Roscoe West Hall '68 2nd Floor Ceiling Replacement

TCNJ Advertised Bid # AB230004

COVER SHEET

INVITATION TO BID

MILESTONE SCHEDULE

CONSTRUCTION BID PROPOSAL FORM

GENERAL WORK DESCRIPTION

CONTRACT

MANDATORY DOCUMENTS

GENERAL CONDITIONS

October 3, 2022

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 **October 3, 2022 in the Trentonian.** Contact person regarding placement of ad is Lauren Manning (609) 771-2894.

THE COLLEGE OF NEW JERSEY
ADVERTISEMENT FOR BIDS
BID #AB230004

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 '68 2nd Floor Ceiling Replacement project until **2:00 P.M. on the 21st day of October, 2022** 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 **October 3, 2022 via our website (https://bids.tcnj.edu/home/construction-projects/).**

Bidders are encouraged to attend the **pre-bid conference/on-site inspection on October 7, 2022** at 10:00 a.m. at the College's Gitenstein Library, Room 123.

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 or C009 classification. No other bids will be accepted without this classification.

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.

ROSCOE WEST HALL '68
SECOND FLOOR CEILING REPLACEMENT
TCNJ PROJECT #: WE211

MILESTONE SCHEDULE
October 2022

Request for Proposals Released	Oct. 3, 2022
Pre-bid Meeting (10:00 AM @ Gitenstein Library, Room 123)	Oct. 7, 2022
Cut off for questions	Oct. 11, 2022
Addendum issued if needed	Oct. 13, 2022
Bids Received	Oct. 21, 2022
Notice of Intent to Award issued	Oct. 24, 2022
Notice to Proceed issued by	Oct. 27, 2022
Preconstruction and Submittals	Nov. 3, 2022
Construction Begins in Field	Dec. 12, 2022
Substantial Completion with Punch List issued by	Jan. 20, 2023
Punch List Completion (Concurrent with A/V Installation)	Jan. 27, 2023
Contract Closed by	Feb. 25, 2023

Bid # AB230004

For: Roscoe West Hall '68 2nd Floor Ceiling Replacement

Event	Date	Time
Pre-bid Conference and Site Visit at The College of New Jersey's Gitenstein Library, Room 123	10/7/2022	10:00 AM
Question Cut Off Date (Refer to Bid Section # 2 for more information.)	10/11/2022	4:00 PM
Addendum Date (Refer to Bid Section # 2 for more information.)	10/13/2022	11:00 AM
Bid Submission Due Date (Refer to Bid Section # 3 for more information.)	10/21/2022	2:00 PM

Dates are subject to change. All times contained in the Bid refer to Eastern Time.
All changes will be reflected in Addendum to the Bid posted on the College's website.

Bid Issued By:

The College of New Jersey
Office of Finance & Business Services
Purchasing Department
Administrative Services Building, Room 201
2000 Pennington Road
Ewing, NJ 08628
Phone: (609) 771-2894
https://bids.tcnj.edu/home/construction-projects/
Assigned Purchasing Contact: Lauren Manning
E-mail: manningl@tcnj.edu

Date Issued: 10/3/2022
Fiscal Year: 2023

Required Procurement Documents & Bidder's Checklist

This bid proposal MUST be received by The College of New Jersey, Purchasing Department before or at 2:00 p.m. on Friday, October 21, 2022 at which time responses will be publicly opened and read. Any proposal arriving at the Purchasing Department after the submission due date and time will not be accepted.

The following Bidder's Checklist **is provided as an aid to the bidder. It does not in any way relieve the** b**idder of its responsibility to ensure that its bid proposal is complete. It is the bidder's responsibility to ensure documents are submitted and that all requirements of the bid solicitation have been met.**

Procurement Documentation & Bidder's Checklist		
FORMS, REGISTRATIONS, AND CERTIFICATIONS THAT MUST BE SUBMITTED BY THE BIDDER AT THE TIME OF SUBMISSION. FAILURE TO INCLUDE THE BELOW REQUESTED DOCUMENTATION MAY RESULT IN REJECTION OF BIDDER'S SUBMISSION.		
Required		**Vendor's Initials next to each item submitted with proposal**
X	Bidder Information	
X	General Agreement including Acknowledgement of Receipt of Addendum (if any issued)	
X	Cost Sheet	
X	Subcontractor Information Page	
X	Small Business, Minority and/or Female-owned Business Reporting	
X	Acknowledgement of Mandatory Equal Employment Opportunity Language for Construction Contracts (NJAC 17:27-1.1 et seq. - P.L. 1975 C.127)	
X	Completed Statement of Ownership Disclosure (N.J.S.A. 52:25-24.2)	
X	Completed Non-Collusion Affidavit	
X	Completed Disclosure of Investment Activities in Iran (N.J.S.A. 52:32-58)	
X	Completed Vendor Qualification Sheet	
	Enclosed Certified Check or Bid Bond for ten percent (10%) of the amount of the bid	
X	Copy of Public Works Contractor Registration Certificate for the bidder and disclosed subcontractors (A completed copy of your Certification is not required at time of bid; however, the certificate must be valid at the time of bid.)	
X	Copy of Electrical and HVACR licenses and any other licenses, certifications, and qualifications.	
X	Copy of DPMC Notice of Classification and Total Amount of Uncompleted Contracts	
	Copy of latest Experience Modification Rating (EMR Safety Rating). The College requires an average rating over the last 5 years of 1.25 or less.	
FORMS, REGISTRATIONS, AND CERTIFICATIONS THAT MUST BE SUBMITTED BY THE BIDDER PRIOR TO AWARD.		
X	Completed Two-year Chapter 51/Executive Order 117 Vendor Certification and Disclosure of Political Contributions	
X	Proof of Affirmative Action Compliance (Initial Project Workforce Report, AA-201)	
X	New Jersey Business Registration Certificate (N.J.S.A. 52:32-44)	
X	Taxpayer Identification Request (W-9 Form)	
X	Certificate of Insurance	

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: AB230004
Bid Due Date: October 21, 2022

Project Name: Roscoe West Hall '68 2nd Floor Ceiling Replacement

BIDDER INFORMATION

Firm Name:

Contact Person:
Address:

Telephone Number:

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 on the Cost Sheet.
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:

A. Demolition and removal of all existing ceiling grid, tiles, light fixtures, and HVAC diffusers. Installation of new 2'x2' ceiling grid, ceiling tiles, LED lighting fixtures, and HVAC supply and return vents.

B. See Specifications and Drawings for Details (included in Bid package).

C. 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".

1. Prevailing wage rates apply (Mercer County).
2. Bid is to remain good for sixty (60) days after the Bid Due Date.

2. 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 manningl@tcnj.edu** and must be received **prior to 4:00 p.m. October 11, 2022.**

B. Should any questions be received, a notice will be placed in the newspaper and the addendum or clarification will be available on **October 13, 2022 on the College's website at https://bids.tcnj.edu/. 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.**

3. 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 (**Bid Number and Project Name**)".

B. Bidder mails or deliver by hand the sealed bid, no later than **2:00 p.m., October 21, 2022**, to The College of New Jersey, Attention: Lauren Manning for (specify the Bid Number), Office of Finance & Business Services, Room 201, 2000 Pennington Road, Ewing, New Jersey 08628-0718. **At 2:00 p.m., all bids will be publicly opened and read in Room 203 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.

4. BOND REQUIREMENTS AND SURETY STANDARDS – NOT APPLICABLE

5. 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 electrical contractor or subcontractor as applicable shall have a valid electrical license. (An electrical license is not required when the work is below 110Volt)
2. 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.

C. Bidders are required to be registered with the New Jersey Department of Property Management and Construction (DPMC) and possess a DPMC C008 or C009 classification at the time of bid submission.

6. 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.

7. CERTIFICATE OF INSURANCE

A. The bidder is required to submit proof of liability insurance in accordance with The College's contract.

8. 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.

9. 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.

10. BID COMPLIANCE

A. 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

B. 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.

C. Bids shall include all costs of any nature necessary to complete the project in the manner and within the time required by the contract.

D. The College reserves the right to require bidders to provide a schedule of values of their lump sum bid price upon request.

E. 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.

F. Before submitting a 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.

G. 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.

H. It is understood and agreed that all prices quoted are firm and not subject to any increase during the life of the contract.

I. 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.

J. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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.

17. APPLICABLE LAWS: 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.

A. 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.

B. STATEMENT OF OWNERSHIP DISCLOSURE: Pursuant to N.J.S.A. 52:25-24.2, in the event the Bidder is a corporation, partnership or limited liability company, the Bidder must disclose their ownership. Bidder completes and submits the form along with bid proposal.

C. NON-COLLUSION AFFIDAVIT: Bidder completes and submits the form along with bid proposal.

D. 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.

E. PREVAILING WAGE (N.J.S.A. 34:11-56.25 et seq.) AND PUBLIC WORKS CONTRACTOR REGISTRATION ACTS (N.J.S.A. 34:11-56.48 et seq.):

1. 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.
2. 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.
3. 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,

4. Please refer to http://lwd.dol.state.nj.us/labor/wagehour/wagerate/wage_rates.html for official wage rate determinations for Mercer County, NJ.

F. NEW JERSEY EQUAL PAY ACT:

1. 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.
2. 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.
3. 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**

G. Two-year Chapter 51/Executive Order 117 Vendor 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 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**.

H. N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1 et seq., 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.

I. New Jersey Business Registration Certificate, N.J.S.A. 52:32-44:

1. 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.

2. 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).
3. 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.
4. During the course of contract performance:
   (a) 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.
   (b) 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.
   (c) 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.
5. 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.
6. 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.

J. 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.

K. 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.

L. 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.

1. 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

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. 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.

6. Upon conclusion of the 5 business day protest period, Bidder will execute the formal contract for the stated work and compensation on the Standard Form of Agreement Between Owner and Contractor 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.

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

Respectfully submitted,

(Seal if bid is by Corporation)

_____
(Signature of Principal)

_____
(Printed Name of Principal)

_____
(Title of Principal)

COST SHEET
SINGLE BID (LUMP SUM):
BASE BID, ALTERNATE PROPOSALS, AND UNIT PRICES

To: **The College of New Jersey**

for: Construction of Roscoe West Hall '68 2nd Floor Ceiling Replacement

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)

General Construction (Single overall Prime Contract)

2. **Add /Deduct Alternate: None**

3. Check List for Bidders: A check list has been provided in these specifications for the use in completing this proposal. Bidders are encouraged to reference said list to minimize the opportunity for errors by the bidder.

B. STATEMENT:
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 and accept this offer at any time during said period by notifying the Undersigned of the acceptance of said offer.

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____

_____ _____

Print Name and 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

DEMOGRAPHIC INFORMATION

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.

_____
Bidder Name

By: _____
Signature

_____
Printed Name of Signing Individual

_____
Date

SMALL BUSINESS, MINORITY AND/OR WOMEN, VETERAN AND DISABLED VETERAN 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 and Enterprise Services as a:

_____ Small Business Enterprise, SBE
_____ Minority-owned Business Enterprise, MBE
_____ Women-owned Business Enterprise, WBE
_____ Veteran-owned Business, VOB
_____ Disabled Veteran-owned Business, DVOB

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

_____ Small Business Enterprise, SBE
_____ Minority-owned Business Enterprise, MBE
_____ Women-owned Business Enterprise, WBE
_____ Veteran-owned Business, VOB
_____ Disabled Veteran-owned Business, DVOB

C. My company is not certified by either NJ Department, but is:

_____ Small Business, SBE
_____ Minority-owned Business, MBE
_____ Women-owned Business, WBE
_____ Veteran-owned Business, VOB
_____ Disabled Veteran-owned Business, DVOB

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

_____
Bidder Name

By: _____
Signature

_____
Printed Name of Signing Individual

_____
Date

PARETTE SOMJEN ARCHITECTS

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
Joshua Thompson, AIA

Associates
Hae-An Chyun, AIA
Steven Colella, AIA
*David Didimamoff, AIA
Melissa Insinga, NCIDQ
Kenneth Mieles, AIA
C. William Ross, AIA
Rachel Tiedemann, AIA

*LEED AP

PROJECT MANUAL & SPECIFICATIONS

for the proposed:

ROSCOE HALL WEST PARTIAL CEILING REPLACEMENT

PSA COMMISSION NUMBER: 8500

for

THE COLLEGE OF NEW JERSEY

29 July 2022

439 Route 46 East
Rockaway, NJ 07866
p 973 586 2400
f 973 586 2401
www.planetpsa.com

(THIS PAGE LEFT INTENTIONALLY BLANK)

DOCUMENT 00 01 10
TABLE OF CONTENTS

PART 1 - PROCUREMENT

Section Title

DIVISION 0 – PROCUREMENT AND CONTRACTING
MISCELLANEOUS DOCUMENTS
00 01 01 Project Title Page
00 01 10 Table of Contents

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
01 32 00 Temporary Facilities
01 32 20 Photographic Documentation
01 33 00 Contract Closeout
01 34 00 Project Record Documents
01 52 40 Construction Waste Management

PART 3 - SPECIFICATIONS

DIVISION 2 – EXISTING CONDITIONS
02 41 19.13 Selective Building Demolition

DIVISION 7 – THERMAL AND MOISTURE PROTECTION
07 84 00 Fire Stopping
07 90 00 Joint Protection

DIVISION 9 – FINISHES
09 51 00 Acoustical Ceilings
09 90 00 Paints and Coatings

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
23 07 00 HVAC Insulation
23 09 93 ATC HVAC Controls
23 31 13 Metal Ducts
23 33 00 Air Duct Accessories
23 37 13 Diffusers, Registers, Grilles

END OF DOCUMENT 00 01 10

SECTION 01010
SUMMARY OF WORK

PART 1- GENERAL

1.01 RELATED DOCUMENTS

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

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The Project consists of all work noted on the drawings and in these specifications

1. Project Location: The College of New Jersey, Ewing New Jersey
2. Owner: The College of New Jersey, State of New Jersey

1.03 CONTRACTS

A. The project contract is between The College of New Jersey and the single prime contractor performing the work specified.

B. Definition of Extent of Contract Work: The contract documents, specifications, project drawings, manufacturer's installation handbooks, TCNJ form of agreement, and the contractors response to the RFP represent the extent of the construction contract.

1.04 CONTRACTORS USE OF PREMISES

A. General: During the construction period the Contractor shall have full use of the premises for construction operations, including use of the site. The contractor's use of the premises is limited only by the Owner's right to perform work, retain other contractors on portions of associated projects, or to access the building for the occupants.

1. Contractor is to coordinate their work with the activities for each work location.

B. Use of the Site: Limit use of the premises to areas required for equipment and material storage and access to the roof area. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas immediately adjacent to the building where the work is being performed.

1. Owner Occupancy: Allow for Owner occupancy and use by the public.
2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials unless previously approved by the owner. Schedule deliveries to minimize space and time requirements or storage of materials and equipment on -site.
3. Burial of Waste Materials: Disposal of organic and hazardous materials on-site either by burial or burning, will not be permitted.
3. Parking is allowed with in the construction fence only. If more parking is needed, there is additional parking provided at the colleges Carlton Avenue parking lot. The contractor is responsible to shuttle workers back and forth as needed.

C. Use of the Existing Building: Maintain any existing building in a weathertight condition

throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building, its contents, components, and systems and its occupants during the construction period.

PART 2 - PRODUCTS (Not Applicable)

PART 3- EXECUTION (Not Applicable)

END OF SECTION 01010

SECTION 01025 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SCHEDULE OF VALUES

A. Each Contractor shall prepare a schedule of values in coordination with the preparation of progress schedule. Correlate line items with other administrative schedules and forms required for the work, including progress schedule, payment request form, listing of subcontractors, schedule of allowances if any, schedule of alternates if any, listing of products and principal suppliers and fabricators, and schedule of submittals. Break down principal subcontract amounts into multiple line items for each entity of work. Round off to nearest whole dollar, but with total equal to Contract Sum. Submit 4 copies of schedule of values to the Owner and Architect for review and approval.

- **Upon Owner/Architect approval, Owner will return the Schedule of Values to the Contractor for the Contractor to submit to the bonding company for their acceptance. Payments will not be made to the Contractor until the bonding company has provided a written acceptance to the Owner.**

B. The schedule of values shall be tabulated into subcontracts and trades with the Quantity, Labor, Material, and Total Cost indicated. The Schedule of Values shall include such items as bonds, insurance, allowances and alternates, punchlist/close out documents and shall enclose copies of invoices and/or cancelled checks from bonding and insurance agents.

C. Schedule of values shall be submitted on AIA Form G703 or similar form approved by the Architect and Owner.

D. Each Contractor's monthly application for payment shall be in the same schedule form, reflecting the same items from above. Unit costs shall be realistic for their part of the Work.

1.02 CHANGES IN THE WORK

A. When a change in the Work includes a category or categories of Work both added to and deducted from the Contract, the total quantities of added Work and of deleted Work shall be determined separately for each category and the appropriate unit price or net cost of the Work shall be applied to the difference between the two total quantities.

B. Unit prices shall be inclusive of all costs and shall be applied to units of measure as defined in the Specifications for each category of Work.

C. For all extra Work performed by the Contractor, the gross cost to the Owner shall include the net cost of the Work to the Contractor plus an allowance for overhead and profit not to exceed 15% of the net cost.

D. For all extra Work performed by a Subcontractor, the gross cost to the Owner shall include the net cost of the Work to the Subcontractor plus an allowance for overhead and profit not to exceed 15% of the net cost, plus the Prime Contractor's overhead and profit not to exceed 5% of the Subcontractor's cost.

E. Net cost of extra Work shall be the actual or pro-rated cost of:

1. Labor, including foreman, at the prevailing rate of wages, contributions and taxes.

2. Materials entering permanently into the Work, including delivery to the site.

3. The ownership or rental cost of construction equipment and expendable tools, pro-rated for the time necessary for the Work.

4. Power and consumable supplies for the operation of power equipment, pro-rated for the time necessary for the Work.

5. Insurance and Bonds.

F. Gross costs shall be net costs plus the mark up allowances described above, such mark up allowances being inclusive, of all cost of superintendence, supervision, engineering, overhead, profit, administrative and site office expenses and all other general expenses.

1.03 APPLICATIONS FOR PAYMENT

A. Except as otherwise indicated, sequence of progress payments for the Contractor shall be regular, and each shall be consistent with previous applications and payments. It is recognized that certain applications involve extra requirements, including initial applications, applications at times of substantial completion, and final payment applications.

B. Payment Application Forms: Use AIA Document G702 and G703 Continuation Sheets; available from Publications Distribution Div., The American Institute of Architects, 1735 New York Ave., N.W., Washington, D.C. 20006 (also available at most local AIA chapter offices).

C. Except as otherwise indicated, complete every entry provided on the form, including notarization and execution by authorized persons. Incomplete applications will be returned by Architect and Owner without action. Entries shall match current data of schedule of values, progress schedules and reports. Listing shall include amounts of fully executed change orders issued prior to first day of the period of construction covered by application. Applications for payment shall include weekly payroll report. Contractor shall furnish to the Owner certified payroll reports for each payroll period with pay request, indicating name craft, social security number and actual hourly rate of wages paid to each workman employed on the project. A certified payroll record is defined as "a payroll record which is attested to by the employer, or corporate officer of such company, or an authorized agent of the employer." A payment request will not be paid until the Owner receives the certified payrolls.

D. Submit one "pencil" copy of each proposed payment application to the architect and owner, for review, not less than seven days prior to formal submissions of application.

E. Submit 4 executed copies of each payment application. Transmit with a transmittal form listing attachments, and recording appropriate information related to application.

F. Breakdown may include a line item for General Conditions. General Conditions shall include the cost of general supervision, trailers, temporary utilities and other general expenses directly related to the project and not considered overhead. The general conditions item shall be billed on monthly progress payments on a percentage of work completed.

1.04 INITIAL PAYMENT APPLICATION

A. The principal administrative actions and submittals which shall precede or coincide with submittal of the Contractor's first payment application can be summarized as follows, but not necessarily by way of limitation.

1. Listing of subcontractors and principal suppliers and fabricators.

2. Schedule of values.

3. Schedule of principal products.

4. Schedule of submittals (preliminary if not final).

5. Copies of acquired building permits and similar authorizations and licenses from governing authorities for current performance of the work.

6. Data needed by Owner to secure related insurance coverages.

7. Performance and Payment Bond.

8. Insurance Certificates.

1.05 PROGRESS PAYMENTS

A. Based upon application for payments submitted to the Architect and the Owner, by the Contractor, on or about the 25th day of each month for the period ending the last day of the previous second month, and Certificate of Payment issued by the Architect and the Owner, the Owner will make progress payments on account of the Contract Sum to the Contractor as follows:

1. On or after the 20th day of each month, the Contractor shall submit to the Architect and Owner a "pencil copy" indicating the previous payment and the proposed amounts for each line item for the current period. After review and approval or changes, the Contractor shall prepare the final billing for presentation to the Architect and Owner.

2. a. Whenever any contract, the total price of which exceeds $100,000, entered into by a State college, for the construction, reconstruction, alteration or repair of any building, structure, facility or other improvement to real property, requires the withholding of payment of a percentage of the amount of the contract, the contractor may agree to the withholding of payments in the manner prescribed in the contract, or may deposit with the State college registered book bonds, entry municipal bonds, State bonds or other appropriate bonds of the State of New Jersey, or negotiable bearer bonds or notes of any political subdivision of the State, the value of which is equal to the amount necessary to satisfy the amount that otherwise would be withheld pursuant to the terms of the contract. The nature and amount of the bonds or notes to be deposited shall be subject to approval by the State college. For purposes of this section, "value" shall mean par value or current market value, whichever is lower.

If the contractor agrees to the withholding of payments, the amount withheld shall be deposited, with a banking institution or savings and loan association insured by an agency of the Federal government, in an account bearing interest at the rate currently paid by such institutions or associations on time or savings deposits. The amount withheld, or the bonds or notes deposited, and any interest accruing on such bonds or notes, shall be returned to the contractor upon fulfillment of the terms of the contract relating to such withholding. Any interest accruing on cash payments withheld shall be credited to the State college.

b. Any contract, the total price of which exceeds $100,000, entered into by a State college involving the construction, reconstruction, alteration, repair or maintenance of any building, structure, facility or other improvement to real property, shall provide for partial payments to be made at least once each month as the work progresses, unless the contractor shall agree to deposit bonds with the State college pursuant to section 1.

c. 1. With respect to any contract entered into by a State college pursuant to section 2 for which the contractor shall agree to the withholding of payments pursuant to section 1, 2% of the amount due on each partial payment shall be withheld by the State college pending completion of the contract.

