the College and the Contractor.

18.11 State Sales Tax Exemption.

Materials, supplies or services for exclusive use in constructing the Project are exempt from the State Sales Tax Act. Rentals of equipment are not exempt from any tax under the State Sales Tax Act.

18.12 Successors and Assigns.

The College and the Contractor respectively bind themselves, their successors and assigns, to the other party hereto and to the successors and assigns of such other party in respect to covenants, agreements and obligations contained in the Contract Documents.

The Contractor shall not assign the Contract, nor shall the Contractor transfer or assign any Contract funds, due or to become due, or claims of any nature it has against the College without the prior written approval of the College. The College in its sole discretion and considering primarily the interests of the College may elect either to grant or to deny such approval. If the Contractor attempts to make such an assignment without the College's prior written approval, the Contractor shall nevertheless remain legally responsible for all obligations under the Contract.

The College shall be entitled to assign its rights hereunder to one or more lenders as collateral for loans which the College may obtain to finance construction of the Project and to a party who presently has or later acquires a legal interest in the premises. The Contractor agrees to execute such certificates, documents and instruments as are reasonably requested by the College, including, without limitation, certificates, documents and instruments that evidence the Contractor's consent to an assignment of the Contract or confirm the absence or existence of a default on the part of the College hereunder.

18.13 Construction Liens.

If any Subcontractor or other person working under the Contractor files a construction lien or claim or notice of intention or right to file a lien for or on account of Work, labor, services, materials, equipment or other items furnished under or in connection with the Contract for which the College has paid the Contractor, the Contractor agrees to discharge or remove such lien, claim or notice at its own expense by bond, payment or otherwise within twenty (20) calendar days from the date of the filing thereof, and upon its failure to do so, the College shall have the right to cause any such lien or claim, notice of intention or stop notice to be removed or discharged by whatever means the College chooses, at the sole cost and expense of the

Contractor (such costs and expenses to include legal fees and disbursements). The Contractor agrees to indemnify, defend and hold harmless the College and its representatives from and against any and all such liens, claims or other filings, and actions brought or judgments rendered thereon, and from and against any and all losses, damages, liabilities, costs and expenses, including legal fees and disbursements, which the College may sustain in connection therewith. Further, if any Subcontractor or other person working under the Contractor files a construction lien or claim or notice of intention or right to file a lien for or on account of Work, labor, services, materials, equipment or other items furnished under or in connection with the Contract for which the College has paid the Contractor, the College may, in the College's sole discretion, pay all wages, damages, recoveries, costs and expenses and reasonable counsel fees arising therefrom and deduct the same from any monies due or to become due to the Contractor.

18.14 Independent Contractor Status.

The relationship of the Contractor to the College is that of an independent contractor. The Contractor agrees that it shall conduct itself consistent with such status, and shall not hold itself out as or claim to be a trustee, officer, employee or agent of the College. The Contractor shall not make any claim or demand for any right or privilege applicable to officers or employees of the College, including but not limited to, workers compensation, unemployment insurance benefits, social security coverage, or retirement benefits.

18.15 Third Party Beneficiary Rights Not Intended.

It is specifically agreed between the College and the Contractor that no provisions of the Contract Documents are intended to make the public or any member thereof a third party beneficiary of the Contract, or to authorize anyone not a party to the Contract to maintain a suit for personal injuries, property damage or other claims under the Contract. It is also the intent of the College and the Contractor that no individual or firm that supplies materials, labor, services, or equipment to the Contractor for the performance of the Work shall be a third party beneficiary of the Contract.

18.16 Gifts To College Employees And Agents Prohibited.

The Contractor shall not give any gifts of any nature, nor any gratuity in any form, nor loan any money or anything of value to any College employee or relative thereof, or any agent of the College. The Contractor shall not rent or purchase any equipment or supplies of any kind from any College employee or relative thereof or any agent of the College.

18.17 Compliance With Procurement Statutes.

The Contractor warrants and represents that the Contract has not been solicited or secured, directly or indirectly, in a manner contrary to the law of New Jersey, and in particular the provisions of N.J.S.A. 18A:64-6.1, 6.2 and 6.3, and that the Contractor has not and shall not violate the law of New Jersey relating to the procurement of or the performance of the Contract by any conduct, including the paying of any gratuity of any kind, directly or indirectly, to any College trustee, employee or officer. Any violation of this Article shall be cause for the College to terminate the Contract, to retain all unpaid and/or unearned monies, and to recover all monies paid. The Contractor shall notify the College in writing of any interest which any trustee, officer,

employee or consultant of the College has in, or association with the Contractor, any other contractor, any Subcontractor, material supplier, consultant, or manufacturer, or other party which has any interest in the Project.

18.18 Conflict Of Interest.

The Contractor shall not pay, offer to pay, or agree to pay, either directly or indirectly, any fee, commission, compensation, gift, gratuity, or other thing of value of any kind to any State officer or employee or special State officer or employee, as defined by N.J.S.A. 52:13D-13b. and e., in the Department of the Treasury or any other agency with which the Contractor transacts or offers or proposes to transact business, or to any member of the immediate family, as defined by N.J.S.A. 52:13D-13i., of any such officer or employee, or any partnership, firm, or corporation with which they are employed or associated, or in which such officer or employee has an interest within the meaning of N.J.S.A. 52:13D-13g.

The solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by any State officer or employee or special State officer or employee from any State vendor shall be reported in writing forthwith by the Contractor to the Attorney General and the Executive Commission on Ethical Standards.

The Contractor may not, directly or indirectly, undertake any private business, commercial or entrepreneurial relationship with, whether or not pursuant to employment, contract or other agreement, express or implied, or sell any interest in the Contractor to, any State officer or employee or special State officer or employee having any duties or responsibilities in connection with the purchase, acquisition or sale of any property or services by or to any State agency or any instrumentality thereof, or with any person, firm or entity with which he is employed or associated or in which he has an interest within the meaning of N.J.S.A. 52:13D-13g. Any relationships subject to this Article shall be reported in writing forthwith to the Executive Commission on Ethical Standards, which may grant a waiver of this restriction upon application of the State officer or employee or special State officer or employee upon a finding that the present or proposed relationship does not present the potential, actuality or appearance of a conflict of interest.

The Contractor shall not influence, or attempt to influence or cause to be influenced, any State officer or employee or special State officer or employee in his official capacity in any manner which might tend to impair the objectivity or independence of judgment of said officer or employee.

The Contractor shall not cause or influence, or attempt to cause or influence, any State officer or employee or special State officer or employee to use, or attempt to use, his official position to secure unwarranted privileges or advantages for the Contractor or any other person.

The provisions cited above shall not be construed to prohibit a State officer or employee or special State officer or employee from receiving gifts from or contracting with the Contractor under the same terms and conditions as are offered or made available to members of the general public subject to any guidelines the Executive Commission on Ethical Standards may promulgate.

The Contractor shall require its Subcontractors and suppliers to comply with the requirements of this Article.

18.19 Confidential Information.

The Contractor shall maintain the confidentiality of information specifically designated as confidential by the College, unless withholding such information would violate applicable law. The Contractor shall require its Subcontractors to maintain the confidentiality of information specifically designated as confidential by the College.

18.20 Publicity.

Publicity and/or public announcements pertaining to the Project must be approved in writing by the College prior to release.