2. Upon acceptance of the work performed pursuant to the contract for which the contractor has agreed to the withholding of payments pursuant to subsection a. of this section, all amounts being withheld by the State college shall be released and paid in full to the contractor within 45 days of the final acceptance date agreed upon by the contractor and the State college, without further withholding of any amounts for any purpose whatsoever,

provided that the contract has been completed as indicated. If the State college requires maintenance security after acceptance of the work performed pursuant to the contract, such security shall be obtained in the form of a maintenance bond. The maintenance bond shall be no longer than two years and shall be no more than 100% of the project costs.

d. This act shall take effect immediately. This bill supplements the "State College Contracts Law," P.L.1986, c.43 (C.18A:64-52 et seq.), and applies to any State college contract for over $100,000 which involves the construction, reconstruction, alteration or repair of any building, structure, facility or other improvement to real property. Under the provisions of this bill, whenever a contract of this type requires the withholding of payment of a percentage of the amount of the contract, the contractor would have the choice of either agreeing to a retainage deduction from each monthly progress payment, or the contractor could choose to deposit bonds in the amount necessary to satisfy the amount that otherwise would be withheld under the contract. If a contractor chooses a retainage deduction from each monthly payment, then the retainage would be limited to 2% of the amount due on each partial payment. Upon acceptance of the work performed pursuant to the contract for which the contractor has agreed to a retainage deduction, all amounts being withheld by the State college must be paid in full to the contractor within 45 days of the final acceptance date agreed upon by the contractor and the State college. The bill provides that if the State college requires maintenance security after acceptance of the work performed under the contract, the security must be obtained in the form of a maintenance bond, which is required to be no longer than two years and no more than 100% of the project costs. The provisions of this bill are similar to provisions in the "Local Public Contracts Law," P.L.1971, c.198 (C.40A:11-1 et seq.) and the "Public School Contracts Law," P.L.1977, c.114 (C.18A:18A-1 47 et seq.).

3. Upon substantial completion, the retainage shall, upon the Architect/Owner's approval, remain at 2% of the value of work completed. Final release of retained monies will occur only upon the total completion of all punch list and closeout documentation to the satisfaction of the Architect and Owner.

4. For each day's delay in the Contractor's submission of an application for payment acceptable to the Architect and Owner, the Owner may delay one day in making his progress payment.

5. Owner shall make payments within 30 days of receipt of said monthly pay requisition.

1.06 APPLICATION AT TIME OF SUBSTANTIAL COMPLETION

A. Following issuance of certificate of substantial completion on each Contractor's work, and also in part as applicable to prior certificates on portions of completed work as designated, a "special" payment application may be prepared and submitted by Contractor. The principal administrative actions and submittals which shall precede or coincide with such special applications can be summarized as follows, but not necessarily by way of limitation:

1. Occupancy permits and similar approvals or certifications by governing authorities and franchised services, assuring Owner's full access and use of completed work.

2. Warranties, guarantees, maintenance agreements and similar provisions of Contract Documents.

3. Test/adjust/balance records, maintenance instructions, meter readings, start up performance reports, and similar change over information germane to Owner's occupancy, use, operation and maintenance of completed work.

4. Final cleaning of the work.

5. Application for reduction (if any) of retainage, with consent of surety.

6. Advice to Owner on coordination of shifting insurance coverages, including proof of extended coverage as required.

7. Listing of Contractor's incomplete work, recognized as exceptions to certificate of substantial completion.

1.07 FINAL PAYMENT APPLICATION

A. The administrative actions and submittals which shall precede or coincide with submittal of the Contractor's final payment application can be summarized as follows, but not necessarily by way of limitation.

1. Completion of project closeout requirements.

2. Completion of items specified for completion beyond time of substantial completion, regardless of whether special payment application was previously made.

3. Assurance, satisfactory to Owner and Owner, that unsettled claims will be settled and that work not actually completed and accepted will be completed without undue delay.

4. Transmittal of required project construction records to Owner via the Owner.

5. Proof, satisfactory to Owner and Owner, that taxes, fees and similar obligations of Contractor have been paid.

6. Removal of temporary facilities, services, surplus materials, rubbish and similar elements.

7. Notarized consent of surety for final payment.

1.08 WAIVER OF LIENS

A. Each Contractor, for himself, and for all Subcontractors and material men, agrees that no mechanic's lien or other claim shall be filed or maintained by the Contractor or by any Subcontractor, materialmen, laborer or any other person whatsoever for, or on account of any work performed or materials furnished under this Contract. This agreement shall be an independent contract, and the Contractor shall execute and deliver a separate Waiver of Liens in form and substance satisfactory to the Architect and Owner contemporaneously with the execution of the Owner-Contractor Agreement and before any work is begun at the site.

B. In every subcontract entered into by each Contractor after execution of this Contract or in connection herewith, the Contractor shall incorporate a provision, similar to the foregoing paragraph, to the effect that neither the Subcontractor nor any party acting through or under him shall file or maintain any mechanic's lien or other claim against the Architect or Owner in connection with the Work.

END OF SECTION 01025

[THIS PAGE INTENTIONALLY LEFT BLANK]

SECTION 01100 - PROJECT PROCEDURES

PART 1 - GENERAL

1.01 SPECIAL REQUIREMENTS

A. Schedule: Contractor shall provide a master schedule showing sequencing of work utilizing the CPM method. The Contractor shall supply a schedule with all subcontractor activities, relationships, and durations, utilizing the CPM method via SureTrak/Primavera, Version 3.0, or a Microsoft scheduling software to the Owner on a working version CDrom and coordinate their schedule with the Owner.
- The Contractor is required to update at the end of each month the CPM Schedule based on the percentage completed for each activity on the approved schedule (in concert with the submission of the percentage completed in the monthly proposed schedule of values).
- **The contractor in their bid includes a cost of $500.00 per month for this schedule submission, for the duration of construction (per the milestone schedule in the bidding documents). This only applies to projects in excess of 2 million dollars in base price price. The contractors schedule of values shall include this cost, and can only be billed for upon TCNJ's successful receipt of said schedule. Should any schedule not be received at the end of any month during construction, TCNJ will issue a deduct change order in the amount of $500.00 to the contractor.**

B. Each Contractor shall take all necessary precautions to ensure the safety of all structural elements during all phases of all work. No materials, cranes, trucks or any other construction loads shall be placed on any part of the structure until the Contractor has determined the adequacy of that structure to carry the intended load without damage or overstress.

C. Entrance into, or other use of the building will not be permitted except as may be necessary for the execution of the Work, and shall be subject to the restrictions and instructions of the Owner.

D. Routes of ingress and egress to areas where work is being performed shall be subject to the restrictions and instructions of the Owner.

E. Materials shall be moved through the Building using rubber tired vehicles which shall be properly controlled at all times to avoid damage to existing wall, floor or ceiling surfaces.

F. Water damage cannot be tolerated and it is incumbent upon Contractors to take any steps necessary to keep the existing premises dry at all times.

G. Any damage to the new building from heavy equipment, striking the Building or any other damage to any part of the premises shall be repaired at the expense of the Contractors.

H. All welding and cutting shall be performed by qualified and certified welders. Certificates shall be on file with the Contractor prior to commencement of any welding.

I. No work shall start before 8:30am.unless agreed to in advance with the College.

PART 2 - PRODUCTS
NOT APPLICABLE

PART 3 - EXECUTION

3.01 GENERAL

A. Contractors shall perform the work on or about the premises in a careful manner with full consideration to fire protection as required by the National Fire Protection Association Standards, National Board of Fire

Underwriters and State and Local Departments having jurisdiction. Fire resistant materials shall be used for temporary enclosures.

B. Chemical extinguishers approved by the Owner shall be provided by the General Contractor during the progress of the work where and as required by the Owner, the State Fire Marshal and the National Board of Fire Underwriters.

C. The Contractor shall maintain an active program of fire prevention to keep workmen fire conscious during the entire life of the Contract. Designate one member of the organization to execute and coordinate fire control measures of his own organization and that of all subcontractors under his jurisdiction.

D. All sub-contractors shall cooperate with the Contractor in carrying out the above program.

E. Storage of flammable materials will not be permitted in the Building unless written permission is obtained from the Owner. Storage of all such materials shall be the Contractors' responsibility.

F. On-site open burning of rubbish, garbage, trade waste, leaves or plant life is prohibited.

G. Safety Program: The Contractor shall institute a safety program in accordance with OSHA and any local, state, or federal guidelines. The contractor shall name a safety officer to monitor this program and shall submit a safety report at job meetings.

H. Stockpiling: Stockpiling of materials on site will be allowed (but limited due to the limited space on this site). Such materials shall not impair or impede the functioning of the facility. Materials stored on site shall be secured to prevent loss from theft, damage, vandalism or fire. By stockpiling materials on site, the contractor assumes full responsibility for said materials, and shall protect them to the fullest extent possible. Specific locations for stockpiling materials shall be coordinated with the Architect, and Owner.

I. Safety Barriers: The Contractor shall erect safety barriers to deter and prohibit unauthorized access to the construction site; such barriers may take the form of fences and shall be clearly marked with signage prohibiting unauthorized access. The Contractor shall be responsible for safety barriers within the building. The contractor shall be liable for damages to persons or property due to the construction process if adequate safety measures are not undertaken. The Owner and Architect shall review safety precautions for their adequacy but shall not be held liable for Contractors failure to maintain or provide adequate protection.

J. Sequencing: The Contractor will work with the Sub-Contractors to sequence the work during the submission of monthly project schedules. Contractors shall endeavor to coordinate their work efforts with the Owner's requirements. Interruptions of utility services shall be coordinated with the Architect, and Owner, but in no instance shall last longer than 2 hours.

K. Limited staging and on site parking will be provided by General Contractor. The Contractor will coordinate parking areas with all the subcontractors and TCNJ.

1. Parking will be available at Carlton Avenue. Contractor will provide shuttle service to and from the site.

2. Contractor will be permitted to have vehicles on site with in the construction fencing only. Contractor is to provide stone in all parking areas on site to prevent the buildup of ruts and mud, thus minimizing the amount of mud leaving the site and being left behind on TCNJ roads.

L. Site Utilities: Electric power and water are available on site. Toilet facilities will be made available by the Contractor. These facilities shall remain clean by the Contractors throughout the course of the project. The Contractors shall repair and/or replace any damaged fixtures, partitions, etc. The Electrical Sub-Contractor shall tie in a temporary power panel (or panels as required) for all trades to use during construction. Interruption of building services shall not occur without prior consent and coordination by the Owner and Owner.

1. Provide portable toilets for all construction personnel.

M. Construction Lighting: The Electrical Sub-Contractor shall run sufficient strings and fixtures to maintain a 50 foot-candle/sq.ft.intensity of light throughout the project areas.

N. Dumpster Location and Cleanup: The Architect and Owner shall coordinate the dumpster location with the Contractors. The Contractor shall be responsible for obtaining, maintaining, and disposing of dumpsters, and shall maintain clean work areas throughout the course of the project.

- Contractor is to provide adequate manpower during the entire course of the project to maintain the site in a clean, neat and professional manner. At a minimum the contractor is to clean the entire site twice per week (on different days) by picking up all debris in and around the site. Sweeping the entire building daily is required once the floor slabs are in place. Contractor is to place garbage cans on each floor minimum 3 per floor in designated locations to assist in keeping the site clean. The owner will not tolerate a building project that is not maintained in a professional manner at all times.

3.02 PROGRESS MEETINGS

A. Progress Meetings shall be held bi-weekly at the job site at a regular time and day mutually agreed upon. The frequency may be changed by the Architect or Owner to reflect current conditions. The Contractors, those of his/their subcontractors concerned with current progress or with scheduling of future progress, the Architect, the Owner, and the Owner shall each be represented at these job meetings by persons familiar with the details of the work and authorized to conclude matters relative to work progress, establishment of progress schedules, etc., as may be necessary to expedite completion of the work.

B. The Contractors and his/their subcontractors attending these meetings shall present complete and definite reports as to the status of their respective work, conditions of product and equipment manufacturer, labor availability, productivity and cooperation, shipping data, time of completion, sequence of the work, safety program, and any other information bearing upon the execution of the Contract or subcontract. For the Owner's convenience the Owner will chair the meetings.

3.03MONTHLY REPORTS

A. The Contractor is to provide TCNJ a brief monthly status report on the last working day of each month dividing the status of the project into the following categories (report must be complete in all respects, piece meal submissions will not be accepted):
   a. Project overview
   b. Financial status
   c. Updated project schedule
   d. Change order request log
   e. Submittal log
   f. RFI log
   g. Owner/Architect issues that need immediate resolution
   h. Order/delivery issues

B. The Contractor is to provide TCNJ with this monthly report, and include in their bid a cost of $500.00 per month for all projects in excess of 2 million dollars base bid price for the duration of the construction period as noted in the bidding milestone schedule. This total cost will be listed in the contractor's schedule of values and can be billed for on a monthly basis only if said report is received in whole as noted above. Should TCNJ not receive said complete report a deduct change order will be issued to the contractor for $500.00 for that month.

END OF SECTION 01100

SECTION 01300 – SUBMITTALS AND SUBSTITUTIONS

PART 1 – GENERAL

1.1 PROGRESS SCHEDULE / COORDINATION DRAWINGS

A. The Contractor's schedule, shall coordinate with all trades to produce a coordinated CPM via Suretrak/Primavera version 3.0 or a Microsoft scheduling program schedule indicating the start and completion dates for each portion of the work as defined by the schedule of values, with the total time as defined by the contract time and milestone dates as set forth in these specifications. The Contractor's CPM schedule shall be submitted in electronic format (Suretrak 3.0 or a Microsoft Scheduling program) to and reviewed by the Owner and Architect prior to first application for payment. Any revisions or additional information requested by the Owner or Architect shall be provided. (No payment shall be made to any Contractor not providing a schedule that reflects their entire work).
- Also refer to Section 01100-1 – Project Procedures.

B. The Contractor shall revise the progress schedule on a monthly basis as the work progresses reflecting therein any delays, including those not within the Contractor's control, or accelerations in the progress of the work. The progress schedule, as revised for any weekly period, shall be discussed at the bi-weekly job meetings with the, Owner, the Architect, and the Contractor and the major trades in order to insure that the percentage of actual completion of any portion of the work as called for in the progress schedule for that bi-weekly period is attained. Monthly updates to the progress schedule shall be made prior to application for payment.

C. Should any delay occur in the progress of the work or any portion thereof, the Contractor shall be required to implement all necessary measures to accelerate the construction, to meet the percentages of completion dictated by the progress schedule on the applicable dates, without additional cost to the Owner.

1.2 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop drawings, product data and samples will not be processed by the Owner and/or Architect until the list of subcontractors, material suppliers and fabricators is submitted as required under Paragraph 3.12 of the General Conditions.
- The successful Contractor shall submit their list of proposed substitutions with in 20 calendar days of the Contract Award.
- The Architect shall be compensated on an hourly basis for review of all shop drawings or samples that do not meet the requirements of the contract documents after two submissions. The compensation shall be deducted from the contractors contract via a deduct change order, or other means that both parties agree to.

B. Coordinate preparation and processing of submittals with performance of the work so that work will not be delayed by submittals. Allow two weeks for review/approval by the Architect for the approval process, one additional week for TCNJ staff to review the submittal before it is returned to the contractor. Allow additional time if processing must be delayed to permit coordination with subsequent submittals with others.
   a. **Contractor is to provide a submittal schedule identifying the critical path submittals to assist the design team in prioritizing their review and subsequent return to the contractor prior to the first requisition for payment being processed. Every submittal is to have a required return date associated with it so the design team can schedule their reviews accordingly.**

C. Provide permanent marking on each submittal to identify Project, date, Contractor, subcontractor, submittal name, Specification section, drawing reference, and similar information to distinguish it from other submittals. Show Contractor's executed review and approval marking and provide space (5" x 7") for Architect's Action marking and space for Owner's review marking. Package each submittal appropriately for transmittal and handling. Submittals received, which are lacking the above information, will be returned without action. Submittals, which are received from sources other than through Contractor's office, will be returned without action.

D. Each submission shall be complete, with all options clearly marked and with all components required for the assembly fully described and detailed. Submissions missing important information will be returned unchecked.

E. Transmittal Form: Submittals shall be accompanied by a transmittal form. Provide Contractor's certification on form, ready for execution, stating that information submitted complies with requirements of contract documents.
- Transmit all submittals and shop drawings to the Architect or Engineer with a copy of the transmittal to the Owner.

F. Except as otherwise indicated in individual work sections, comply with requirements specified herein for each indicated category of submittal. Provide and process intermediate submittals, where required between initial and final, similar to initial submittals.

G. Maintain returned final set of samples at project site, in suitable condition and available for quality control comparisons by Architect, and by Owner.

H. Do not proceed with installation of materials, products or systems until final copy of applicable shop drawings, product data and samples are in possession of Installer.

I. Provide newly prepared shop drawings, on reproducible sheets, with graphic information at accurate scale, with company name of preparer indicated. Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards, and special coordination requirements. Do not allow shop drawing copies without appropriate final Action markings by Architect to be used in connection with the work.

1. Initial and Intermediate Submittals: One correctable translucent reproducible print and 5 blue line or black line prints; reproducible will be returned.
2. Final Submittal: 6 prints, plus 3 additional prints where required for maintenance manuals; 4 will be retained and remainder will be returned, one of which shall be marked up and maintained by Contractor as "Record Document".
3. Electronic submittals are acceptable in AutoCad format only. Contractor shall be responsible for printing and distribution of multiple copies as required.

J. Collect required product data into one submittal for each unit of work or system; and mark each copy to show which choices and options are applicable to the project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements that have been checked, and special coordination requirements. Maintain one set of product data for each submittal at project site, available for reference by Architect and others.

K. Submittals will be accepted from the Contractor only. Submittals received from other entities will be returned without review or action.
1. Submittals received without a transmittal form will be returned without review or action.
2. Transmittal form: Use a form matching the sample form attached to this section. Include the following:
   a. List of deviations.
   b. The Contractor's certification signature.
3. Fill out a separate transmittal form for each submittal; also include the following:
   a. Other relevant information.
   b. Request for additional information.

L. Do not submit product data, or allow its use on the project, until compliance with requirements of Contract Documents has been confirmed by Contractor. Submittal is for information and record unless otherwise indicated. Initial submittal is final submittal unless returned promptly by Architect marked with an Action that indicates and observed noncompliance. Submit 6 copies, plus 3 additional copies, which will be

returned, where required for maintenance manuals.

1. Electronic submittals are acceptable in 8 ½" x 11" format only.

M. Provide three (3) samples identical with final condition of proposed materials or products for the work. Include range samples, not less than 3 units, where unavoidable variations between units of each set. Provide full set of optional samples where Architect's selection is required. Prepare samples to match Architect's sample where so indicated. Include information with sample to show generic description, source or products name and manufacturer, limitations, and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and kind by Architect. Architect will not test samples, except as otherwise indicated, for compliance with other requirements, which are therefore the exclusive responsibility of the Contractor.

N. Upon receipt of a signed copy of the Architects' Waiver form, electronic copies of CAD drawings of the Contract Documents will be provided by the Architect for Contractor's use in preparing submittals. Copy of Waiver form is attached.

O. Product Selection Procedures: Procedures for product selection include the following:

1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the named product or an equivalent.

2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product of the manufacturer or source that complies with requirements, or an equivalent.

3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements, or an equivalent. Comply with provisions of "Product Options and Substitutions," Section 1.4 of Division 1300 of these specifications when submitting an equivalent product.

4. Manufacturers: Where specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed, or an equivalent, that complies with requirements. Comply with provisions of "Product Options and Substitutions," Section 1.4 of Division 1300 of these specifications when submitting an equivalent product.

5. Product Options: Where Specification paragraphs or subparagraphs refer to "Product Options and Substitutions," indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system; provide the specific product or system or an equivalent product or system by another manufacturer. Comply with provisions of "Product Options and Substitutions," Section 1.4 of Division 1300 of these specifications when submitting an equivalent product.

6. Basis of Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Products" introduce or refer to a list of manufacturers' names, provide either the specified product or an equivalent. Drawings and Specifications indicate sizes, profiles, dimensions and other characteristics that are based on the product names. Comply with the provisions of "Product Options and Substitutions," Section 1.4 of Division 1300 of these specifications when submitting an equivalent product.

1.3 MISCELLANEOUS SUBMITTALS

A. Miscellaneous submittals related directly to the work include warranties, maintenance agreements, workmanship bonds, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials,

overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

B. Refer to sections for specific general requirements on warranties, product/workmanship bonds, and maintenance agreements. In addition to copies desired for Contractor's use, furnish 2 executed copies, except furnish 3 additional copies where required for maintenance manuals.

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

1.4 PRODUCT OPTIONS AND SUBSTITUTIONS

A. DEFINITIONS

1. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

    a. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
    b. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
    c. Equivalent Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

2. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
3. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
4. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
5. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
6. **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 prohibits the use by the Contractor or subcontractors of materials or farm products produced and manufactured outside of the United States on any public work.**

B. General Requirements:

1. The requirements for substitutions do not apply to specified Contractor options on products and construction methods. Revisions to Contract Documents, where requested by Owner or Architect are changes, not substitutions. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions and do not constitute a basis for change orders. Otherwise, Contractor's requests for changes in products, materials, and methods of construction required by Contract Documents are considered requests for substitutions, and are subject

to requirements hereto.

2. To the greatest extent possible, provide products, materials and equipment of a singular generic kind and from a single source.
3. Where more than one choice is available as options for Contractor's selection of a product or material, select an option that is compatible with other products and materials already selected. Total compatibility among options is not assured by limitations within Contract Documents, but shall be provided by Contractor. Compatibility is a basic general requirement of product/material selections.
4. Any and all contractor substitutions that require additional work by other trades not specifically called for in the documents shall be paid for by the contractor requesting the substitution if any other trade increase is required.
5. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

C. Submittals: Submit 6 copies, utilizing Substitution Request Form, CSI Form 13.1.A, fully identified for product or method being requested for substitution, including related specification section and drawing numbers, and fully documented to show compliance with requirements for substitutions. Include product data/drawings, description of methods, samples where applicable, Contractor's details comparison of significant qualities between specified item and proposed substitution, statement of effect on construction time and coordination with other affected work and contractors, cost information or proposal, warranty information, compatibility with other work, approval of all authorities having jurisdiction, and Contractor's statement to the effect that proposed substitution will result in overall work equal to or better than work originally indicated.

D. Contractor's options for selecting products are limited by Contract Documents requirements, and governing regulations. Required procedures include, but are not necessarily limited to, the following for various indicated methods or specifying:

1. Single product/manufacturer name; provide product indicated or equivalent, except advise Architect before proceeding, where known that named product is not a feasible or acceptable selection.
2. Two or more product/manufacturer names; provide one of the named products or equivalent, at Contractor's option; but excluding products which do not comply with requirements. Advise Architect before proceeding.
3. Equivalent; where named products in Specifications text are accompanied by the term "or equivalent", or other language of similar effect, comply with those Contract Documents provisions concerning substitutions for obtaining Architect's approval of equivalent product.
4. Named, except as otherwise indicated, is defined to mean manufacturer's name for product, as recorded in published product literature, of latest issue as of date of Contract Documents. Refer requests to use products of a later or earlier model to Architect for acceptance before proceeding.
5. Where compliance with an imposed standard, code or regulation is required, selection from among products that comply with requirements including those standards, codes and regulations, is Contractor's option.
6. Provide products which comply with specific performances indicated, and which are recommended by manufacturer, in published product literature or by individual certification, for application indicated. Overall performance of a product is implied where product is specified for specific performance.
7. Provide products that have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for mixing, fabricating, curing, finishing, testing and similar operations in manufacturing process.
8. Where matching of an established sample is required, final judgment of whether a product proposed by Contractor matches sample satisfactorily is Architect's judgment. Where no product within specified cost category is available, which matches sample satisfactorily and complies with requirements, comply with Contract Document provisions concerning substitutions for selection of a matching product outside established cost category or not complying with requirements.
9. Where specified product requirements include "...as selected from manufacturer's full range of colors, patterns, textures..." or words of similar effect, the selection of manufacturer and basic product data is

to comply with requirements of the Contract, and selection shall be from the full range of products within the requirements. Where specified product requirements include "... as the industry...", or words to that effect, selection of product complying with requirements, is Architect's selection, including designation of manufacturer, where necessary to obtain desired color, pattern or texture.

E. Substitutions may be permitted by the Architect, if, in his opinion, the requirements of the proposed substitution comply with the requirements specified for the material, article or piece of equipment; however, the Architect is not required to permit substitution pursuant to the case of Whitten Corporation vs. Paddock, Incorporated, United States District Court, Massachusetts, April 12, 1974, affirmed by the Federal First Circuit Court, December 14, 1974.

F. After award of contract, the Contractor may submit substitutes to the Architect for review, fully documented and certified, and accompanied by a proposal for a reduction in the Contract Sum.

G. Contractor's request for substitution will be received and considered when extensive revisions to Contract Documents are not required and changes are in keeping with general intent of Contract Documents; when timely, fully documented and properly submitted; and when one or more of following conditions is satisfied, all as judged by Architect. Otherwise, requests will be returned without action except to record noncompliance with these requirements.

1. Where request is directly related to an "equivalent" clause or other language of same effect in Contract Documents.
2. Where required product, material or method cannot be provided within Contract Time, but not as a result of Contractor's failure to pursue the work promptly or coordinate various activities properly.
3. Where required product, material or method cannot be provided in a manner which is compatible with other materials of the work, or cannot be properly coordinated therewith, or cannot be warranted (guaranteed) as required, or cannot be used without adversely affecting Owner's insurance coverage on completed work, or will encounter other substantial noncompliances which are not possible to otherwise overcome except by making requested substitution, which Contractor thereby certifies to overcome such incompatibility, uncoordination, nonwarranty, noninsurability or other noncompliance as claimed.
4. Where substantial advantage is offered Owner, in terms of cost, time or other valuable considerations, after deducting offsetting responsibilities Owner may be required to bear, including additional compensation to Architect for redesign and evaluation services, increased cost of other work by Owner or separate Contractors, and similar considerations.

H. Contractor's submittal of, and Architect's acceptance of, shop drawings, product data or samples which indicate work not complying with requirements of Contract Documents, does not constitute an acceptable and valid request for, nor approval of, a substitution.

I. QUALITY ASSURANCE

Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

J. EQUIVALENT PRODUCTS

Where products or manufacturers are specified by name, Contractor must submit the following, in addition to other required submittals, to obtain approval of an unnamed product proposed as an equivalent:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

1.5 OPERATION AND MAINTENANCE INSTRUCTIONS AND EQUIPMENT WARRANTIES

A. The Contractor shall orient and instruct the responsible maintenance personnel designated by the Owner in the Operation of all equipment and shall provide the maintenance personnel with pertinent literature and operational manuals for all equipment. Date and time of demonstrations shall be mutually agreed upon with the Owner. Provide qualified personnel for as long as necessary to fully orient and instruct the Owner. Contractor shall videotape instruction session and provide owner with completed video.

B. The manuals shall be submitted in (quadruplicate) 3-ring loose-leaf type binders **and electronically in PDF format and be able to be TEXT SEARCHABLE** to the Architect for approval with all additional information that the Architect may request and considers necessary for the proper servicing and maintenance of all equipment. Manuals are to include plain paper copies of approved shop drawings and catalog cuts. The quality of the copies may be subject to approval by the Architect. Upon completion and approval, 3 copies will be forwarded to the Owner and one copy retained by the Architect.

C. Manuals shall include no less than the following:
1. Operating Procedures:
   a. Typewritten procedures indicating each mode of operation of each piece of equipment or system. Procedures shall indicate the status of each component of a system in each operating mode.
   b. Procedures shall indicate names, symbol numbers, valve tags, circuit numbers, schematic control and wiring diagrams, locations of thermostats, manual starters, control cabinets, and other controls of each system.
   c. Emergency shutdown procedures for each piece of equipment or system, both automatic and manual as appropriate.
2. Maintenance Schedule: Typewritten schedule describing manufacturer's recommended schedule of maintenance and maintenance procedures.
3. Catalog cuts and shop drawings:
   a. Catalog cuts shall clearly indicate the exact model and type of each piece of equipment installed in the Project, including all options provided.
   b. Catalog cuts shall fully describe equipment including physical, electrical, mechanical and other characteristics, performance characteristics and installation or erection diagrams.
   c. Catalog cuts shall indicate spare part numbers and name, address and telephone number of local representative or service department.
4. Typewritten list of all subcontractors on the Project including name, address, telephone number and responsibility on the Project.
5. Manuals shall be indexed with dividers indicating each system or piece of equipment.
6. Warranties, permits, inspection stickers/approvals and Certificate of Occupancy are to be included.

D. Required equipment warranties shall be submitted in three copies **and electronically in PDF format** to the Architect.

E. The Contractor shall video tape all instructional sessions and demonstrations and provide the Owner with a copy of the videotape at the end of all demonstrations.

PART 2 - PRODUCTS
NOT APPLICABLE
PART 3 - EXECUTION

3.1 ACTION ON SUBMITTALS

A. One copy of all submissions will be returned to the Contractor for his files. The Contractor shall mark up other copies so as to conform with the copy returned to him and forward them to all interested Contractors, Subcontractors, and Suppliers.

B. The Architect will review and stamp submitted shop drawings in one of the following ways (the actual stamp may be different; below language is shown for an example only)
   1. "No Exceptions Taken": Approved.
   2. "Make Corrections Noted": Approved, provided the work complies with corrections marked on the submittal.
   3. "Revise and Resubmit": Do not commence work of this submittal. Revise and resubmit or prepare a new submittal; comply with notations marked on submittal.
   4. "Rejected": Fundamentally not in compliance. Prepare a new submittal. No notations or comments made.

C. Work shall be executed in accordance with "Approved", "Approved As Noted", or "Resubmit for Record" stamp only.

D. Architect's review of shop drawings/submittals will constitute checking for general arrangement only, and shall not relieve the Contractor of responsibility for complete compliance with Drawings and Specifications. Contractor shall be responsible for quantities and dimensions to assure a proper fit under field conditions.

3.2 DISTRIBUTION

A. Provide additional distribution of submittals, not included in foregoing copy submittal requirements, to subcontractors, suppliers, fabricators, installers, governing authorities and others as necessary for proper performance of the work. Include such additional copies in transmittal to Architect where required to receive Action marking before final distribution. Show such distributions on transmittal forms.

3.3 COLOR SELECTIONS

A. All colors for all finished surfaces and materials will be selected or approved by the Architect. The color selections will be made at **one time** to provide a complete and coordinated color schedule which, upon acceptance of the Owner, will be provided to the Contractor. Any and all specific color selections for materials not noted on drawings or in specification shall be chosen by Architect after submittal of samples.

B. It is imperative that **all** color information be submitted to the Architect by the Contractor before color selections can be made. If any color selection information is not available when colors are needed to meet the project schedule, the Architect will select colors from one of the named manufacturers in the Specifications, and the Contractor will be required to exactly match that color. A claim for delay will not be accepted if the color schedule is late due to the failure of the Contractor to provide the Architect with all required color information, nor will an extra be entertained if the selected color is not available from the manufacturer the Contractor intended to use but neglected to submit.

C. The Contractors are reminded of the requirement to declare all substitutions within 20 days of execution of their Contract as specified.

END OF SECTION 01300

SECTION 01310 - QUALITY CONTROL

PART 1 - GENERAL

1.01 TRADESMEN AND WORKMANSHIP

A. Each Contractor shall ensure that tradesmen performing work at site are skilled and knowledgeable in methods and craftsmanship needed to produce required quality levels for workmanship in completed work. Remove and replace work which does not comply with workmanship standards as specified and as recognized in the construction industry for applications indicated. Remove and replace other work damaged or deteriorated by faulty workmanship or its replacement.

B. In certain instances, specification text requires that specific work be assigned to specialists or expert entities, who shall be engaged for performance of those units of work. These shall be recognized as special requirements over which Contractor has no choice or option. These assignments shall not be confused with, and are not intended to interfere with, normal application of regulations, union jurisdictions and similar conventions. One purpose of such assignments is to establish which party or entity involved in a specific unit of work is recognized as "expert" for indicated construction processes or operations. Nevertheless, final responsibility for fulfillment of entire set of requirements remains with Contractor.

1.02 INSPECTION, TESTS AND REPORTS

A. Required inspection and testing services are intended to assist in determination of probable compliances of the work with requirements, but do not relieve any Contractor of responsibility for those compliances, or for general fulfillment of requirements of Contract Documents. Specified inspections and tests are not intended to limit any Contractor's quality control program. Afford reasonable access to agencies performing tests and inspections.

B. Contractors are responsible for all testing associated with their work (foundations, soils compaction, concrete, steel, roof material testing etc.) and shall submit the name of their proposed testing agency within 15 days of Notice-to-Proceed. Each Contractor is responsible to coordinate the activities of the testing agency to assure that work is tested prior to being covered up or other activities associated to the work begin.

1.03 ROOF DRAIN TESTING

A. Pre-Construction Testing: Prior to the start of any work on the roof, the Contractor shall water-flow test all roof drains (5 minutes at each drain), to determine if any full or partial drain clogs exist in the drainage system.

1. The Owner shall have a representative at the test.

2. The results of the testing shall be reported to the Owner, in writing, prior to the start of work.

3. The Owner will be responsible for correction of any drain-age problems reported by the Contractor prior to the start of work.

4. Any drains, piping or other components, whether exposed, concealed, below grade, etc., found to be clogged after the start of construction, and not reported to the Owner prior to the start of construction, shall be cleared, repaired or replaced as required to restore full drainage capacity. All work shall be performed by the Contractor at no additional cost to the Owner, including patching, repair or re-placement of any materials, finishes, landscaping, etc., disturbed in gaining access to drainage components.

B. Post-Construction Testing: When all work reaches substantial completion, the Contractor shall water-flow test all roof drains (5 minutes at each drain), to determine if any full or partial drain clogs exist in the drainage system.

1. The Owner shall have a representative at the test.

2. Report the results of testing to the Owner in writing prior to preparation of the final punchlist inspection.

3. Any drains, piping or other components, whether exposed, concealed, below grade, etc., found to be clogged shall be cleared, repaired or replaced as required to restore full drainage capacity. All work shall be performed by the Con-tractor at no additional cost to the Owner, including patching, repair or replacement of any materials, finishes, landscaping, etc., disturbed in gaining access to drainage components.

1.04 ROOF DRAIN PROTECTION

A. Contractor is to make every effort to prevent materials from entering roof drains. Contractor is to install roof rain filters prior to removal of any roof materials.

B. All debris is to be cleaned away from drains at the end of each day.

PART 2 - PRODUCTS

2.01 ROOF DRAIN FILTERS

A. Tiddy Gutter DF100001 Roof Drain Foam Filter or Equal.

PART 3 - EXECUTION

3.01 REPLACEMENT OF WORK

A. The Contractor shall, within 24 hours after rejection of Work, remove all materials and equipment so rejected and immediately replace said Work, at his cost, to the satisfaction of the Architect. Should the Work of the Owner or other Contractors be damaged by such removal or replacement, the Contractor shall reimburse the Owner or other Contractors for all cost incurred for correcting said damage.

3.02 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions prior to work starting: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

a. Description of the Work.
b. List of detrimental conditions, including substrates.
c. List of unacceptable installation tolerances.
d. Recommended corrections.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.03 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

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

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's/Owner's written permission.

C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.04 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to existing conditions and dimensions. If discrepancies are discovered, notify Architect and Owner promptly.

3.05 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Only use the best quality tools and equipment with proper attenuations for the latest acceptable sound levels.

F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.

G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

END OF SECTION 01310

SECTION 01320 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Specific administrative and procedural minimum actions are specified in this section, as extensions of provisions in General Conditions and other Contract Documents. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication that such temporary activity is not required for successful completion of the work and compliance with requirements of Contract Documents.

B. Each Contractor is specifically assigned certain responsibilities for temporary facilities to be used by all Contractors, other entities at the site, the Owner's work forces and other personnel including occupants of the project, the Owner, the Architect, test agencies, personnel of governing authorities, and similar entities and personnel authorized to be at the project site during construction. In general, each Contractor is assigned the responsibilities for installation, operation and removal of each temporary facility which is related by recognized trades to its scope of contract work; and, except as otherwise indicated, each is responsible for costs and use charges associated therewith, including fuel, power usage, water usage and similar usage costs. The Contractor is responsible for temporary facilities not related to any other Contractor's scope of contract work and not otherwise specifically assigned, as designated by the Architect.

C. No costs or usage charges for temporary facilities are chargeable to the Owner, nor can any Contractor's cost or usage charges for temporary facilities be accepted as the basis for a change order extra. The total costs and usage charges for temporary facilities are included, collectively, in the Contract Amounts.

1.02 GENERAL REQUIREMENTS

A. Each Contractor shall provide and operate all hoists, cranes, helicopters and furnish and erect all ladders and scaffolding required by him and his subcontractors, constructed to afford proper protection to craftsmen, their Work and other Work in progress and previously executed.

1.03 JOB CONDITIONS

A. Each Contractor shall establish and initiate use of each temporary facility at time first reasonably required for proper performance of the total work of project. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.

B. Each Contractor shall install, operate, maintain and protect temporary facilities in a manner and at locations that will be safe, nonhazardous, sanitary, protective of persons and property, and free of deleterious effects.

1.04 ENVIRONMENTAL PROTECTION

A. Each Contractor shall provide facilities, establish procedures, and conduct construction activities in a manner that will ensure compliance with environmental and other regulations controlling construction activities at project site. The Contractor shall designate one person, the Construction Superintendent or other, to enforce strict discipline on activities related to generation of wastes, pollution of air/water/soil, generation of noise, and similar harmful or deleterious effects which might violate regulations or reasonably irritate persons at or in vicinity of project site. Anti-pollution measures required by D.E.P., as applicable are to be followed.

1.05 SECURITY

A. The Contractor shall maintain complete security on the site at all times during and outside of normal working hours to protect the Work and all field offices, and to secure the area of construction by restricting all trespassers.
- This means locking the doors and/or gates. A guard is not required.

B. Provide a six foot chain link fence around any compounds and/or dumpsters related to this project.

1.06 TEMPORARY CONSTRUCTION FACILITIES

A. Where mud, snow, ice or other hazardous conditions exist in the purview (Scope of Work) of any Sub Contractor, the Contractor shall remove the hazards immediately and replace with suitable material for the other contractors use. If the Owner is compelled to remove the hazards with their own forces due to inaction by the Contractor, then that Contractor will be back-charged for the work performed by the Owner.

B. No welding, cutting by torch, or Work utilizing or causing flammable waste shall be done unless adequate fire protection is provided and maintained for the duration of the Work in the area of operations.

C. **Contractor is to provide road safety and traffic controls when working on or near any roadway or sidewalk on campus. Including flag personnel, signage, cones and all necessary safety measures to assure the safety of the pedestrians and vehicles at all times. This includes escorting deliveries using equipment other than a truck or car on roadways and walkways with a flag person. Backhoes can be run without an escort.**

1.07 DEBRIS CONTROL (Refer to Section 01524 for further delineation)

A. The Contractor shall be responsible for daily cleaning up of spillages and debris resulting from his operations and from those of his Subcontractors; and shall be responsible for complete removal and disposition of hazardous and toxic waste materials. The Contractor shall provide containers at grade, sufficient for the depositing of nonhazardous/nontoxic waste materials, and shall remove such waste materials from project site at least weekly during cold weather (daily high temperatures below 50ºF) and at least twice weekly during mild and warm weather.
- Contractor is responsible to provide and pay for all dumpsters.

B. The Contractor shall daily clean all mud, dirt and debris resulting from all trades operations from the adjacent streets, sidewalks, drives and parking areas and shall repair all damage caused by the cleaning to the satisfaction of the Owner.

C. The Contractor is to provide and maintain appropriate means of trash disposal (i.e., chutes) to grade/dumpster. Multiple units may be required and shall be figured for in the bid.

PART 2 - EXECUTION

2.01 ENCLOSURES

A. At earliest possible date, the Contractor shall secure project area against unauthorized entrance at times when personnel are not working. Provide secure temporary enclosure at ground floor and other locations of possible entry, with locked entrances.

B. Where any form of demolition will expose the interior of the building to weather, demolition shall follow the erection of weatherproof walls by the Contractor installed inside the demolition line, sealed and flashed, as required, to keep all water from the building interior. Keep temporary weatherproofing in place until new construction has been completed to the stage where water will not enter the building.

C. The Contractor shall provide constant protection against rain, wind, storms, frost or heat to maintain the work, materials, apparatus and fixtures free from damage. At the end of each day's work, cover work likely to be damaged. During cold weather, protect work from damage by freezing and provide such enclosures and heating apparatus as may be necessary diligently to prosecute the Work without stoppage for reason of unfavorable weather.

D. Wherever a Contractor provides openings through walls or slabs, each location shall be adequately protected at the end of each working day with temporary enclosures to make these areas tight. Openings through exterior walls shall be watertight.

E. Install an 8 foot high fence around the entire site with wind screening. Provide gates as needed to properly access the site to complete the work. Remove the fence once the project is substantially completed. Fence is to have poles into the ground where the fence will be untouched per a period of time, and can have feet with sand bags in areas that the fence may have to be moved occasionally to not interfere with the work.

F. **For renovation projects**: **Contractor is to maintain the building in a water tight condition during all construction activities by whatever means necessary. Contractor is to never do any more removal work during any given day than that contractor can replace in the same day in order to make sure the occupants of the building will be protected from the possibility of water leakage into the building. Should any leakage occur, the contractor is to immediately make the building water tight (on a 24 hour basis) and repair any damage caused by the leakage or replace any equipment damaged by the leakage.**

2.02 TEMPORARY ELECTRICITY

A. Power is available on site.

2.03 TEMPORARY VENTILATION

A. A trade requiring ventilation for Work shall provide fans to induce circulation of air.

2.04 TEMPORARY TELEPHONES

A. Each Contractor is responsible for their own telephone service and for payment of all charges relating to that service.

2.05 TEMPORARY WATER

A. Water is available on site.

2.06 TEMPORARY SANITARY FACILITIES

A. Starting at time of start of work at project site, the Contractor shall provide and maintain self-contained toilet units of type acceptable to governing authorities, adequate, at all stages of construction, for use of personnel at project site. Provide separate facilities for male and female personnel when both sexes are working, in any capacity, at project site. Facilities shall remain in use until completion of project. Use of permanent facilities will not be permitted.

2.07 REMOVAL AND RESTORATION

A. Prior to acceptance of the Project, each contractor shall remove temporary work for which he has been responsible.

2.08 OWNER'S RIGHTS

A. If any Contractor fails to carry out his responsibilities in providing temporary facilities, as set forth above, the Owner shall have the right to take such action as he deems proper for the protection and conduct of the Work, and to deduct the cost thereof from the amount due the Contractor at fault.

B. Extended work days, hours, shifts, weekend work, etc. may be allowed upon coordination and approval by Architect, Owner at no additional cost to the Owner.

- Should the schedule begin to slip, for any reason, each contractor will be required to work additional shifts or weekends to recover the lost time. Should there be a cost to the College for this overtime work, the contractor will be required to reimburse the owner for said costs.

2.09 Parking: parking is allowed for two vehicles only. All other parking is to be at the TCNJ Carlton Avenue parking lot. The contractor is responsible to shuttle workers back and forth as needed.

END OF SECTION 01320

SECTION 01322 – PHOTOGRAPHIC DOCUMENTATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for the following work by the General Contractor (other primes are encouraged to document the site and construction, but not required):

1. Preconstruction video or photographs

B. Related Sections include the following:

1. All of Division 1.

1.03 SUBMITTALS

A. Qualification Data: For photographer.

B. Videotapes: video the existing conditions prior to start of the project and provide TCNJ with a copy of the video.

1.04 QUALITY ASSURANCE

A. Job Project Manager or Superintendent

1.05 Not used.

1.06 USAGE RIGHTS

A. Obtain and transfer copyright usage rights to the Owner for unlimited reproduction of photographic documentation.

PART 2 – PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

A. Digital format as agreed to at the project kick off meeting.

PART 3 – EXECUTION

3.01 CONSTRUCTION VIDEOTAPES

A. Preconstruction: Before starting demolition or construction record, videotape (digital) of Project site, interior and exterior.

1. Show protection efforts by the Contractor.
2. Show as many existing conditions as possible prior to the start of the work.

END OF SECTION 01322

[THIS PAGE INTENTIONALLY LEFT BLANK]

SECTION 01330 – CONTRACT CLOSEOUT

PART 1 – GENERAL

1.01 DEFINITION

A. Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of Contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Divisions 2 through 16. Time of closeout is directly related to Substantial Completion, and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. That time variation, if any, shall be applicable to other provisions of this section.

B. Substantial completion shall be defined that every material item has been installed. Nothing is missing and therefore, the punch list can begin.

1.02 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. Prior to requesting the Architect's inspection for certification of substantial completion, for either entire work or portions thereof, complete the following and list known exceptions in request:

1. In progress payment request coincident with or first following date claimed, show either 100% completion for portion of work claimed as substantially complete, or list incomplete items, value of incomplete items, and reasons for being incomplete.
2. Include supporting documentation for completion as indicated in these Contract Documents.

    a. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

3. Submit statement showing accounting of changes to the Contract Sum.
4. Advise Owner of pending insurance change over requirements.
5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
6. All fire sprinklers, devices, alarm system, roofing system, doors, insulation, etc. requiring FM Research approval to submit certification from Factory Mutual.
7. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including occupancy permits, operating certificates, and similar releases.
8. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner obtaining a signed receipt of materials delivered. Refer to individual work sections for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.
9. Complete start up testing of systems, and instructions of Owner's operating/maintenance personnel. Discontinue, or change over, and remove from project site temporary facilities and services, along with construction tools and facilities, mockups, and similar elements.
10. Complete final clean up requirements.
11. Touch up and otherwise repair and restore marred exposed finishes.
12. Inspection: Submit a written request for inspection for Substantial Completion to Project Manager. On receipt of request, Architect and Project Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection, the Project Manager will notify Contractor of items, either on Contractor's list or additional items identified by Architect that must be completed or corrected before certificate will be issued.

    1. Reinspection: Request reinspection when the Work identified in previous inspections as

incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for Final Completion.

B. Upon receipt of Contractor's request, the Project Manager and Architect will proceed with substantial completion inspection. Following inspection, the Architect will either prepare the certificate of substantial completion, or advise the Contractor of work which shall be performed prior to issuance of certificate. The work remaining to be performed shall be completed prior to the punch list for final acceptance.

C. Upon receipt of Contractor's notice that work has been completed, including all punch list items, but excepting incomplete items delayed because of circumstances acceptable to the Project Manager and Architect, the Project Manager and Architect will reinspect the work. Upon completion of reinspection, the Architect will either prepare the certificate of final acceptance or advise the Contractor of work not completed or obligations not fulfilled as required for final acceptance.

D. In the event that the work is not completed or obligations are not fulfilled as required for final acceptance and the Architect/CM is required to reinspect the work more often than the two inspections described, the Contractor shall compensate the Architect and/or the Project Manager at the rate of $500.00 for each additional site visit required for reinspections. The compensation shall be processed by change order as a deduction to the Contractor's Contract Sum, which amount will be paid to the Architect or Project Manager by the Owner, through a change order as an addition to the Architect's or Project Manager's Contract Sum.

E. Substantial Completion shall be defined for this project that every element of the project/construction and the contract, based on the contract and amended drawings and specification sections, are installed and the building is deemed complete, less repairs and/or touch up type work that would be generally referred to as punchlist work. If any components of the building, or site work associated with this contract are not installed, the project cannot be deemed substantially completed.

1.03 PREREQUISITES TO FINAL ACCEPTANCE

A. Prior to requesting Project Manager and Architect's final inspection for certification of final acceptance and final payment, complete the following and list known exceptions, in request:

1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit release of liens for all subcontractors.
3. Submit Contractor's statement that his final application, as presented, is the final bill and no other claims will be presented.
4. Submit updated final statement, accounting for additional changes to Contract Sum including change orders and allowances.
5. Submit certified copy of Architect's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Architect.
6. Submit one set of record documents, bound copies of maintenance/operating manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
7. Complete final clean up requirements.
8. Touch up and otherwise repair and restore marred exposed finishes.
9. Submit notarized consent of surety to final payment.
10. Submit final liquidated damages settlement statement, if required, acceptable to Project Manager and the Owner.
11. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.
12. A letter from the Owner's representative certifying that he has been properly instructed in the operation and maintenance of equipment by the Contractor.

13. 10% one year Maintenance Bond.
14. Underwriter's Certificate or Electrical Sub Code Official's Approval.
15. Fire Alarm Certification and Description - NFPA form 72C including local County of Chester.
16. HVAC Contractor to submit certified balancing report.
17. Final acceptance by Architect of record documents

B. Except as otherwise indicated or requested by Project Manager/Architect, remove temporary protection devices and facilities that were installed during course of the work to protect previously completed work during remainder of construction period.

1.04 CLEAN UP

A. Remove waste materials from site and dispose of in a lawful manner.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.01 CLEANING

A. Where extra materials of value remaining after completion of associated work have become Owner's property, dispose of these to Owner's best advantage as directed.

B. After Substantial Completion of the Work, each Contractor shall do the final cleaning of the surfaces of his installations as may be required by the various Specification sections.

C. After each Contractor has cleaned their work, The General Contractor shall engage a professional cleaning service to perform final cleaning of the work consisting of cleaning each surface or unit to normal clean condition. Comply with manufacturer's instructions for cleaning operations and chemicals. The following are examples, but not by way of limitation, of cleaning levels required:

1. Remove labels that are not required as permanent labels.
2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances that are noticeable as vision obscuring materials. Replace broken glass and damaged transparent materials.

3. Clean exposed exterior and interior hard surfaced finishes, to a dirt free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective conditions.
4. Wipe surfaces of mechanical and electrical equipment clean, including elevator equipment and similar equipment; remove excess lubrication and other substances.
5. Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
6. Vacuum and clean carpeted surfaces and similar soft surfaces.
7. Clean light fixtures and lamps to function with full efficiency.
8. Clean and wax or polish all hard floors following manufacturer’s instructions.
9. Clean all window surfaces inside and outside.
10. Perform final cleaning in, on and around all casework, sinks, toilets fixtures, etc.
11. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
12. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
13. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
14. Remove tools, construction equipment, machinery, and surplus material from Project site.
15. Remove snow and ice to provide safe access to building.

16. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
17. Sweep concrete floors broom clean.
18. Replace parts subject to unusual operating conditions.
19. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
20. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
21. Clean ducts, blowers, and coils if units were operated without filters during construction.
22. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
23. Leave Project clean and ready for occupancy.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.02 RECORD DOCUMENTS (Refer to Section 01340, project requirements for submitting Record Documents)

3.03 REMOVE TEMPORARY FACILITIES

A. At the completion of the work prior to final payment, remove all temporary facilities entirely from site, including, but not limited to, the following: Field offices, trailers, shanties, sheds, job telephone, temporary toilets, temporary enclosures, dust barriers and other temporary protection devices.

END OF SECTION 01330

SECTION 01340 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Project record documents consisting of:
   a. Record drawings.
   b. Record project manual (specifications).

1.02 SUBMITTALS

A. Project Record Documents: Submit after substantial completion, but prior to final completion.

1. Record drawings: Submit in form of opaque prints.
   a. Sets shall include all drawings, whether changed or not.
2. Other record documents: Submit originals or good quality photocopies.
3. Each Sub contractor is responsible for their respective trade, record documents and record drawings. Combine with General Contractor record drawing documents for a complete set.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.01 MAINTENANCE OF PROJECT RECORD DOCUMENTS

A. Do not use record documents of any type for construction purposes.

B. Maintain record documents in a secure location at the site while providing for access by the contractor and the architect during normal working hours; store in a fire-resistive room or container outside of normal working hours.

C. Record information as soon as possible after it is obtained.

D. Assign a person or persons responsible for maintaining record documents.

E. Record the following types of information on all applicable record documents:

1. Dimensional changes.
2. New and revised details.
3. Revisions to electrical circuits.
4. Locations of utilities concealed in construction.
5. Particulars on concealed products which will not be easy to identify later.
6. Changes made by modifications to the contract; note identification numbers if applicable.
7. New information which may be useful to the owner, but which was not shown in either the contract documents or submittals.

3.02 RECORD DRAWINGS

A. Maintain a complete set of opaque prints of the contract drawings, marked to show changes.
B. Where the actual work differs from that shown on the drawings, mark this set to show the actual work.

1. Mark location of concealed items before they are covered by other work.
2. Mark either record contract drawings or shop drawings, whichever are best suited to show the change.

C. When the contractor is required by a provision of a modification to prepare a new drawing, rather than to revise existing drawings, obtain instructions from the architect as to the drawing scale and information required.

D. Keep drawings in labeled, bound sets.

1. Mark with red pencil.
2. Mark work of separate contracts with different colors of pencils.
3. Incorporate new drawings into existing sets, as they are issued.

E. Where record drawings are also required as part of operation and maintenance data submittals, copy marks to another opaque print obtained from the architect.

3.03 RECORD PROJECT MANUAL

A. Maintain a complete copy of the project manual, marked to show changes.

B. Where the actual work differs from that shown in the project manual, mark the record copy to show the actual work.

1. Include a copy of each addendum and modification to the contract.
2. In addition to the types of information required on all record documents, record the following types of information:
   a. Product options taken, when the specification allows more than one.
   b. Proprietary name and model number of actual products furnished, for each product, material, and item of equipment specified.
   c. Name of the supplier and installer, for each product for which neither a product data submittal nor a maintenance data submittal was specified.

3.04 TRANSMITTAL TO OWNER (through the Architect)

A. Collect, organize, label, and package ready for reference.

1. Bind print sets with durable paper covers.
2. Label each document (and each sheet of drawings) with "PROJECT RECORD DOCUMENTS - This document has been prepared using information furnished by _____" [insert the contractor's name], and the date of preparation.

B. Submit to the Project Manager for transmittal to the Architect, unless otherwise indicated.

C. Submit to the Architect four (4) sets of Operation and Maintenance Manuals in three-ring binders, by volume, and indexed per binder (with one master index) to be transmitted to the Architect/Engineer for approval: All to be submitted at one time, not piece meal. Indexing should follow the specification section numbers.

- Include all inspection/approvals/certifications
- All approved submittals and cut sheets as well as manufacturer's operation and maintenance manuals for each section.
- Manuals are to be completed in volumes, three ring binders, starting with Division 1 and continuing through the last projects Division. The number of volumes is determined by the number of spec section the projects has and by the amount of paper/copies for complete sets of three ring binders.

- List of all contractors and vendors for the project with names, addresses and phone numbers.

END OF SECTION 01340

[THIS PAGE INTENTIONALLY LEFT BLANK]

SECTION 01524 – CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Sections include the following:

1. All of Division 1 and attached specifications and drawings that make a part of this contract.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

1.4 SUBMITTALS

A. Waste Management Plan: Submit 4 copies of plan within 30 days of date established for the Notice to Proceed.

B. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

C. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

D. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

E. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 1. Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.6 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, and waste reduction work plan. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
2. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
4. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by Project Manager. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with Division 1 Section "Temporary Facilities" for operation, termination, and removal requirements.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
2. Comply with Division 1 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Sale and Donation: Not permitted on Project site.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the Contractor.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to present windblown dust.
3. Stockpile materials away from construction area.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiving or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.
B. Concrete: break up and sort rebar as best as possible. Recycle all concrete.
C. Recycle all metal products from the building before demolition (aluminum, steel etc)
D. Recycle as much product as possible and provide a complete report to TCNJ to confirm the percentage recycled on the project.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials on site.

C. Burying: Do not bury waste materials on site.

D. Disposal: Transport waste materials off Owner's property and legally dispose of them.

E. Washing waste materials into sewers or drains is not permitted.

END OF SECTION 01524

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 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.

1.3 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 Owner's 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.

1.4 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. Light fixtures
    2. Existing 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

(THIS PAGE INTENTIONALLY LEFT BLANK)

SECTION 07 84 00

FIRESTOPPING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:
   1. Firestopping of all penetrations through all walls and floors, including fire barriers.
   2. Contractor to coordinate and include in the Base Bid the cost of all Special Inspections for firestopping of penetrations, as required by Code. Supply copy of test report, prepared by testing lab, to Architect.

B. Firestopping of each penetration shall be the responsibility of the entity whom cuts or requires the penetration

C. Firestopping of architectural slots and holes shall be the responsibility of the general work contractor.

D. The general work contractor shall obtain necessary information from other contractors and coordinate all firestopping work, perform all specified inspections, and make required reports and submittals relating to extent of work required.

E. Work Not Included: Repairing penetrations made in error; these are to be repaired using the original material of construction.

F. Products Furnished but Not Installed:
   1. Sleeves which are an integral part of the firestopping assembly but which must be set by installer of other construction.

G. Related Sections:
   1. Mechanical: Mechanical work requiring firestopping.
   2. Electrical: Electrical work requiring firestopping.

1.2 REFERENCES

A. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
   3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.

B. Underwriters Laboratories Inc.:
   1. UL 263 - Fire Tests of Building Construction and Materials.
   2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
   3. UL 1479 - Fire Tests of Through-Penetration Firestops.
   4. UL - Fire Resistance Directory.

C. Intertek Testing Services (Warnock Hersey Listed):
   1. WH - Certification Listings.

1.3 DEFINITIONS

A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

A. Firestopping Materials: ASTM E84, ASTM E119, ASTM E814, UL 263 and UL 1479, to achieve fire ratings of adjacent construction in accordance with fire rated assemblies indicated on the drawings.
B. Surface Burning: ASTM E84 with maximum flame spread / smoke developed rating of 25/450.
C. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 PERFORMANCE REQUIREMENTS

A. Conform to fire resistance ratings and surface burning characteristics.

1.6 SUBMITTALS

A. Section 01 30 00 - Submittals and Substitutions: Submittal procedures.
B. Product Data: Submit data on product characteristics, performance and limitation criteria.
C. Product Data: For each type of through-penetration firestop system product indicated.
D. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition
   1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each thought-penetration firestop system configuration for construction and penetrating items.
   2. Where project conditions require modification of qualified testing and inspecting agency’s illustration to suit a particular through penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer’s fire-protection engineer.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.1 FIRESTOPPING

A. Manufacturers:
1. Hilti Corp.
2. 3M fire Protection Products.
3. Pecora Corporation.
4. Spec Seal firestop products.
5. Substitutions: Section 01 30 00 - Submittals and Substitutions.

B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
2. Foam Firestopping Compounds: Single component foam compound.
3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Firestop Pillows: Formed mineral fiber pillows.

2.2 ACCESSORIES

A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
B. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

PART 3 EXECUTION

3.1 EXAMINATION

A. Pre-installation Inspection: Inspect all walls and floors including fire barriers for penetrations of any type; mark or otherwise identify all penetrations indicating action required.
Repair or Firestopping
1. Conduct inspection prior to covering up or enclosing walls or ceilings
2. Conduct inspection jointly with authorized representative of authority having jurisdiction.
3. Submit a report detailing findings of inspection to the architect

B. If the configuration of a particular penetration does not conform to the configuration necessary for the required firestopping assembly, notify the installer of the penetration for

the modification of the configuration to suit the assembly; do not use the firestopping assembly in other configurations except as specifically stated in the test report or as approved but the authority.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.
B. Remove incompatible materials affecting bond.
C. Installation meeting: Prior to start of work, conduct a meeting to verify that the installation instructions and procedures required are understood by installers.
    1. The following shall attend this meeting
        a. General Contractor
        b. Installers of firestopping

D. Prepare penetrations in accordance with the materials manufacturer's instructions

3.3 APPLICATION

A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
C. Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

3.4 INSTALLATION

A. Install firestopping materials in exact accordance with the manufacturer's instructions and the conditions of the testing; provide all accessory materials required.
B. Remove combustible forming materials, unless they are a required component of the tested assembly

3.5 FIELD QUALITY CONTOL

A. Obtain the services of the firestopping material manufacturer's representative to instruct installers and to inspect the competed installations for correctness
B. Inspect completed installations for completeness and correct installation
    1. If installed work is to be covered in completed work, inspect and obtain approval prior to covering
    2. Obtain the approval of the material manufacturer.
    3. Obtain the approval of the authority having jurisdiction.
    4. Submit report of inspection to the architect.
    5. Third Party inspection:
        a. Coordinate with Owner for third party special inspection as required by code.
        b. Where firestopping will be exposed, do not finish paint over firestopped penetrations until inspected and approved.

c. Where firestopping will be permanently concealed or made in-accessible by other construction, coordinate for inspection prior to such work. Do not conceal firestopping until inspected and approved.
d. Where firestopping will be accessible in suspended ceiling plenums or other accessible spaces, provide temporary identification of firestopping location. Do not install ceiling panel hold-down clips or similar devices that would hamper access to firestopping until inspected and approved.

3.6 CLEANING

A. Clean up excess material adjacent to penetrations promptly; use methods and materials approved by the manufacturers of the penetration seals and of surfaces to be cleaned.

3.7 PROTECTION

A. Section 01 10 00 – Project Procedures: Protecting installed construction.
B. Protect installed work from damage from construction operations using substantial barriers if necessary.
C. Repair damaged material in accordance with manufacturer's instructions.

END OF SECTION 07 84 00

(THIS PAGE LEFT INTENTIONALLY BLANK)

SECTION 07 90 00
JOINT PROTECTION

1.1 SUMMARY

A. Section Includes:
1. Sealants and joint backing.
2. Precompressed foam sealers.
3. Hollow gaskets.
4. Accessories.

B. Related Requirements:
1. Section 078400 - Firestopping: Firestopping sealants.

1.2 REFERENCE STANDARDS

A. ASTM International:
1. ASTM C834 - Standard Specification for Latex Sealants.
2. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
3. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
4. ASTM C1193 - Standard Guide for Use of Joint Sealants.
5. ASTM D1056 - Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.
6. ASTM D1667 - Standard Specification for Flexible Cellular Materials - Poly(Vinyl Chloride) Foam (Closed-Cell).
7. ASTM D2628 - Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements.

B. California Department of Health Services:
1. CA/DHS/EHLB/R-174 - Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers.

C. South Coast Air Quality Management District:
1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.

1.3 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with Sections referencing this Section.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Manufacturer Instructions: Submit special procedures, surface preparation requirements, and perimeter conditions requiring special attention.

E. Qualifications Statements:
   1. Submit qualifications for manufacturer and applicator.

1.5 QUALITY ASSURANCE

A. Perform Work according to applicable standards.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

B. Applicator: Company specializing in performing Work of this Section with minimum three years' documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

B. Store products according to manufacturer instructions.

C. Protection:
   1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
   2. Provide additional protection according to manufacturer instructions.

1.8 AMBIENT CONDITIONS

A. Maintain temperature and humidity as recommended by sealant manufacturer during and after installation.

1.9 WARRANTY

A. Furnish warranty per Owner’s requirements.

B. Include coverage for:
   1. Installed sealants and accessories failing to achieve airtight or watertight seal.
   2. Installed sealants and accessories exhibiting loss of adhesion or cohesion.
   3. Sealants that do not cure.

PART 2 - PRODUCTS

2.1 JOINT SEALERS

A. Manufacturers:
   1. BASF Building Systems.

2. Dow Corning Corporation.
3. GE Advanced Materials - Silicones.
4. May National Associates, Inc.
5. Pecora Corporation.
6. Polymeric Systems, Inc.
7. Schnee-Morehead, Inc.
8. Sika Corporation; Construction Products Division.
9. Bostik, Inc.
10. Or Approved Equal.

2.2 JOINT SEALERS BY APPLICATION

A. General Purpose Interior Sealant:
1. Material: Acrylic-emulsion latex.
2. Comply with ASTM C834.
3. Type: Single-component; paintable.
4. Color: Standard; match finished surfaces.
5. Applications:
   a. Interior wall and ceiling control joints.
   b. Joints between door and window frames and wall surfaces.
   c. Other interior joints for which no other type of sealant is indicated.

B. Acoustical Sealant:
1. Material: Butyl or acrylic.
2. Comply with ASTM C920, Grade NS, Class 12-1/2, Uses M and A.
3. Type: Single-component; solvent-release curing; non-skinning.
4. Applications: Concealed locations only at acoustically rated construction.

2.3 JOINT SEALERS BY TYPE

A. Acrylic-Emulsion Latex Sealant:
1. Comply with ASTM C834.
2. Type: Single-component; non-staining, non-bleeding, non-sagging.
3. Color: Standard; match finished surfaces.
4. Movement Capability: 2 to 5 percent.
5. Service Temperature Range: 2 to 160 deg. F.
6. Hardness Range: Shore A, 15 to 40.

B. Acrylic Sealant:
1. Comply with ASTM C920, Grade NS, Class 12-1/2, Uses NT, M, A, and O.
2. Type: Single-component; solvent release curing; non-staining, non-bleeding, non-sagging.
3. Color: Standard; match finished surfaces.
4. Movement Capability: Plus and minus 12-1/2 percent.
5. Service Temperature Range: Minus 13 to plus 180 deg. F.
6. Hardness Range: Shore A, 25 to 50.

C. Butyl Sealant:
1. Comply with ASTM C920, Grade NS, Class 12-1/2, Use NT.
2. Type: Single-component; solvent release curing; non-skinning, non-sagging.

3. Color: Black.
4. Movement Capability: Plus and minus 12-1/2 percent.
5. Service Temperature Range: Minus13 to plus 180 deg. F.
6. Hardness Range: Shore A, 10 to 30.

D. Non-sag Polysulfide Sealant:
1. Comply with ASTM C920, Grade NS, Class 25, Uses NT, M, A.
2. Type: Two-component; chemically curing; non-staining, non-bleeding, non-sagging; capable of continuous water immersion.
3. Color: Standard; match finished surfaces.
4. Movement Capability: Plus and minus 25 percent.
5. Service Temperature Range: Minus 40 to plus 180 deg. F.
6. Hardness Range: Shore A, 20 to 35.

E. Self-Leveling Polysulfide Sealant:
1. Comply with ASTM C920, Grade P, Class 25, Uses T and M.
2. Type: Two-component; chemically curing; non-staining, non-bleeding; self-leveling.
3. Color: Standard; match finished surfaces.
4. Movement Capability: Plus and minus 25 percent.
5. Service Temperature Range: Minus 40 to plus 180 deg. F.
6. Hardness Range: Shore A, 20 to 35.

F. Non-sag Polyurethane Sealant:
1. Comply with ASTM C920, Grade NS, Class 25, Uses NT and M.
2. Type: Single-component; chemical curing; non-staining, non-bleeding, non-sagging;
3. Color: Standard; match finished surfaces.
4. Movement Capability: Plus and minus 25 percent.
5. Service Temperature Range: Minus 40 to plus 180 deg. F.
6. Hardness Range: Shore A, 20 to 35.

G. Self-Leveling Polyurethane Sealant:
1. Comply with ASTM C920, Grade P, Class 25, Uses T, M, and A.
2. Type: Single-component; chemical curing; non-staining, non-bleeding; self-leveling.
3. Color: Standard; match finished surfaces.
4. Movement Capability: Plus and minus 25 percent.
5. Service Temperature Range: Minus 40 to plus 180 deg. F.
6. Hardness Range: Shore A, 20 to 35.

H. Silicone Sealant:
1. Comply with ASTM C920, Grade NS, Class 25, Uses NT and A.
2. Type: Single-component; solvent curing; non-sagging, non-staining, non-bleeding; fungus resistant].
3. Color: Standard, match finished surfaces.
4. Movement Capability: Plus 25 percent, minus 25 percent.
5. Service Temperature Range: Minus 65 to plus 180 deg. F.
6. Hardness Range: Shore A, 15 to 35.

2.4 ACCESSORIES

A. Primer:

1. Type: Non-staining.
2. As recommended by sealant manufacturer to suit application.

B. Joint Cleaner:
1. Type: Non-corrosive and non-staining.
2. As recommended by sealant manufacturer.
3. Compatible with joint forming materials.

C. Joint Backing:
1. Description: Round foam rod, compatible with sealant.
2. Comply with ASTM D1056, sponge or expanded rubber.
3. Size: Oversized 30 to 50 percent larger than joint width.

D. Bond Breaker:
1. Description: Pressure-sensitive tape.
2. As recommended by sealant manufacturer to suit application.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces and joint openings are ready to receive Work of this Section.

B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

A. Comply with ASTM C1193.

B. Remove loose materials and foreign matter that could impair adhesion of sealant.

C. Clean and prime joints.

D. Protect elements surrounding Work of this Section from damage or disfiguration.

3.3 APPLICATION

A. Comply with ASTM C1193.

B. Acoustical Sealant:
1. Comply with ASTM C919.
2. Provide sealant bead between top stud runner and structure, and between bottom stud track and floor.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer , except where specific dimensions are indicated on Drawings.

D. Install bond breaker where joint backing is not used.

E. Apply sealant free of air pockets, foreign embedded matter, ridges, and sags.

F. Joint Tooling: Concave.

G. Pre-compressed Foam Sealant:
1. Do not stretch.
2. Avoid joints except at corners, ends, and intersections.
3. Apply with face 1/8 to 1/4 inch below adjoining surface.

H. Compression Gaskets:
1. Avoid joints except at ends, corners, and intersections.
2. Seal joints with adhesive.
3. Install with face 1/8 to 1/4 inch below adjoining surface.

3.4 CLEANING

A. Clean adjacent soiled surfaces.

3.5 PROTECTION

A. Protect sealants until cured.

END OF SECTION 07 90 00

SECTION 09 51 00

ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes:
   1. Acoustical ceiling panels.
   2. Exposed grid suspension system.
   3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.
   4. Custom perimeter trim.

B. Related Sections:
   1. Division 23 Sections - Mechanical Work

   2. Fire Suppression Sheet Specifications FP-001

C. Alternates
   1. See Section 01 30 00, alternate submittals, prior to approval: Unless otherwise provided for in the Contract documents.
   2. Submittals which do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
   2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
   3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
   4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
   5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
   6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
   7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.

8. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
9. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
10. ASTM E 1264 Classification for Acoustical Ceiling Products.
11. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
13. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
B. Samples: Minimum (3) samples 6"x6" of each specified acoustical panel; 8" long samples of exposed wall molding and suspension system, including main runner and 4'-0" cross tees.
C. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
D. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.5 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
    1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
        a. Flame Spread: 25 or less
        b. Smoke Developed: 50 or less
C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
B. Before installing ceiling units, permit them to reach room temperature and a stabilized moisture content.
C. Handle ceiling units carefully to avoid chipping edges or damaged units in any way.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceiling until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
   1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

1.8 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
   1. Acoustical Panels: Sagging and warping
   2. Grid System: Rusting and manufacturer's defects

B. Warranty Period:
   1. Acoustical panels: Ten (10) years from date of substantial completion.
   2. Grid: Ten (10) years from date of substantial completion.
   3. Acoustical panels and grid systems with HumiGuard Plus performance supplied by one source manufacturer is fifteen (15) years from date of substantial completion.

C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.9 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
   1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0% of amount installed.
   2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0% of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Ceiling Panels:
   1. Armstrong Industries 915, or as specified by Owner.
   2. Substitutions: 01 30 00 – Submittals and Substitutions

2.2 ACOUSTICAL CEILING UNITS

A. Acoustical Panels
   1. Surface Texture: Fine Fissured

2. Composition: Mineral Fiber
3. Color: Standard White
4. Size: 24”x 48”x⅝” or 24” x 24” x 5/8” See Reflected Ceiling Plan
5. Edge Profile: Trim edge (Square) for interface with 15/16” Exposed Tee.
6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.55.
7. Ceiling Attenuation Class (CAC) ASTM C 1414; Classified with UL label on product carton, 35.
8. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.82.
9. Light Reflectance Designation; LR-1

2.3 SUSPENSION SYSTEMS

A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized as per ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.
    1. Structural Classification: ASTM C 635 Intermediate Duty.
    2. Color: White
    3. Acceptable Product: 15/16” Classic Stab System as Manufactured by BPB America Inc.

B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, prestretched, with a yield stress load of at least time three design load, but not less than 12 gauge.
D. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer’s standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.
E. Accessories

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer’s printed recommendations.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
    1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

A. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
B. Suspend main beam from overhead construction with hanger wires spaced 4-0 on center along the length of the main runner. Install hanger wires plumb and straight.
C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
D. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.
B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 00

(THIS PAGE INTENTIONALLY LEFT BLANK)

SECTION 09 90 00

PAINTS AND COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and field application of paints and other coatings.

1.2 REFERENCES

A. ASTM International:
   1. ASTM D16 - Standard Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
   2. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
   3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

B. Master Painters Institute (MPI):
   1. Architectural Painting Specification Manual, including Identifiers, Evaluation, Systems, Preparation and Approved Product List. (Hereafter referred to as the MPI Painting Manual) as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.

C. Environmental Protection Agency (EPA):
   1. Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings).

D. Painting and Decorating Contractors of America:
   1. PDCA - Architectural Painting Specification Manual.

E. SSPC: The Society for Protective Coatings:
   1. SSPC - Steel Structures Painting Manual.

1.3 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this section.

1.4 SUBMITTALS

A. Section 01 30 00 – Submittals and Substitutions.
B. Product Data: Submit data on finishing products.
C. Samples:
   1. Submit two paper chip samples, 2”x 2” in size illustrating range of colors available for each surface finishing product scheduled.

D. Manufacturer's Installation Instructions: Submit special surface preparation procedures, substrate conditions requiring special attention.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.
B. Coating Maintenance Manual: Upon conclusion of the project, the contractor in conjunction with the coatings manufacturer or supplier shall furnish a coating maintenance manual such as Sherwin-Williams “Custodian Project Color and Product Information” report or equal. Manual shall include an area summary with finish schedule, area detail designating where each color/product/finish was used, product data pages, MSDS pages, care and cleaning instructions, touch up procedures and color samples of each color and finish used.

1.6 QUALITY ASSURANCE

A. Manufacturer: All paint manufacturers and products used shall be as listed under the Approved Product List section of the MPI Painting Manual.
B. All materials, preparation and workmanship shall conform to requirements of the latest edition of the Architectural Painting Specification Manual by the Master Painters Institute (MPI).
C. Installer / Applicator: Contractor shall have a minimum of five (5) years proven satisfactory experience and shall show proof before commencement of work that they will maintain a qualified crew of painters throughout the duration of the work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 01 30 00 - Submittals and Substitutions:
B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
C. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
D. Paint Materials: Store at minimum ambient temperature of 45°F and maximum of 90°F, in ventilated area, and as required by manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Section01 30 00 - Submittals and Substitutions
B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
C. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.
D. Minimum Application Temperatures for Latex Paints: 45°F for interiors; 50°F for exterior; unless required otherwise by manufacturer's instructions.
E. Minimum Application Temperature for Varnish Finishes: 65°F for interior or exterior, unless required otherwise by manufacturer's instructions.
F. Provide lighting level of 80 ft candle measured mid-height at substrate surface.

1.9 SEQUENCING

A. Sequence application to the following:
   1. Do not apply finish coats until paintable sealant is applied.
   2. Back prime wood trim before installation of trim.

1.10 REGULATORY REQUIREMENTS

A. Conform to the latest edition of Industrial Health and Safety Regulations issued by applicable authorities having jurisdiction in regard to site safety (ladders, scaffolding, ventilation, etc.).
B. Conform to requirements of local authorities having jurisdiction in regard to the storage, mixing, application and disposal of all paint and related waste materials.

1.11 WARRANTY

A. Section 01 77 00 - Closeout procedures: Product warranties and product bonds.
B. Furnish five-year manufacturer warranty for paints and coatings.

1.12 EXTRA MATERIALS

A. Section 01 33 00 – Contract Closeout
B. Supply two (2) gallons of each color, type, and surface texture; store where directed.
C. Label each container with color, type, texture, room locations, and date in addition to manufacturer's label.

PART 2 PRODUCTS

2.1 PAINTS AND COATINGS

A. Manufacturers: Paint, Primer Sealers, Block Filler.
   1. Sherwin Williams (S-W): LEED finishes and coatings- basis of quality.
   2. Benjamin Moore Finishes and Coatings (B-M)

B. Substitutions: Section 01 30 00 –01 30 00 - Submittals and Substitutions
C. Furnish materials in accordance with architect’s instructions.

2.2 COMPONENTS

A. Coatings: Ready mixed, except field-catalyzed coatings. Prepare coatings:
   1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
   2. For good flow and brushing properties.
   3. Capable of drying or curing free of streaks or sags.

B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve finishes specified; commercial quality.
C. Patching Materials: Latex filler.
D. Fastener Head Cover Materials: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify surfaces and substrate conditions are ready to receive Work as instructed by product manufacturer.
B. Examine surfaces scheduled to be finished prior to commencement of work. Report conditions capable of affecting proper application.
C. Test shop applied primer for compatibility with subsequent cover materials.
D. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Masonry, Concrete, and Concrete Unit Masonry: 12%.

3.2 PREPARATION

A. Surface Appurtenances: Remove [or mask] electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
B. Surfaces: Correct defects and clean surfaces capable of affecting work of this section. Remove or repair existing coatings exhibiting surface defects.
C. Marks: Seal with shellac those which may bleed through surface finishes.
D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
E. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
F. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
G. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint or Stain Finish: Prepare surfaces in accordance with manufacturer's recommendations. Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with manufacturer's recommended cleaner/degreaser, or if acceptable, solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasillicate after thoroughly wetting with water. Allow to dry.
H. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
I. Existing Painted Wood Floor Substrates:
   1. Sand surfaces that will be exposed to view, and dust off.
   2. Prime edges, ends, faces, undersides, and where possible, backsides of wood.
   3. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

J. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
K. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.

L. Wood Doors Scheduled for Painting: Seal wood door top and bottom edge surfaces with tinted primer.
M. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
N. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
O. Steel lintels: as directed by manufacturer directions. Scrape and prepare surfaces for (1) coat primer and (2) finish coats as directed by Manufacturer.
P. Poured Concrete for water based epoxy floor enamel system: For surface preparation, refer to SSPC-SP13/NACE 6/ICRI # 03732. Surfaces must be clean, dry, sound, and offer sufficient profile to achieve adequate adhesion. Minimum substrate cure is 28 days at 75°F. Remove all form release agents, curing compounds, salts, efflorescence, laitance, and other foreign matter by sandblasting, shotblasting, mechanical scarification, or suitable chemical means. Refer to ASTM D4260. Rinse thoroughly to achieve a final pH between 8.0 and 10.0. Allow to dry thoroughly prior to coating.
Q. Prepare and clean all intended substrates in accordance with the manufacturers written product data pages. These requirements must be fully reviewed and understood by the selected contractor and before proceeding with any procedures.

3.3 EXISTING WORK

A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

3.4 APPLICATION

A. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
B. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
C. Sand wood and metal surfaces lightly between coats to achieve required finish.
D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
E. Where clear finishes are required, tint fillers to match wood. Work fillers into grain before set. Wipe excess from surface.
F. Prime concealed surfaces of interior woodwork with primer paint.
G. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25% with thinner.
H. Finishing Mechanical And Electrical Equipment:
    1. Refer to Section 23 05 53 for schedule of color-coding and identification banding of equipment, ductwork, piping, and conduit.
    2. Paint shop primed equipment.
    3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, and except where items are shop finished.
5. Paint interior surfaces of air ducts and convector heating cabinets visible through grilles and louvers with one coat of flat black paint to visible surfaces. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
6. Paint exposed conduit and electrical equipment occurring in finished areas.
7. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
8. Color code equipment, piping, conduit, and exposed ductwork in accordance with Color band and identify with flow arrows names, and/or numbering.
9. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.5 FIELD QUALITY CONTROL

A. Section 01 33 00 – Contract Closeout.

3.6 CLEANING

A. Section 01 33 00 – Contract Closeout.
B. Collect waste material, which may constitute fire hazard, place in closed metal containers, and remove daily from site.

END OF SECTION 09 90 00

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.

M. 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.

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

END OF SECTION 23 05 29

(THIS PAGE LEFT INTENTIONALLY BLANK)

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.

D. 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,i7, 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

(THIS PAGE LEFT INTENTIONALLY BLANK)

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-ft^2-^{o}F at a 75^{o}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 indented 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

(THIS PAGE LEFT INTENTIONALLY BLANK)

SECTION 23 09 93 – ATC HVAC CONTROLS

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

1.3 DEFINITIONS

A. The following definitions are used throughout the section:

1. ATC – Automatic Temperature Control
2. LAN – Local Area Network
3. FMS – Facility Management System
4. DDC – Direct Digital Control
5. BMS – Building Management System

1.4 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.

PART 2 - PRODUCTS

2.1 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.

2.2 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.

2.3 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.

2.4 **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 3 - EXECUTION

3.1 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.

3.2 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 installed 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.

3.3 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

END OF SECTION 23 09 93

(THIS PAGE LEFT INTENTIONALLY BLANK)

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 re commendations. 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 hall 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 I 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 dynalmic; 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 calking.

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.

D. 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.

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

F. 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.

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

H. Special Construction:

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

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

J. 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.

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

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: ¾ 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

(THIS PAGE LEFT INTENTIONALLY BLANK)

PROJECT GENERAL NOTES

DRAWINGS ARE NOT TO BE SCALED. DIMENSIONS ARE PROVIDED TO INDICATE DESIGN INTENT ONLY. LARGE-SCALE DETAILS SHALL SUPERSEDE SMALLER SCALE DRAWINGS.

THE WORK INCLUDED IN THIS SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND ALL COORDINATION ASSOCIATED WITH SUCH ALONG WITH THE EXECUTED CONTRACT SHALL BE THE RESPONSIBILITY OF THE BIDDER. THE BIDDER WILL BE REFERRED TO THROUGHOUT THESE DRAWINGS AND DOCUMENTS AS BIDDER, GENERAL CONTRACTOR (G.C.) OR CONTRACTOR AND SHALL:

1. COORDINATE THE WORK OF ALL TRADES AND THE OWNER'S REQUIREMENTS FOR ALL WORK INDICATED IN THESE CONTRACT DOCUMENTS AND ASSUME FINAL RESPONSIBILITY FOR ALL CONSTRUCTION COORDINATION.
2. COORDINATE SCHEDULE OF INSTALLATION WITH THE COLLEGE OF NEW JERSEY REPRESENTATIVE AND ARCHITECT PRIOR TO PROJECT COMMENCEMENT.
3. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, ETC. AT THE SITE. DIMENSIONS ARE FROM CMU FACE TO CMU FACE OR TO GYP. BOARD FACE WHERE APPLICABLE, UNLESS NOTED OTHERWISE. THE EXISTENCE AND LOCATION OF CONSTRUCTION INDICATED AS EXISTING IN THESE DRAWINGS ARE NOT GUARANTEED. REPORT ANY DISCREPANCIES TO THE ARCHITECT IN WRITING PRIOR TO CONSTRUCTION. ANY SURFACES REQUIRING REPAIR FOR PROPER INSTALLATION OF NEW FINISHES MUST BE INCLUDED IN THE BASE BID. CONTRACTOR SHALL ALSO COORDINATE WORK WITH THE WORK OF OTHER TRADES.
4. ACKNOWLEDGE THAT THE BIDDER HAS VISITED THE SITE AND/OR IS SUFFICIENTLY FAMILIAR WITH ALL PERTINENT CONDITIONS FOR A RESPONSIVE AND MEANINGFUL BID.
5. BE RESPONSIBLE FOR MAINTAINING THE SECURITY OF THE BUILDING THROUGHOUT THE PROJECT TO FINAL COMPLETION AND OWNER'S ACCEPTANCE. COOPERATE WITH BUILDING MANAGEMENT ON SECURITY PROCEDURES.
6. PERFORM ALL WORK SHOWN ON THESE DRAWINGS UNLESS NOTED OTHERWISE.
7. ASSIST THE COLLEGE OF NEW JERSEY WHEN APPLYING FOR PERMITS. NO WORK IS TO BE STARTED WITHOUT ALL REQUIRED PERMITS. THE COLLEGE OF NEW JERSEY WILL PAY FOR ALL PERMIT FEES.
8. OBTAIN ALL INSPECTIONS AND CERTIFICATES NECESSARY FOR OCCUPANCY. TEMPORARY CERTIFICATE OF OCCUPANCY (T.C.O.) OR C. OF O. IS A PREREQUISITE FOR PUNCH LIST PREPARATION.
9. PROVIDE ALL NEW MATERIALS AND INSTALLATIONS IN ACCORDANCE WITH MANUFACTURER'S LATEST PRINTED SPECIFICATIONS AND CODE REQUIREMENTS.
10. BE RESPONSIBLE FOR ALL DEMOLITION AS REQUIRED FOR COMPLETION OF THE PROJECT. REMOVE ALL DEMOLISHED MATERIALS, NOT DESIGNATED FOR REUSE, FROM THE PREMISES. EXISTING CONDITIONS DISTURBED BY ALTERATION WORK SHALL BE PATCHED, REPAIRED, OR REPLACED TO MATCH EXISTING CONDITIONS AND FINISHES TO A LIKE NEW CONDITION. REMOVE ALL DEBRIS FROM THE SITE DURING CONSTRUCTION PROCESS AND LEAVE THE PREMISES CLEAN, NEAT AND ORDERLY DURING AND AT THE COMPLETION OF THE PROJECT. ALL MATERIALS TO BE RECYCLED AND DISPOSED OF IN A CODE-COMPLIANT MANNER.
11. CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE CODES, LAWS, RULES, AND REGULATIONS OF ALL CONSTITUTED AUTHORITIES HAVING JURISDICTION.
12. CAP AND IDENTIFY ALL EXISTING UTILITIES PRIOR TO DEMOLITION IN THE CONSTRUCTION AREAS. ALL UTILITY PIPING, CONDUITS, THERMOSTATS, ETC. ABANDONED AS PART OF THIS PROJECT WILL BE REMOVED AND SURFACES PAINTED AND PATCHED AS REQUIRED.
13. PREPARE COORDINATION DRAWINGS OF ALL TRADES PRIOR TO ORDERING ANY AND/OR ALL MATERIALS INCLUDING LEAD ITEMS.
14. SUBMIT SHOP DRAWINGS OF ALL ITEMS, MATERIAL SAMPLES AND EQUIPMENT CUT-SHEETS. SHOP DRAWINGS SHALL INCLUDE DETAILED FABRICATION AND ERECTION DRAWINGS, SETTING DRAWINGS, DIAGRAMMATIC DRAWINGS AND MATERIAL. ALL ITEMS SHALL BE CLEARLY INDICATED. FABRICATION SHALL BEGIN ONLY AFTER RECEIVING APPROVED SHOP DRAWINGS.
15. PROVIDE PROPER PROTECTION FOR ALL EXISTING WORK, FURNITURE, MATERIALS, EQUIPMENT, AND FIXTURES WHICH ARE LIKELY TO BE DAMAGED DURING CONSTRUCTION. THE EXISTING STRUCTURAL SYSTEM SHALL ALSO BE PROTECTED AND STRUCTURAL INTEGRITY MAINTAINED. TEMPORARY PARTITIONS TO SEPARATE WORK AREAS FROM OCCUPIED AREAS SHALL BE PROVIDED TO PREVENT THE SPREAD OF DUST, MOISTURE, AND OTHER CONSTRUCTION DEBRIS. CONTRACTOR SHALL REPAIR OR REPLACE ALL DAMAGED CONDITIONS TO EXISTING BUILDING AND SITE IF DAMAGED DURING CONSTRUCTION TO MATCH EXISTING AT NO ADDITIONAL COST TO OWNER.
16. VERIFY REQUIREMENTS FOR FIRE EXTINGUISHER LOCATIONS AND INSTALLATION, PER REQUIREMENTS OF THE STATE FIRE MARSHALL.
17. WEAR THE APPROPRIATE IDENTIFICATION BADGES IDENTIFYING THE INDIVIDUAL AND THE FIRM FOR WHICH THEY ARE EMPLOYED.
18. PROTECT ALL EXISTING CORRIDOR WALLS AND FLOORS DURING ALL PHASES OF CONSTRUCTION. ANY DAMAGE WILL BE THE CONTRACTOR'S RESPONSIBILITY TO FIX AT NO ADDITIONAL COST TO OWNER.
19. PATCH AND REPAIR ALL EXISTING SURFACES IN PREPARATION OF NEW FINISH INSTALLATION. PROTECT EXISTING SURFACES TO REMAIN THROUGHOUT DURATION OF DEMOLITION AND CONSTRUCTION.
20. SHALL NOT DISCONNECT/INTERRUPT SERVICES WITHOUT PRIOR APPROVAL OF THE OWNER.
21. ENSURE ALL WIRING ARE TEST FREE OF GROUNDS, SHORTS, CROSSES, AND OPENS. ALL ELECTRICAL WORK TO BE DONE IN A CODE-COMPLIANT MANNER. CONDUIT MAY BE REUSED WHERE APPLICABLE, HOWEVER, ALL WIRING WILL BE NEW. RE-USED CONDUITS TO BE IN GOOD CONDITION. PATCH AND REPAIR ALL HOLES LEFT AFTER REMOVAL OF EXISTING ELECTRICAL WORK AND INSTALLATION OF NEW WORK. FINISH TO MATCH EXISTING.
22. PROVIDE FIRE STOP SEALANT AT ALL CORRIDOR WALL PENETRATIONS REQUIRED FOR INSTALLATION OF NEW WORK.
23. BE RESPONSIBLE FOR ALL CONSTRUCTION TO BE NON-COMBUSTIBLE. ANY LUMBER MUST BE FIRE RETARDANT AS PER INTERNATIONAL BUILDING CODE 2018, NEW JERSEY EDITION, AS PER NEW JERSEY UNIFORM CONSTRUCTION CODE N.J.A.C. 5:23-6.
24. ENSURE ALL NEW INTERIOR SURFACES TO BE FINISHED TO MATCH EXISTING ADJACENT SURFACES, UNLESS NOTED OTHERWISE.
25. PROVIDE 10% MINIMUM OF "ATTIC STOCK" OF ALL FLOOR AND PAINT FINISHES.
26. BE RESPONSIBLE TO COORDINATE THE LOCATION OF EXISTING CONSTRUCTION WITH NEW WORK AT THE CEILINGS. CONTRACTOR IS TO SUBMIT A COORDINATION PLAN FOR ALL CORRIDOR WALL PENETRATIONS AND ROOM TO ROOM PENETRATIONS WITH RELATION TO EXISTING CONSTRUCTION LOCATED ABOVE CEILINGS. IN THE EVENT THAT EXISTING CONDITIONS CANNOT BE AVOIDED, CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION OF ANY EXISTING CONSTRUCTION ABOVE CEILINGS AT CORRIDORS AND ROOMS, INCLUDING, BUT NOT LIMITED TO CONDUIT, JUNCTION BOXES, PIPING, DUCTWORK, ETC.
27. BE RESPONSIBLE FOR CLEANING ALL SPACES AND SITE AFFECTED BY DEBRIS AND DUST FROM CONSTRUCTION.
28. BE RESPONSIBLE FOR REMOVING ALL ABANDONED POWER DATA/TELCO, WIRING, AND EQUIPMENT FROM THE EXISTING FLOORS, WALLS, AND CEILINGS. PATCH AND REPAIR AS REQUIRED. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL WIRING BACK TO THE NEAREST JUNCTION BOX IN A CODE COMPLIANT MANNER.
29. BE RESPONSIBLE FOR PATCHING AND REPAIRING ALL EXISTING FIREPROOFING DAMAGED THROUGHOUT ALL PHASES OF DEMOLITION AND CONSTRUCTION.
30. PROVIDE A MINIMUM OF TWO-YEAR WARRANTY OF ALL WORKMANSHIP.
31. ENSURE ANY WORK WITHIN AN OCCUPIED BUILDING IS TO BE COMPLETED IN ACCORDANCE WITH THE INDOOR AIR QUALITY PROGRAM REGULATIONS.
32. ENSURE ALL DEMOLITION AND CONSTRUCTION TO BE PERFORMED SHALL COMPLY WITH THE NJ EDITION OF THE INTERNATIONAL FIRE CODE.
33. NOTIFY THE COLLEGE OF NEW JERSEY'S IMPAIRMENT COORDINATOR AT LEAST 2 BUSINESS DAYS PRIOR TO ANY IMPAIRMENTS OF THE FIRE ALARM OR FIRE SUPPRESSION SYSTEM DURING ANY PHASE OF CONSTRUCTION OR DEMOLITION.

SYMBOLS

- DETAIL MARKER — DETAIL NUMBER / SHEET NUMBER
- SINGLE ELEVATION MARKER — ELEVATION NUMBER / SHEET NUMBER
- MULTI-ELEVATION MARKER — ELEVATION NUMBER / SHEET NUMBER
- SECTION MARKER — SECTION NUMBER / SHEET NUMBER
- CALL OUT BUBBLE — SECTION NUMBER / SHEET NUMBER
- REVISION MARKER
- DRAWING NOTE
- SPOT ELEVATION — A.F.F.
- ROOM TAG — ROOM NAME / ROOM NUMBER
- ADA HANDICAP SYMBOLS

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
ALUM.	ALUMINUM
B.F.	BARRIER FREE
BLDG.	BUILDING
CLG.	CEILING
CLR.	CLEAR
COL.	COLUMN
℄	CENTERLINE
CONC.	CONCRETE
C.M.U.	CONCRETE MASONRY UNIT
C. of O.	CERTIFICATE OF OCCUPANCY
DWG.	DRAWING
EQ.	EQUAL
ETC.	ETCETERA
EXIST.	EXISTING
FL.	FLOOR
G.C.	GENERAL CONTRACTOR
GYP.	GYPSUM (GYPSUM BOARD)
M.O.	MASONRY OPENING
MFR.	MANUFACTURER
MAX.	MAXIMUM
MTL.	METAL
N/A	NOT APPLICABLE
NDL	NO DOLLAR LIMIT
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
P.T.	PRESSURE-TREATED
PTD.	PAINTED
Q.C.	QUALITY CONTROL
R.O.	ROUGH OPENING
REQ'D.	REQUIRED
S.F.	SQUARE FOOT (FEET)
SIM.	SIMILAR
S.S.	STAINLESS STEEL
T.C.O.	TEMPORARY CERTIFICATE OF OCCUPANCY
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
V.I.F.	VERIFY IN FIELD

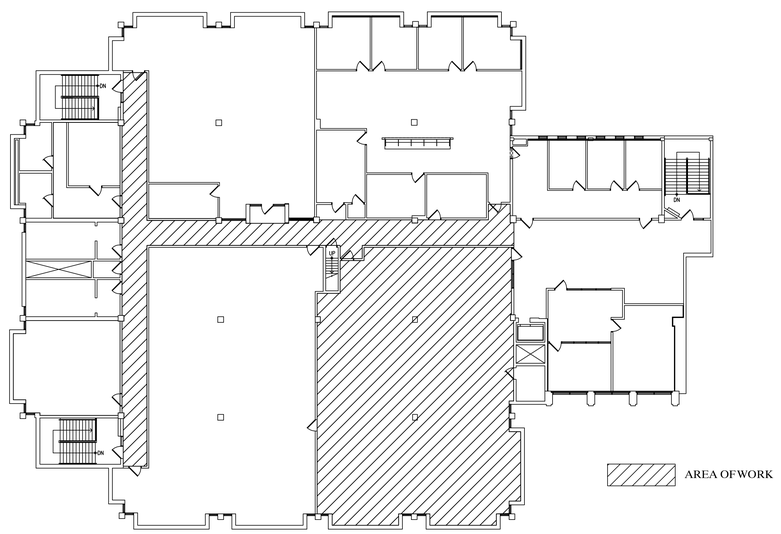
MAIN TITLE

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

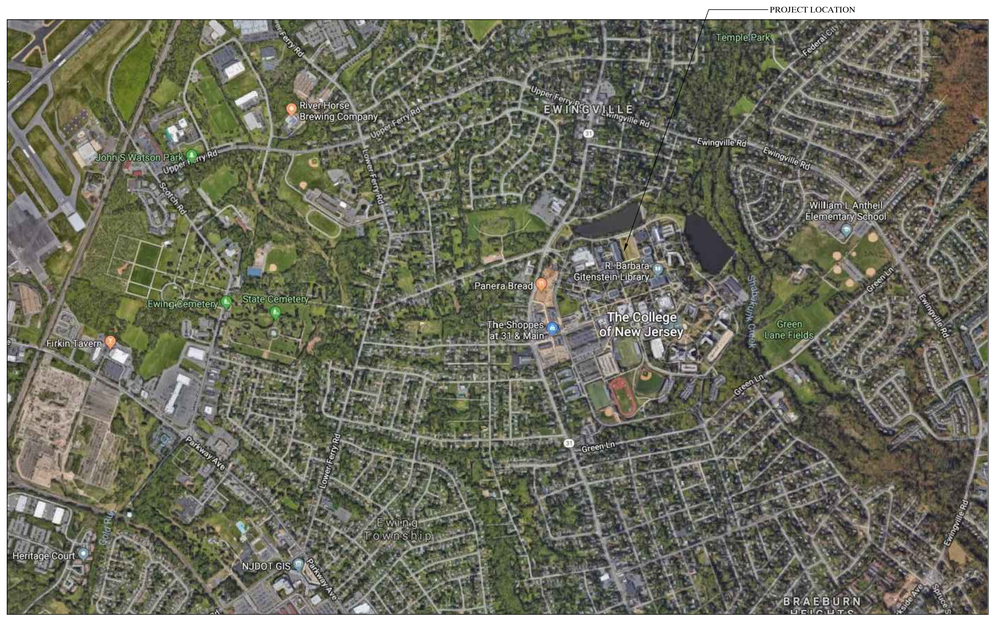
THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING TOWNSHIP, NEW JERSEY 08618

KEY PLAN — TRUE NORTH — SCALE: N.T.S.



AERIAL MAP — PLAN NORTH — SCALE: N.T.S.



CODE DATA

NJUCC:	NEW JERSEY UNIFORM CONSTRUCTION CODE INTERNATIONAL BUILDING CODE 2018 NJ ED.
REHABILITATION CODE:	RENOVATION NJAC 5:23-6
USE GROUP:	B (BUSINESS)
TYPE OF CONST.:	II-B (EXISTING)
SPRINKLER	Y
TOTAL AREA OF CONSTRUCTION:	±4,896 S.F.

ALL WORK SHALL CONFORM TO ALL RULES AND REGULATIONS OF MERCER COUNTY, EWING TOWNSHIP AND ALL GOVERNING AUTHORITIES HAVING JURISDICTION. THIS INCLUDES, BUT IS NOT LIMITED TO: FIRE CODES, BUILDING AND CONSTRUCTION CODES, CONTROLLED INSPECTIONS, MATERIAL TESTING, LABOR LAW, AND ZONING AND HEALTH REGULATIONS.

LISTED BELOW ARE THE CURRENT ADOPTED CODES UNDER THE NEW JERSEY STATE UNIFORM CONSTRUCTION CODE (U.C.C.):

INTERNATIONAL BUILDING CODE – NEW JERSEY EDITION	2018
INTERNATIONAL MECHANICAL CODE	2018
ENERGY SUBCODE / ASHRAE 90.1	2016
THE NATIONAL ELECTRICAL CODE	2017
THE NATIONAL STANDARD PLUMBING CODE	2018
INTERNATIONAL FUEL GAS CODE	2018
NJ REHABILITATION SUBCODE	NJAC 5:23-6
BARRIER FREE SUBCODE	CH. 11 OF IBC/2018 ANSI A117.1-2009

ANY WORK WHICH DEVIATES FROM SUCH STANDARDS SHALL BE RECTIFIED TO THE SATISFACTION OF THE GOVERNING AUTHORITY. THE REQUIREMENTS OF GOVERNING AUTHORITIES SHALL SUPERSEDE THE DRAWINGS AND SPECIFICATIONS IN ALL CASES. THE ARCHITECT SHALL BE NOTIFIED BY WRITTEN CHANGE ORDER BEFORE SUCH WORK IS STARTED. NON-FAMILARITY WITH GOVERNING RULES AND REGULATIONS SHALL NOT BE CAUSE FOR AN EXTRA CHARGE IN THE EVENT THAT WORK MUST BE REPLACED FOR NONCOMPLIANCE.

LIST OF DRAWINGS

GENERAL
T1.00 TITLE SHEET

ARCHITECTURAL
D2.01 PARTIAL SECOND FLOOR DEMOLITION RCP
A2.01 PARTIAL SECOND FLOOR CONSTRUCTION RCP
A5.01 CEILING DETAILS

MECHANICAL
M-001 MECHANICAL GENERAL NOTES AND SYMBOL LIST
MD-101 MECHANICAL PARTIAL DEMOLITION FLOOR PLAN
M-101 MECHANICAL PARTIAL NEW WORK FLOOR PLAN
M-201 MECHANICAL DETAILS AND SCHEDULES

ELECTRICAL
E-001 GENERAL NOTES AND SYMBOL LIST
ED-101 ELECTRICAL DEMOLITION PLAN PART A
ED-102 ELECTRICAL DEMOLITION PLAN PART B
E-101 ELECTRICAL POWER PLAN
E-201 ELECTRICAL LIGHTING PLAN

FIRE PROTECTION
FP-001 GENERAL NOTES AND SYMBOL LIST
FP-101 EXISTING FIRE PROTECTION FLOOR PLAN
FP-102 FIRE PROTECTION NEW WORK PLAN

PARETTE SOMJEN
ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00395800
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

REV	DATE	REMARK
-	2022-08-29	ISSUED FOR CONSTRUCTION

- Marc R. Parette A.I.A.
  - NCARB Registration 44264
  - New Jersey Architect 10436
  - New York Architect 024312
  - Pennsylvania Architect 014798B
  - Maryland Architect 10445
  - New Jersey Planner 4981
  - Alabama Architect 5996
  - Louisiana Architect 6261
  - Florida Architect AR 93131
  - Michigan Architect 1301053053
  - Nevada Architect 6311
- Gregory J. Somjen A.I.A.
  - NCARB Registration 47178
  - New Jersey Architect 13349
  - Massachusetts Architect 9629
  - Delaware Architect 6616
  - Virginia Architect 0401 011210
  - Connecticut Architect 8622
  - New York Architect 032435-1
  - Nevada Architect 6280
  - District Of Columbia Architect 101294
- William H. Bannister, A.I.A.
  - New Jersey Architect 19142
  - Connecticut Architect ARL0014499
  - North Carolina Architect 15027
  - South Carolina Architect 10382
  - Pennsylvania Architect RA409555
- Hae-An Chyun A.I.A.
  - New Jersey Architect 20868
- Sara MacDonald A.I.A.
  - New Jersey Architect 18503

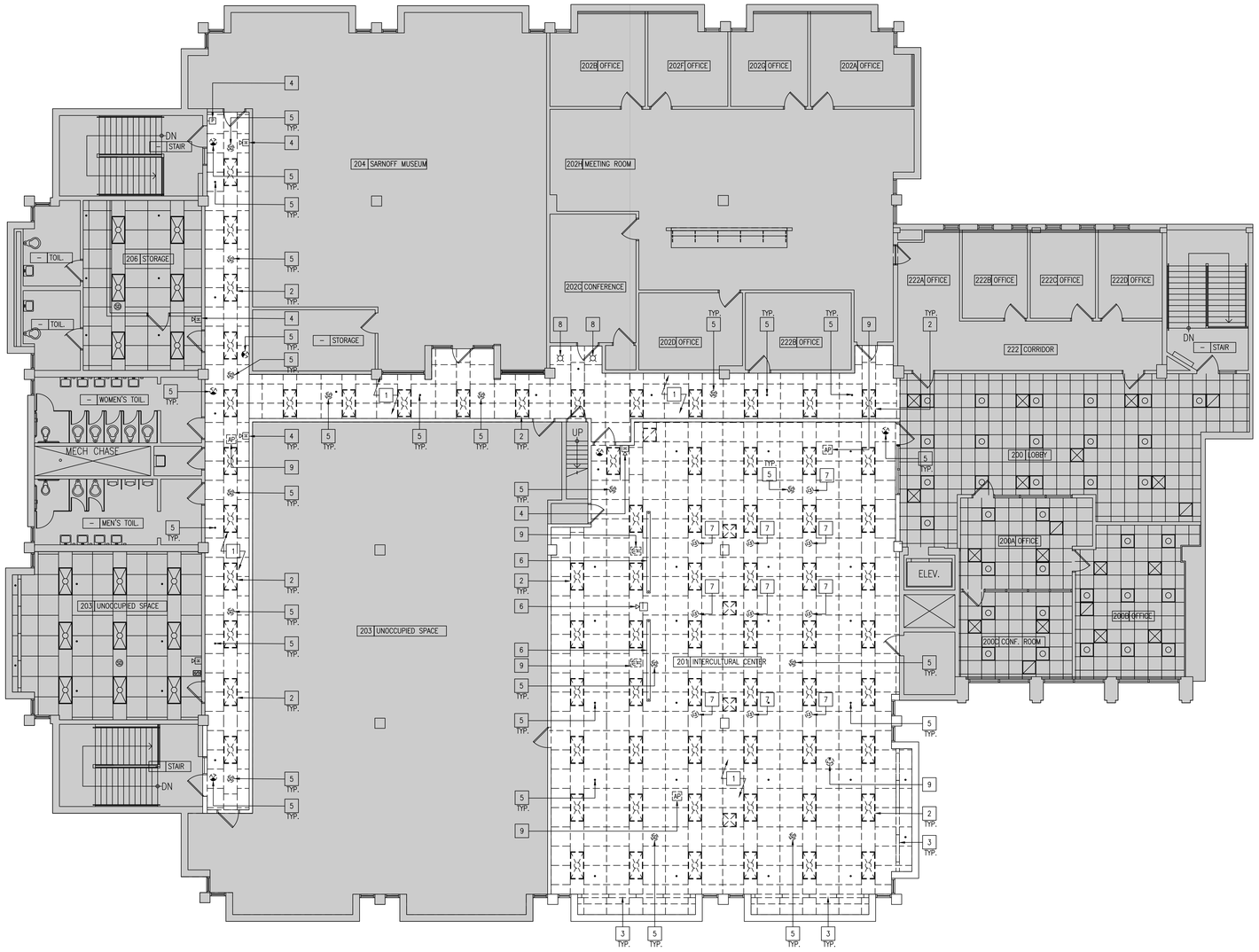
SIGNATURE

TITLE SHEET

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

SM PROJECT MANAGER	SHEET NUMBER T1.00
NG DRAWN BY	
8500 PROJECT NUMBER	

29 JULY 2022
RELEASE DATE



1 REFLECTED CEILING DEMOLITION PLAN

TRUE NORTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

G1. EXIT LIGHTS w/ BATTERY BACKUP & EMERGENCY LIGHTING SHALL BE INSTALLED AS INDICATED ON DRAWINGS. A FUNCTIONAL TEST OF THE BUILDING'S EMERGENCY SYSTEM IS REQUIRED TO BE CONDUCTED & WITNESSED BY THE LOCAL FIRE CODE OFFICIAL. ADDITIONAL EXIT DIRECTIONAL LIGHTS & EMERGENCY LIGHTING MAY BE REQUIRED AS DETERMINED BY THE FIRE CODE OFFICAL & PER IBC NJ 2015 SECTIONS 1011, 1006 & NEW JERSEY UNIFORM CONSTRUCTION CODE NJAC 5:23-6.17(E) & (F).

G2. ALL SPACES SHOWN ON THE REFLECTED CEILING PLAN WITHOUT CEILING START POINTS WILL BEGIN AT A POINT LOCATED AT THE MIDPOINT OF ALL WALLS (I.E. THE EXACT CENTER OF THE ROOM).

G3. ALL RECESSED FIXTURES SHALL BE SET FLUSH INTO ACOUSTIC TILE CEILINGS.

G4. REFER TO ENGINEERING DRAWINGS FOR ALL SWITCH LOCATIONS.

G5. EXISTING CONDITIONS DISTURBED BY ALTERATION WORK SHALL BE PATCHED, REPAIRED, OR REPLACED TO MATCH EXISTING CONDITIONS AND FINISHES TO A LIKE NEW CONDITION.

HVAC NOTES

REFER TO ENGINEERING DRAWINGS FOR MORE INFORMATION.

ELECTRICAL NOTES

REFER TO ENGINEERING DRAWINGS FOR MORE INFORMATION.

FIRE PROTECTION NOTES

REFER TO ENGINEERING DRAWINGS FOR MORE INFORMATION.

DRAWING KEY NOTES

NOTE: THESE NOTES REFER TO THIS SHEET ONLY.

1. EXISTING CEILING GRID, CEILING TILE AND ALL ASSOCIATED COMPONENTS TO BE REMOVED.
2. EXISTING 2'x4' LIGHT FIXTURE AND ALL ASSOCIATED COMPONENTS TO BE REMOVED, TYPICAL.
3. EXISTING LIGHT FIXTURE AND ALL ASSOCIATED COMPONENTS TO BE REMOVED, TYPICAL
4. EXISTING WALL MOUNTED FIRE ALARM SYSTEM COMPONENTS TO REMAIN. PROTECT THROUGHOUT DURATION OF PROJECT.
5. EXISTING CEILING MOUNTED FIRE ALARM AND SUPPRESSION SYSTEMS COMPONENTS TO BE REMOVED. PREPARE FOR RELOCATION IN NEW CEILING GRID SYSTEM, TYP.
6. EXISTING STAGE LIGHTING & PROJECTOR SYSTEMS TO REMAIN AND BE PROTECTED.
7. EXISTING CEILING MOUNTED SPEAKER TO BE REMOVED AND REINSTALLED IN NEW CEILING SYSTEM.
8. EXISTING LIGHT CAN FIXTURE TO REMAIN.
9. EXISTING CEILING MOUNTED ELECTRICAL DATA COMPONENTS TO BE REMOVED. PREPARE FOR RELOCATION IN NEW CEILING GRID SYSTEM.

SYMBOL LEGEND

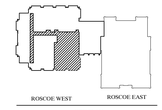
- HATCH INDICATES AREA NOT IN CONTRACT.
- EXISTING WALLS TO REMAIN.
- EXISTING CEILING TILES & GRID TO BE REMOVED.
- EXISTING 2'x4' FLUORESCENT LIGHT FIXTURE, TO BE REMOVED.
- EXISTING FLUORESCENT LIGHT FIXTURE, TO BE REMOVED.
- EXISTING 6" CAN LIGHT FIXTURE TO REMAIN.
- EXISTING EMERGENCY LIGHT TO REMAIN.
- EXISTING PULL DOWN FIRE ALARM TO REMAIN.
- EXISTING ACCESS POINT TO BE REMOVED AND RELOCATED.
- EXISTING HORNSTROBE TO REMAIN.
- EXISTING CEILING MOUNTED EXIT SIGN TO BE REMOVED AND RELOCATED.
- EXISTING SMOKE DETECTOR TO BE REMOVED AND RELOCATED.
- EXISTING LOUD SPEAKER TO BE REMOVED AND RELOCATED.
- EXISTING SPRINKLER HEAD TO BE REMOVED AND REPLACED.
- EXISTING SUPPLY DIFFUSER TO BE REMOVED.
- EXISTING RETURN REGISTER TO BE REMOVED.
- EXISTING DATA OUTLET TO BE REMOVED AND RELOCATED.
- EXISTING CEILING RECEPTACLE TO BE REMOVED AND REPLACED.

PARETTE SOMJEN
ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039500
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628



KEY PLAN

REV	DATE	REMARK
-	2022-08-29	ISSUED FOR CONSTRUCTION

Marc R. Parette A.I.A.
NCARB Registration 44264
New Jersey Architect 10436
New York Architect 024312
Pennsylvania Architect 014798B
Maryland Architect 10445
New Jersey Planner 4981
Alabama Architect 5996
Louisiana Architect 6261
Florida Architect AR 93131
Michigan Architect 1301053053
Nevada Architect 6311

Gregory J. Somjen A.I.A.
NCARB Registration 47178
New Jersey Architect 13349
Massachusetts Architect 9629
Delaware Architect 6616
Virginia Architect 0401 011210
Connecticut Architect 8622
New York Architect 032435-1
Nevada Architect 6280
District Of Columbia Architect 101294

William H. Bannister, A.I.A.
New Jersey Architect 19142
Connecticut Architect ARI.0014499
North Carolina Architect 15027
South Carolina Architect 10382
Pennsylvania Architect RA409555

Hae-An Chyun A.I.A.
New Jersey Architect 20868

Sara MacDonald A.I.A.
New Jersey Architect 18503

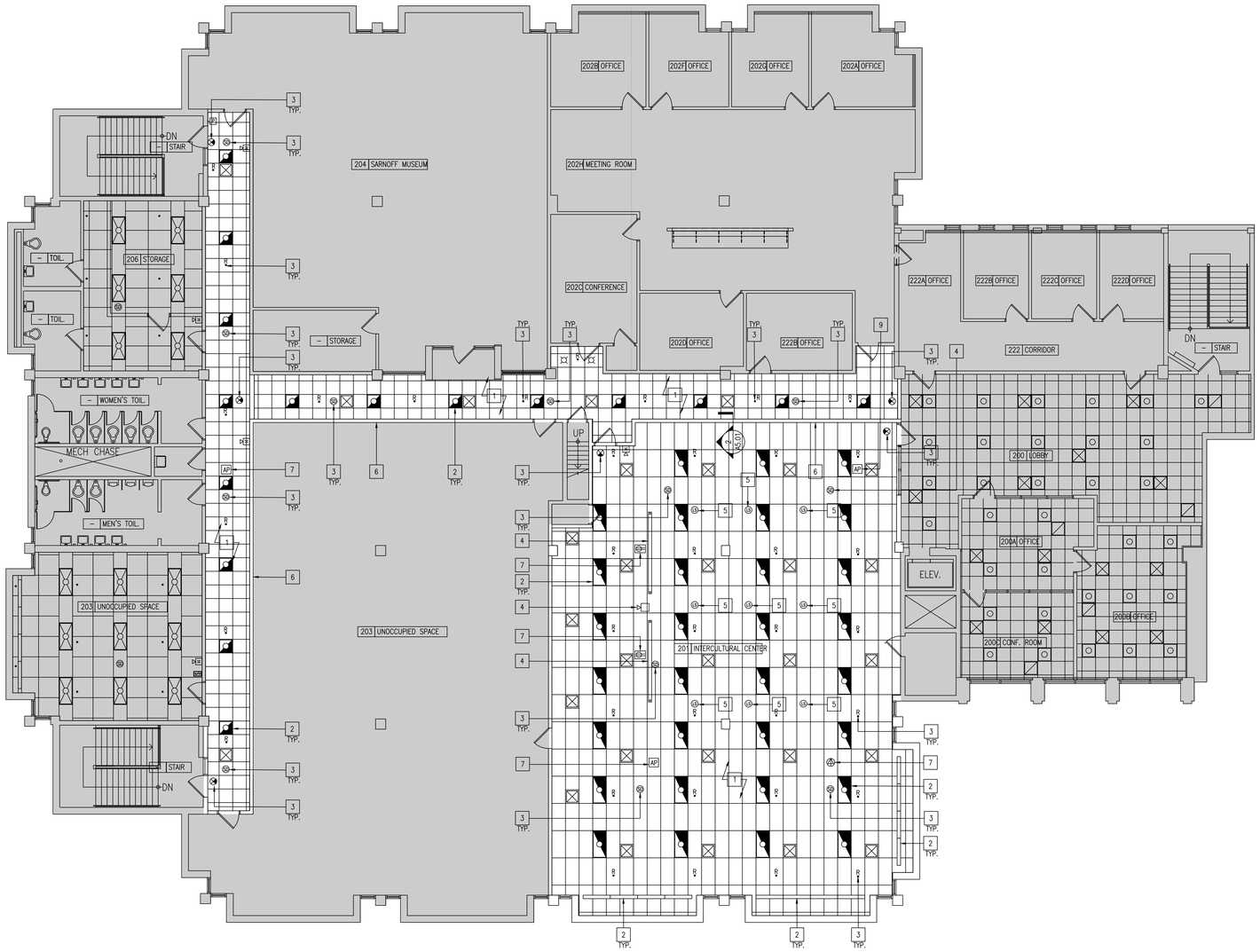
SIGNATURE

PARTIAL SECOND FLOOR DEMOLITION RCP

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

SM PROJECT MANAGER	SHEET NUMBER
NG DRAWN BY	D2.01
8500 PROJECT NUMBER	

29 JULY 2022
RELEASE DATE



1 REFLECTED CEILING CONSTRUCTION PLAN

TRUE NORTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

G1. EXIT LIGHTS w/ BATTERY BACKUP & EMERGENCY LIGHTING SHALL BE INSTALLED AS INDICATED ON DRAWINGS. A FUNCTIONAL TEST OF THE BUILDING'S EMERGENCY SYSTEM IS REQUIRED TO BE CONDUCTED & WITNESSED BY THE LOCAL FIRE CODE OFFICIAL. ADDITIONAL EXIT DIRECTIONAL LIGHTS & EMERGENCY LIGHTING MAY BE REQUIRED AS DETERMINED BY THE FIRE CODE OFFICAL & PER IBC NJ 2015 SECTIONS 1011, 1006 & NEW JERSEY UNIFORM CONSTRUCTION CODE NJAC 5:23-6.17(E) & (F).

G2. ALL SPACES SHOWN ON THE REFLECTED CEILING PLAN WITHOUT CEILING START POINTS WILL BEGIN AT A POINT LOCATED AT THE MIDPOINT OF ALL WALLS (I.E. THE EXACT CENTER OF THE ROOM).

G3. ALL RECESSED FIXTURES SHALL BE SET FLUSH INTO ACOUSTIC TILE CEILINGS.

G4. REFER TO ENGINEERING DRAWINGS FOR ALL SWITCH LOCATIONS.

G5. EXISTING CONDITIONS DISTURBED BY ALTERATION WORK SHALL BE PATCHED, REPAIRED, OR REPLACED TO MATCH EXISTING CONDITIONS AND FINISHES TO A LIKE NEW CONDITION.

HVAC NOTES

REFER TO ENGINEERING DRAWINGS FOR MORE INFORMATION.

ELECTRICAL NOTES

REFER TO ENGINEERING DRAWINGS FOR MORE INFORMATION.

FIRE PROTECTION NOTES

REFER TO ENGINEERING DRAWINGS FOR MORE INFORMATION.

DRAWING NOTES

NOTE: THESE NOTES REFER TO THIS SHEET ONLY.

1. INSTALL NEW CEILING GRID.
2. INSTALL NEW 2'x2', 2'x4' AND OTHER LIGHT FIXTURES, TYP.
3. RE-INSTALL CEILING MOUNTED FIRE ALARM SYSTEMS IN SAME LOCATION, TYP. EXTEND AND/OR ADD WIRING AS NECESSARY.
4. STAGE LIGHTING AND PROJECTOR TO REMAIN AND BE PROTECTED.
5. RE-INSTALL CEILING MOUNTED SPEAKERS IN SAME LOCATION. EXTEND AND/OR ADD WIRING AS NECESSARY.
6. PROVIDE STANDARD SUSPENDED CEILING ATTACHMENT TO RISING WALL. SEE DETAILS FOR MORE INFORMATION.
7. RE-INSTALL CEILING MOUNTED ELECTRICAL DATA COMPONENTS IN SAME LOCATION. EXTEND AND/OR ADD WIRING AS NECESSARY.

SYMBOL LEGEND

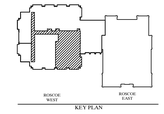
- HATCH INDICATES AREA NOT IN CONTRACT.
- EXISTING WALLS TO REMAIN.
- EXISTING CEILING GRID TO BE REMOVED.
- 2'x4' LED LIGHT FIXTURE, NEW, DLC
- 2'x2' LED LIGHT FIXTURE, NEW, DLC
- NEW LIGHTING FIXTURE.
- EXISTING 6" CAN LIGHT FIXTURE.
- EXISTING EMERGENCY LIGHT.
- EXISTING ACCESS POINT.
- EXISTING CEILING RECEPTACLE.
- EXISTING PULL DOWN FIRE ALARM.
- EXISTING HORNSTROBE .
- EXISTING CEILING MOUNTED EXIT SIGN.
- EXISTING DATA OUTLET.
- EXISTING SMOKE DETECTOR.
- EXISTING LOUD SPEAKER.
- NEW RELOCATED SPRINKLER HEAD.
- SUPPLY DIFFUSER
- RETURN REGISTER

PARETTE SOMJEN
ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628



KEY PLAN

REV	DATE	REMARK
2	2022-08-29	ISSUED FOR CONSTRUCTION

Marc R. Parette A.I.A.
NCARB Registration 44264
New Jersey Architect 10436
New York Architect 024312
Pennsylvania Architect 014798B
Maryland Architect 10445
New Jersey Planner 4981
Alabama Architect 5996
Louisiana Architect 6261
Florida Architect AR 93131
Michigan Architect 1301053053
Nevada Architect 6311

Gregory J. Somjen A.I.A.
NCARB Registration 47178
New Jersey Architect 13349
Massachusetts Architect 9629
Delaware Architect 6616
Virginia Architect 0401 011210
Connecticut Architect 8622
New York Architect 032435-1
Nevada Architect 6280
District Of Columbia Architect 101294

William H. Bannister, A.I.A.
New Jersey Architect 19142
Connecticut Architect ARL0014499
North Carolina Architect 15027
South Carolina Architect 10382
Pennsylvania Architect RA409555

Hae-An Chyun A.I.A.
New Jersey Architect 20868

Sara MacDonald A.I.A.
New Jersey Architect 18503

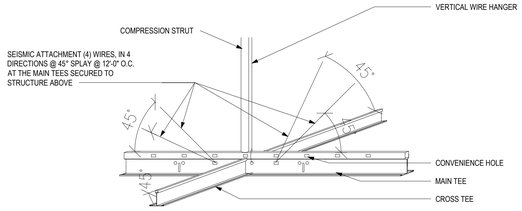
SIGNATURE

PARTIAL SECOND FLOOR CONSTRUCTION RCP

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

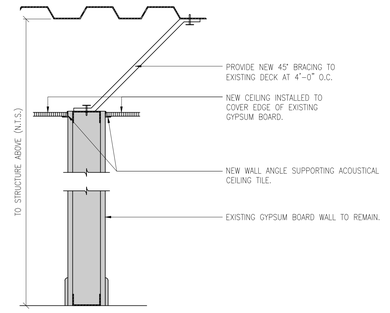
SM PROJECT MANAGER	SHEET NUMBER A2.01
NG DRAWN BY	
8500 PROJECT NUMBER	

29 JULY 2022
RELEASE DATE



NOTES:
1. SPLAY WIRES SHALL BE NO MORE THAN 2" FROM THE INTERSECTION OF THE MAIN TEE AND THE CROSS TEE AND SPLAYED APPROXIMATELY 90 DEGREES APART IN PLAN VIEW, AT A MAXIMUM 45 DEGREE ANGLE FROM THE HORIZONTAL AND LOCATED 12 FEET ON CENTER IN BOTH DIRECTIONS.
2. SEE REFLECTED CEILING PLANS & SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. PROVIDE COMPRESSION STRUT AT THE INTERSECTION OF THE GRID WITH THE SPLAY WIRE LOCATIONS AT 12'-0" O.C., AND RUN ALL TO UNDERSIDE OF STRUCTURE.

1 SUSPENDED CEILING DETAIL — SCALE: 3" = 1'-0"



2 BRACING DETAIL AT EXISTING WALL — SCALE: 1 1/2" = 1'-0"

PARETTE SOMJEN

ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00035800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

REV	DATE	REMARK
-	2022-08-29	ISSUED FOR CONSTRUCTION

□ Marc R. Parette A.I.A.

NCARB Registration	44264
New Jersey Architect	10436
New York Architect	024312
Pennsylvania Architect	014798B
Maryland Architect	10445
New Jersey Planner	4981
Alabama Architect	5996
Louisiana Architect	6261
Florida Architect	AR 93131
Michigan Architect	1301053053
Nevada Architect	6311

□ Gregory J. Somjen A.I.A.

NCARB Registration	47178
New Jersey Architect	13349
Massachusetts Architect	9629
Delaware Architect	6616
Virginia Architect	0401 011210
Connecticut Architect	8622
New York Architect	032435-1
Nevada Architect	6280
District Of Columbia Architect	101294

□ William H. Bannister, A.I.A.

New Jersey Architect	19142
Connecticut Architect	ARI.0014499
North Carolina Architect	15027
South Carolina Architect	10382
Pennsylvania Architect	RA409555

□ Hae-An Chyun A.I.A.

New Jersey Architect	20868

■ Sara MacDonald A.I.A.

New Jersey Architect	18503

SIGNATURE

CEILING DETAILS

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

SM — PROJECT MANAGER	SHEET NUMBER
NG — DRAWN BY	A5.01
8500 — PROJECT NUMBER	

29 JULY 2022
RELEASE DATE

MECHANICAL SYMBOLS LIST

SYMBOL	DESCRIPTION
HWS	HEATING HOT WATER SUPPLY
HWR	HEATING HOT WATER RETURN
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
	PRESSURE GAUGE W/ SHUT-OFF
	THERMOMETER W/ SHUT-OFF
	Y-TYPE STRAINER W/ BLOWDOWN & HOSE BIBB
	UNION
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	PIPE TURNING UP
	PIPE TURNING DOWN
	PITCH DOWN
	DIRECTION OF FLOW
	CAPPED PIPE

CD	CONDENSATE DRAIN
PC	PUMPED CONDENSATE
	REDUCER (ECCENTRIC)
	VALVE ON RISER
	ANGLE VALVE
	PRESSURE RELIEF VALVE
	CONTROL VALVE (2-PORT)
	CONTROL VALVE (3-PORT)
	BALANCED VALVE
	CONNECT TO EXISTING
T	THERMOSTAT
S	ATC SENSOR
	CEILING DIFFUSER
	EXHAUST OR RETURN REGISTER
	RETURN EXHAUST DUCT
	SUPPLY DUCT
	VOLUME DAMPER
FD	FIRE DAMPER W/ACCESS DOOR
M	MOTORIZED DAMPER

MECHANICAL ABBREVIATIONS

IDENTIFIER	DESCRIPTION	IDENTIFIER	DESCRIPTION
CFM	CUBIC FEET PER MINUTE	EF	EXHAUST FAN
CW	COLD WATER	FC	FLEXIBLE CONNECTION
DB	DRY BULB	T	THERMOSTAT
DN	DOWN	N.O.	NORMALLY OPEN
E/A	EXHAUST AIR	WMS	WIRE MESH SCREEN
EG	EXHAUST GRILLE	CTE	CONNECT TO EXISTING

PROJECT GENERAL NOTES

1. MOTOR CONTROLLERS, MOTOR STARTERS & DISCONNECTS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
2. POWER WIRING TO MECHANICAL EQUIPMENT, MOTOR CONTROLLERS AND CONTROL PANELS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
3. HVAC CONTROL WIRING SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.
4. ENTIRE INSTALLATION SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND OTHER AUTHORITIES HAVING JURISDICTION.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND SHALL ARRANGE ALL REQUIRED INSPECTIONS.
6. PROPER FIRE PROTECTION MEASURES SATISFACTORY TO THE LOCAL FIRE DEPARTMENT SHALL BE TAKEN WHEN WELDING OR CUTTING WITH TORCHES OR ELECTRIC ARC. CONTRACTOR MUST APPLY TO STATE FIRE MARSHALL FOR FIRE SAFETY PRECAUTIONS.
7. PROVIDE FLEXIBLE CONNECTIONS ON ALL ROTATING EQUIPMENT.
8. CONTRACTOR SHALL PROVIDE ALL NECESSARY MISCELLANEOUS SUPPORTS FOR ALL EQUIPMENT, PIPING, CONDUIT, AND DUCTWORK. SUSPEND FROM SLAB, STEEL, WALL, OR TRUSS WORK.
9. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES AND THE FIELD CONDITIONS.
10. CONTRACTOR SHALL ENSURE THAT ALL MECHANICAL DEVICES WILL BE INSTALLED IN A LOCATION WHICH AFFORDS ACCESSIBILITY FOR MAINTENANCE AND REPAIR. COORDINATE INSTALLATION AMONG ALL TRADES TO AVOID INTERFERENCE, AND LOCATE EQUIPMENT TO MEET OR EXCEED CLEARANCE RECOMMENDED BY THE MANUFACTURER. PRIOR TO PROJECT COMPLETION, REPRESENTATIVES OF OWNER AND ENGINEER WILL REVIEW EACH INSTALLATION AND WILL DIRECT CHANGES WHENEVER ACCESS OR SERVICEABILITY IS, IN THEIR OPINION, UNACCEPTABLE.
11. FURNISH LOCAL DISCONNECT SWITCHES FOR ALL ELECTRICALLY DRIVEN HVAC EQUIPMENT. DISCONNECT SWITCH SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
12. WALL MOUNTED THERMOSTAT LOCATIONS SHALL BE COORDINATED WITH THE OWNER AND ARCHITECT'S FURNITURE PLANS PRIOR TO INSTALLATION.
13. THERMOSTAT WIRING SHALL BE INSTALLED IN CONCEALED SPACE, WALL OR CHASE.
14. ALL INSULATION PROVIDED FOR THE PROJECT MUST MEET A MAXIMUM FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED OF 50 OR LESS, AS TESTED IN ACCORDANCE WITH ASTM, NFPA & U.L. GUIDELINES.
15. ALL EQUIPMENT FOR THIS PROJECT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
16. COORDINATION DRAWINGS SHALL BE PREPARED AT A MINIMUM 1/4 SCALE AND SHALL INDICATE ALL TRADES. SUBMIT COORDINATION DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO BEGINNING ANY WORK.
17. ALL ATC WIRING SHALL BE INSTALLED IN RACEWAY DEDICATED FOR THE PURPOSE; IT CONDUIT AND PATHWAY SHALL NOT TO BE USED.

HVAC SPECIFICATIONS

BASIC MECH. MATERIALS & METHODS

1. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND MATERIALS AS INDICATED ON THE CONTRACT DRAWINGS AND THESE SPECIFICATIONS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE UNIFORM CONSTRUCTION CODE OF NEW JERSEY, IBC, NFPA, SMACNA AND ASHRAE AND ALL OTHER APPLICABLE CODES.
3. ALL NEW EQUIPMENT AND MATERIAL SHALL BE FREE OF DEFECTS AND SHALL PERFORM AS INTENDED.
4. THE CONTRACTOR SHALL SUBMIT IN ELECTRONIC FORMAT SHOP DRAWINGS OF ALL MAJOR MANUFACTURED ITEMS REQUIRED ON THIS PROJECT. SHEET METAL SHOP DRAWINGS SHALL BE SUBMITTED MINIMUM ¼" SCALE. SHOP DRAWINGS SHALL ILLUSTRATE COORDINATION OF ALL TRADES INVOLVED IN THE PROJECT.
5. THE CONTRACTOR SHALL VISIT THE SITE AND INSPECT THE EXISTING INSTALLATION PRIOR TO SUBMITTING A PROPOSAL FOR WORK. HE SHALL INVESTIGATE ALL CONDITIONS AND DIMENSIONS AND INCLUDE IN HIS PRICE THE COST FOR OVERCOMING ALL DIFFICULTIES DUE TO FIELD CONDITIONS. NO PART OF THE WORK SHALL BEGIN BEFORE EXISTING CONDITIONS ARE CAREFULLY CHECKED AND ALL DISCREPANCIES ARE REPORTED TO THE ARCHITECT OR ENGINEER.
6. THE CONTRACTOR SHALL PAY ALL FEES AND OBTAIN ALL PERMITS REQUIRED FOR CONSTRUCTION.
7. ALL WORK SHALL BE DONE DURING NORMAL WORKING HOURS UNLESS OTHERWISE REQUESTED BY OWNER.
8. THE DRAWINGS DO NOT INDICATE ALL EQUIPMENT, PIPING, DUCTWORK AND CONDUIT LOCATED WITHIN THE SPACE OR ABOVE THE CEILING. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES PRIOR TO FABRICATION OF PIPING AND DUCTWORK AND INSTALLATION OF EQUIPMENT. THE CONTRACTOR SHALL, AT NO ADDITIONAL EXPENSE TO THE OWNER, MAKE ANY REQUIRED CHANGES AS A RESULT OF A FAILURE TO COORDINATE HIS WORK WITH ALL TRADES.
9. COORDINATE WITH THE ARCHITECT'S REFLECTED CEILING PLAN FOR FINAL LOCATION OF CEILING DIFFUSERS, RETURN AIR GRILLES, LIGHT FIXTURES AND SPRINKLER HEADS.
10. THE CONTRACTOR SHALL FURNISH THE QUALIFIED PERSONNEL, SUPPLIERS, AND EQUIPMENT REQUIRED TO MAKE ALL NECESSARY TESTS AND VERIFICATION OF EQUIPMENT PERFORMANCE AND CONTROLS. ELECTRICAL POWER, WATER AND FUEL CONSUMPTION FOR TESTING SHALL BE FROM THE OWNER'S SUPPLY.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY MISCELLANEOUS STEEL FOR THE SUPPORT OF ALL EQUIPMENT SUSPENDED FROM SLAB OR STEEL. CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING CEILING JOISTS, ETC. PRIOR TO SUSPENDING EQUIPMENT. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, SHOP DRAWINGS AND DETAILS, INDICATING THE PROPOSED EQUIPMENT, PIPING AND DUCT SUPPORTING METHODS PRIOR TO INSTALLATION.
12. DAMAGE TO BUILDING AND EQUIPMENT, WHICH IS TO REMAIN, RESULTING FROM DEMOLITION SHALL BE REPAINTED, REPAIRED AND/OR REPLACED BY THE CONTRACTOR.
13. OPENINGS LEFT BY THE REMOVAL OF EQUIPMENT SHALL BE PATCHED TO MATCH EXISTING UNLESS OTHERWISE NOTED.
14. EQUIPMENT MANUFACTURERS NAMES AND MODEL NUMBERS ARE SHOWN FOR THE BASIS OF DESIGN. THE EQUIPMENT HAS BEEN SELECTED BY THE ENGINEER FOR CONFORMANCE TO VARIOUS CRITERIA SUCH AS, CAPACITIES, ELECTRICAL CRITERIA, STANDARD FEATURES, ETC. SUBSTITUTION OF ANY EQUIPMENT SHALL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER. ALL COSTS RESULTING FROM SELECTION OF OTHER THAN SPECIFIED EQUIPMENT SHALL BE BORNE BY THE CONTRACTOR, INCLUDING BUT NOT LIMITED TO, WORK AFFECTING OTHER CONTRACTORS, OWNER, OR DESIGN, INCLUDING REVISING SUPPORTS AND STRUCTURES, ELECTRICAL PROVISIONS AND CONTROLS. REFER TO PROJECT MANUAL SECTION 01 60 00 PRODUCT EQUIREMENTS FOR PROCEDURES TO SUBMIT REQUESTED SUBSTITUTIONS FOR REVIEW AND APPROVAL.
15. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL MECHANICAL EQUIPMENT SHALL BE MOUNTED ON OR SUSPENDED FROM VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF SOUND TO THE BUILDING STRUCTURE. VIBRATION ISOLATORS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, LOCAL SEISMIC CODES AND ON ACTUAL WEIGHT DISTRIBUTION OF THE EQUIPMENT FURNISHED. DEFLECTIONS SHALL BE AS NOTED ON THE EQUIPMENT SHOP DRAWING SUBMITTALS.
16. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH REPRODUCIBLE "AS-BUILT" DRAWINGS AND FOUR (4) COPIES OF AN OPERATING AND MAINTENANCE MANUAL AT THE CONCLUSION OF THE JOB.
17. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A TWO (2) YEARS WRITTEN GUARANTEE OF ALL WORK (LABOR AND MATERIALS) AND A 5 YEAR WARRANTY ON THE COMPRESSORS, STARTING FROM THE DATE OF THE OWNER'S ACCEPTANCE.
18. ALL AUTOMATIC TEMPERATURE CONTROL WIRING INSTALLATION SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.
19. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL LOCAL POWER DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE ELECTRICAL REQUIREMENTS OF HIS WORK WITH THE GENERAL AND ELECTRICAL CONTRACTORS PRIOR TO SUBMISSION OF BIDS.

VALVES

1. PROVIDE VALVES OF THE TYPE AND SIZE AS INDICATED ON ME DRAWINGS AND DETAILS. PROVIDE BRASS VALVE TAGS & CHAINS FOR THE PURPOSE OF IDENTIFICATION. CONSULT OWNER'S REPRESENTATIVE FOR PROPER NUMBER SEQUENCING. PROVIDE A CHART COMPILING ALL VALVES AND LOCATIONS AND FURNISH TO OWNER.
2. PROVIDE BALL VALVES FOR SHUT-OFF SERVICE ON PIPING UP TO 2". PROVIDE GATE OR BUTTERFLY VALVES FOR PIPING LARGER THAN 2". GATE VALVES SHALL BE OF THE RISING STEM TYPE. PROVIDE CHAIN OPERATORS FOR VALVES LOCATED 7'-0" OF MORE ABOVE THE FINISHED FLOOR. BUTTERFLY VALVES SHALL 1/4 TURN, LUG-TYPE, SPRING-LEVER OPERATED, PROVIDE GEAR OPERATORS FOR VALVES 6" AND LARGER.
3. PROVIDE GLOBE-TYPE. CALIBRATED BALANCE VALVES B&G – CIRCUIT SETTER, TACO – ACCU-FLO, OR ARMSTRONG – CBV) FOR THROTTLING FLOW.
4. PROVIDE MULTI-DUTY VALVES, ONLY IF SPECIFICALLY CALLED OUT ON THE DRAWINGS.
5. PROVIDE BRONZE, SWING-TYPE CHECK VALVES (HORIZONTAL INSTALLATION) AS INDICATED ON THE DRAWINGS. PROVIDE SILENT, NON-SLAM CHECK VALVES FOR PUMP AND VERTICAL PIPING INSTALLATIONS.
6. SHUT-OFF VALVES FOR REFRIGERATION PIPING SHALL BE 500 PSI PRESSURE RATING, FORGED BRASS BODY, REMOVABLE VALVE CORE, INTEGRAL BALL CHECK VALVE, WITH SOLDER END CONNECTIONS.
7. PROVIDE DRAIN VALVES FOR ALL LOW POINTS IN WATER SYSTEMS. VALVES SHALL HAVE HOSE END CONNECTIONS WITH CAP AND CHAIN.

MECHANICAL INSULATION

1. ALL INSULATION MUST BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
2. APPLY INSULATION AFTER ALL TESTING HAS BEEN COMPLETED AND APPROVED.
3. ALL INSULATION PROVIDED FOR THE PROJECT MUST MEET A MAXIMUM FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED INDEX OF 50 OR LESS, AS TESTED IN ACCORDANCE WITH ASTM, NFPA & U.L. GUIDELINES.
4. ALL INSULATION FOR EQUIPMENT AND PIPING WITH A SURFACE TEMPERATURE BELOW 65 DEGREES F, SHALL CONTAIN A COMPLETE VAPOR BARRIER SEAL.

PIPING INSULATION

1. ALL HEATING H.W. PIPING UP TO 4", SHALL BE INSULATED WITH 1" THICK FIBERGLASS WITH AN ALL SERVICE JACKET. PROVIDE ONE-PIECE, MOLDED PVC JACKETS, AS MANUFACTURED BY SCHULLER CORP. ZESTON 2000 OR APPROVED EQUAL, AT ALL FITTINGS AND VALVES. ALL PIPING 4" AND LARGER SHALL HAVE AN INSULATION THICKNESS OF 1-1/2".

DUCTWORK INSULATION

1. ALL SUPPLY DUCTS (AND RETURN DUCTS IN UNCONDITIONED SPACES) SHALL BE INSULATED W/1-1/2" THICK FOIL-SCRIM-KRAFT, FLEXIBLE FIBERGLASS DUCT WRAP, UNLESS SHOWN TO BE LINED.
2. WHERE INDICATED ON THE DRAWINGS PROVIDE 1" THICK DUCT LINING AS MANUFACTURED BY SCHULLER CORP. "PERMACOTE LINACOUSTIC HP" OR APPROVED EQUAL. PROVIDE METAL NOSINGS AT EXPOSED EDGES.
3. EXTEND ALL BALANCING DAMPERS BEYOND INSULATION.

PIPING

1. PROVIDE AND ERECT IN A WORKMANLIKE MANNER, ACCORDING TO THE BEST PRACTICE OF THE TRADE, ALL PIPING SHOWN ON THE DRAWINGS OR REQUIRED TO COMPLETE THE INSTALLATION INTENDED BY THESE SPECIFICATIONS.
2. PROVIDE DRAINS AT ALL LOW POINTS.
3. DISSIMILAR PIPING SHALL BE CONNECTED WITH DIELECTRIC FITTINGS AS MANUFACTURED BY EBCO OR EQUAL.
4. PROVIDE UNIONS AT ALL PIPING CONNECTIONS TO EQUIPMENT TO FACILITATE EASY REMOVAL FOR SERVICING. UNIONS 2" AND SMALLER SHALL BE SCREWED, UNIONS 2-1/2" AND LARGER SHALL BE FLANGED..
5. ALL NEW PIPING 2" AND SMALLER SHALL BE COPPER TYPE 'L' WITH SOLDERED WROUGHT COPPER FITTINGS.
6. ALL NEW PIPING 2-1/2" AND LARGER SHALL BE SCHEDULE 40 STEEL PIPE.
7. ALL SIGNAGE SHALL BE IN ACCORDANCE WITH ANSI A13.1.
8. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR ACQUIRE ALL PERMITS & COORDINATE ALL WORK ASSOCIATED TO NATURAL GAS PIPING WITH THE UTILITY COMPANY.

HANGERS

1. PROVIDE NECESSARY STRUCTURAL MEMBERS, HANGERS AND SUPPORTS OF APPROVED DESIGN TO KEEP PIPING IN PROPER ALIGNMENT.
2. PIPE HANGERS SHALL BE OF THE CLEVIS, PIPE ROLL AND PIPE CLAMP TYPES, HANGERS SHALL BE GRINNELL OR EQUAL.
3. SUPPORT ALL HORIZONTAL PIPING 1-1/4" AND SMALLER NOT MORE THAN 6' ON CENTERS. ALL HORIZONTAL PIPING 1-1/2" AND LARGER SHALL BE SUPPORTED NOT MORE THAN 10' ON CENTERS, EXCEPT THAT COPPER TUBING SHALL NOT BE MORE THAN 8' ON CENTERS.
4. PROVIDE HANGER RODS OF SUITABLE LENGTH AND DIAMETER TO ADEQUATELY SUPPORT PIPING.
5. PROVIDE WEISS "VARI-ANGLE" 9" THERMOMETERS WITH WELLS AND 4-1/2" DIAMETER LIQUID-FILLED PRESSURE GAUGES WLTH SHUT-OFF COCKS WHERE INDICATED ON DRAWINGS AND DETAILS.
6. PROVIDE SIGNAGE, AS MANUFACTURED BY SETON NAMEPLATE, INDICATING TYPE OF FLUID AND DIRECTION OF FLOW. ALL SIGNAGE SHALL BE IN ACCORDANCE WLTH ANSI A13.1.
7. ALL PIPING SHALL BE TESTED FOR A PERIOD OF NOT LESS THAN FOUR (4) HOURS AT 1-1/2" TIMES THE MAXIMUM ALLOWABLE WORKING PRESSURE OF THE SYSTEM.

METAL DUCTWORK

1. FURNISH AND INSTALL SHEET METAL DUCTWORK WHERE INDICATED ON THE DRAWINGS.
2. ALL DUCTWORK, UNLESS OTHERWISE NOTED, SHALL BE GALVANIZED SHEET METAL FABRICATED AND INSTALLED TO THE LATEST SMACNA STANDARDS AND SECURED WITH SHEET METAL SCREWS. ALL JOINTS 18" IN LENGTH OR GREATER SHALL BE OF THE DUCTMATE SYSTEM OR THE SMACNA EQUIVALENT CONNECTION AND CONSTRUCTION. PROVIDE GASKETS AT MATING FLANGES. ALL TRANSVERSE JOINTS AND SEAMS SHALL BE SEALED WITH HIGH PRESSURE DUCT SEALANT. SIZES ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS, INCREASE SIZE BY 1" ALL AROUND TO ACCOMMODATE LINING IF REQUIRED.
3. ALL NEW FLEXIBLE DUCTWORK SHALL BE THERMAFLEX TYPE M-KE OR APPROVED EQUAL. SUPPORTED NOT MORE THAN 4'-0" INTERVALS WITH 1" WIDE STRAPS. ALL FLEXIBLE DUCTWORK SHALL MEET ALL IMC AND NFPA REQUIREMENTS FOR USE IN A RETURN AIR PLENUM. PROVIDE SPIN COLLARS WITH VOLUME DAMPERS AT ALL NEW FLEXIBLE CONNECTIONS. MAXIMUM ALLOWABLE RUN OF FLEX SHALL NOT EXCEED 6'-0".
4. PROVIDE FLEXIBLE DUCT CONNECTIONS AT ROTATING EQUIPMENT, "VENTGLASS" OR EQUAL.
5. ALL NEW FIRE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF NFPA,SMACNA AND IBC. ALL DAMPERS SHALL BE RUSKIN OR APPROVED EQUAL WITH THE BLADE STACK OUT OF THE AIRSTREAM (TYPE "B"). FURTHERMORE, DAMPERS SHALL BEAR A U.L. RATING FOR"DYNAMIC OPERATION".
6. ALL NEW DUCTWORK SHALL BE TESTED FOR AIR LEAKAGE. THE NEW DUCTWORK SHALL BE SEAL CLASS 'B' AND LEAKAGE CLASS -12, AS DEFINED BY THE SMACNA "HVAC SYSTEMS DUCT DESIGN" MANUAL. THE CONTRACTOR SHALL REPAIR ALL LEAKS AT HIS OWN EXPENSE AND RETEST SAME.
7. INSTALL SUITABLE SIZED ACCESS DOORS WHERE REQUIRED AT ALL DAMPERS, COILS, FAN BEARINGS, VOLUME CONTROLS ETC. PROVIDE INSULATED DOORS WHERE DUCTWORK IS INSULATED.
8. EXTEND ALL BALANCING DAMPERS BEYOND INSULATION.

TESTING, ADJUSTING & BALANCING

BALANCING THE AIR SYSTEMS

1. OPERATE ALL SYSTEMS FOR AS LONG AS NECESSARY TO TEST AIR FLOW AT ALL OPENINGS. ADJUST DAMPERS, FANS, AND SHEAVES UNTIL EVEN DISTRIBUTION AND REQUIRED CFM OF AIR IS OBTAINED THROUGHOUT. SUBMIT FOR APPROVAL FOUR (4) TEST REPORTS SHOWING ALL PERTINENT OPERATING DATA, SUCH AS CFM AND FPM AT EACH OUTLET. FAN RPM, MOTOR CURRENT, ETC., SHALL BE SUBMITTED FOR PERMANENT RECORD. BALANCE AIR VOLUME TO WITHIN 10% OF DESIGN VALUES. DURING ADJUSTMENT PERIOD, MAKE ALL NECESSARY SETTINGS AND ADJUSTMENTS OF TEMPERATURE REGULATING EQUIPMENT. TEST REPORTS SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER WHO SHALL BE A MEMBER OF THE BALANCING FIRM.

PIPING COMPONENTS

1. GROOVED COUPLINGS SHALL CONSIST OF TWO OR MORE PIECES OF DUCTILE IRON WITH REVERSE ANGLEPADS AND MADE UP BOLT PAD TO BOLT PAD UPON INSTALLATION. ALL GROOVED COUPLINGS SHALL BE AS MANUFACTURED BY VICTAULIC STYLE 07 OR APPROVED EQUAL. COUPLING GASKETS SHALL BE AN EPDM SYNTHETIC RUBBER, GREEN COLOR CODED WITH A CENTRAL CAVITY PRESSURE RESPONSIVE DESIGN. COUPLINGS' BOLTS AND NUTS SHALL BE HEAT TREATED CARBON STEEL, TRACKHEAD DESIGN CONFORMING TO PHYSICAL PROPERTIES OF ASTM A-183.
2. FOR PIPING 2 1/2" AND LARGER, FULL SIZE BRANCH CONNECTIONS SHALL BE MADE WITH MANUFACTURE GROOVED END TEES. BRANCH CONNECTIONS FOR LESS THAN FULL SIZE MAY BE MADE WITH VICTAULIC HOLE CUT PRODUCTS. USE STYLE 920 OR STYLE 921 BRANCH CONNECTIONS WITH LOCATING COLLAR ENGAGING INTO HOLE OR STYLE 72 OUTLET COUPLING USED TO JOIN GROOVED PIPE AND TO CREATE A BRANCH CONNECTION. GASKETS FOR BRANCH CONNECTION SHALL BE VICTAULIC GRADE "E" EPDM COMPOUND WITH WORKING TEMPERATURE OF -30 TO +230 DEGREES F.

FLANGES

1. FLANGE STYLE 741 (2"-24") FOR CONNECTION TO ANSI CLASS 125 AND 150 FLANGED COMPONENTS.
2. FLANGE STYLE 743 (2"-12") FOR CONNECTION TO CLASS 300 FLANGED COMPONENTS.

FITTINGS

1. FITTINGS SHALL BE FULL-FLOW CAST FITTINGS OR STEEL FITTINGS WITH GROOVES OR SHOULDERS DESIGNED TO ACCEPT VICTAULIC GROOVED END COUPLINGS. STANDARD FITTINGS SHALL BE CAST OF DUCTILE IRON CONFORMING TO ASTM A-536 (GRADE 65-45-12) OR MALLEABLE IRON CONFORMING TO ASTM A-47, GRADE 32510, PAINTED WITH A RUST INHIBITING MODIFIED VINYL ALKYD ENAMEL OR HOT-DIP GALVANIZED TO ASTM A-153 OR ZINC ELECTROPLATED TO ASTM B-633 AS REQUIRED.
2. STANDARD STEEL ELBOW FITTINGS – (14"-24"), SHALL BE FORGED STEEL CONFORMING TO ASTM A-106 GRADE B (.375" WALL), PAINTED WITH RUST INHIBITING MODIFIED VINYL ALKYD ENAMEL OR HOT-DIP GALVANIZED TO ASTM A-153. ALL FITTINGS SHALL BE FULL FLOW.

GROOVED END VALVES

1. BUTTERFLY VALVES-SERIES 700 SIZES 1 1/2" THROUGH 6": ALL VALVES SHALL BE TRIPLE SEAL DESIGN FOR BUBBLE TIGHT, SHUT-OFF SERVICE UP TO 200 PSI.
2. BUTTERFLY VALVES-SERIES VIC 300 SIZES 2" THROUGH 12": ALL VALVES SHALL BE FOR SERVICES UP TO AND INCLUDING 300 PSI. VALVES SHALL BE BI-DIRECTIONAL AND PROVIDE BUBBLE-TIGHT SHUT-OFF AND DEAD-END SERVICE AT FULL RATED WORKING PRESSURE. DISC SEAL (EPDM) SHALL BE RATED FOR SERVICE UP TO +230 DEGREES F.
3. BUTTERFLY VALVES SERIES 709 SIZES 14" THROUGH 24": ALL VALVES SHALL HAVE A SINGLE PIECE DUCTILE IRON CAST BODY WITH A STANDARD POLYPHENYLENE (PPS) BLEND COATING ON THE INSIDE FOR CORROSION RESISTANCE AND A DUCTILE IRON DISC RIDING ON STAINLESS STEEL STEMS WITH STAINLESS STEEL WETTED HARDWARE WITH AN EPDM SEAL MOUNTED ON THE OFFSET DISC FOR BI-DIRECTIONAL WORKING PRESSURE OF 175 PSI AND SERVICES UP TO +230 DEGREES F.
4. PLUG VALVE SERIES 377 SIZES 3" THROUGH 12": ALL VALVES SHALL BE ECCENTRIC FOR THROTTLING SERVICES. THE ECCENTRIC PLUG SHALL BE INTEGRAL WITH THE UPPER AND LOWER STEMS AND BE OF A HIGH STRENGTH DUCTILE IRON (ASTM A-536). THE PLUG SHALL BE ENCAPSULATED WITH GRADE E EPDM RUBBER RATED AT +230 DEGREES F FOR WATER SERVICES.
5. BALL VALVE SERIES STYLE 721 SIZES 1 1/2" THROUGH 6": ALL VALVES SHALL BE DESIGNED FOR 600 PSI (WOG) BUBBLE-TIGHT WORKING PRESSURE.
6. CHECK VALVE SERIES 711/715/SIZES 4" THROUGH 12": VALVES SHALL BE SPRING-LOADED DISC DESIGN, NON-SLAMMING SUITABLE FOR HORIZONTAL OR VERTICAL INSTALLATION AND RATED FOR WORKING PRESSURES UP TO 500 PSI AND SERVICES UP TO +230 DEGREES F.
7. CHECK VALVES SERIES 716 SIZES 2 1/2" AND 3": VALVES SHALL BE SPRING-LOADED TILTING DISC DESIGN WITH A STAINLESS SHAFT AND SPRING AND RATED FOR PRESSURES UP TO 300 PSI AND SERVICES UP TO +230° F.
8. AUTOMATED VALVES USED IN CONJUNCTION WITH THE SPECIFIED CONTROL SYSTEM SHALL CONFORM TO THE VALVE SECTION OF THE SPECIFICATION. END CONNECTIONS (FLANGED/WELD, THREAD, GROOVED) OF ALL VALVES SHALL BE DIRECTLY COMPATIBLE WITH ADJACENT PIPING.

GROOVED END ACCESSORIES

1. STRAINER STYLE 730 SIZES 2" THROUGH 16": TEE PATTERN STRAINER FOR EASY ACCESS AND CLEANING FOR INSTALLATION IN VERTICAL DOWNFLOW OR HORIZONTAL FLOW POSITION RATED FOR PRESSURES UP TO 300 PSI.
2. STRAINER STYLE 732 SIZES 2" THROUGH 12": Y PATTERN STRAINER RATED FOR PRESSURES UP TO 300 PSI.
3. SUCTION DIFFUSER STYLE 731 SIZES 2 1/2 THROUGH 14": ALL SUCTION DIFFUSERS SHALL HAVE A REMOVABLE STRAINER AND FINE MESH SLEEVE TO ACT AS A START STRAINER AND BE RATED FOR PRESSURES UP TO 300 PSI.

PARETTE SOMJEN

ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

□ Marc R. Parette A.I.A.

NCARB Registration	44264
New Jersey Architect	10436
New York Architect	024312
Pennsylvania Architect	014796B
Maryland Architect	10445
New Jersey Planner	4981
Alabama Architect	5996
Louisiana Architect	6261
Florida Architect	AR 93131
Michigan Architect	1301053053
Nevada Architect	6311

□ Gregory J. Somjen A.I.A.

NCARB Registration	47178
New Jersey Architect	13349
Massachusetts Architect	9629
Delaware Architect	6616
Virginia Architect	0401 011210
Connecticut Architect	9622
New York Architect	032435-1
Nevada Architect	6280
District Of Columbia Architect	101294

□ William H. Bannister, A.I.A.

New Jersey Architect	19142
Connecticut Architect	ARI.0014499
North Carolina Architect	15027
South Carolina Architect	10382
Pennsylvania Architect	RA.009555

□ Hae-An Chyun A.I.A.

New Jersey Architect	20868

□ Sara MacDonald A.I.A.

New Jersey Architect	18503

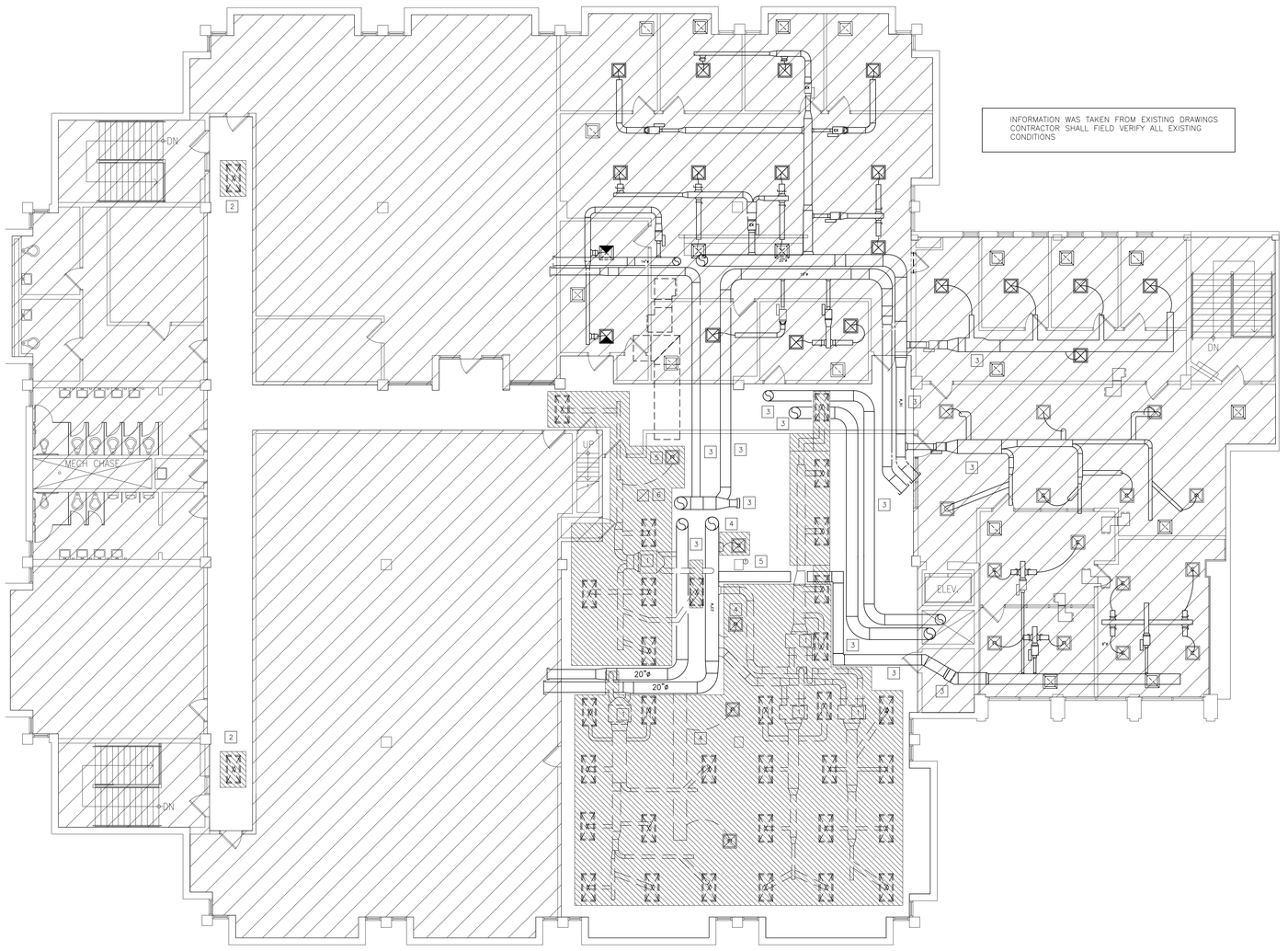
SIGNATURE

MECHANICAL GENERAL NOTES AND SYMBOL LIST

THIS SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42"x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

xx PROJECT MANAGER	SHEET NUMBER
xx DRAWN BY	M-001
8500 PROJECT NUMBER	

29 JULY 2022
RELEASE DATE



MECHANICAL DEMOLITION FLOOR PLAN

SCALE: 1/8 = 1'-0"

LEGEND

EXISTING DUCT TO REMAIN

EXISTING DUCT, EQUIPMENT TO BE REMOVED

MECHANICAL DEMOLITION KEYED NOTES [X]

1. REMOVE EXISTING VAV, DUCTWORK AND ASSOCIATED DAMPERS, HANGERS, SUPPORTS, INSULATION, ETC. IN ITS ENTIRETY INCLUDING TWO DUCT CONNECTION TO MAIN. AS POSSIBLE REUSE EXISTING DUCT CONNECTION FOR NEW DUCT WORK, OTHERWISE CAP AND SEAL EXISTING DUCT.
2. EXISTING LIGHT TROFFER DIFFUSER. COMBO TO BE REMOVED AND REPLACED. CUT AND REMOVE EXISTING DIFFUSER, PREPARE DUCT FOR NEW INSTALLATION, EXTEND DUCT TO NEW DIFFUSER LOCATION AND RECONNECT. COORDINATE REMOVALS WITH THE ELECTRICAL CONTRACTOR.
3. EXISTING SUPPLY DUCTWORK TO REMAIN.
4. CUT, REMOVE AND CAP EXISTING CEILING DIFFUSER AND ASSOCIATED DUCT.
5. EXISTING TEMP. SENSOR TO BE REMOVED DISCONNECT AND REMOVE ALL WIRING.
6. REMOVE EXISTING EXHAUST FAN IN ITS ENTIRETY, CUT CAP AND SEAL EXISTING DUCT.

PARETTE SOMJEN

ARCHITECTS

A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

Marc R. Parette A.I.A.

NCARB Registration	44264
New Jersey Architect	10436
New York Architect	024312
Pennsylvania Architect	014798B
Maryland Architect	10445
New Jersey Planner	4981
Alabama Architect	5996
Louisiana Architect	6261
Florida Architect	AR 93131
Michigan Architect	1301053053
Nevada Architect	6311

Gregory J. Somjen A.I.A.

NCARB Registration	47178
New Jersey Architect	13349
Massachusetts Architect	9629
Delaware Architect	6616
Virginia Architect	0401 011210
Connecticut Architect	8622
New York Architect	032435-1
Nevada Architect	6280
District Of Columbia Architect	101294

William H. Bannister, A.I.A.

New Jersey Architect	19142
Connecticut Architect	ARI.0014499
North Carolina Architect	15027
South Carolina Architect	10382
Pennsylvania Architect	RA409555

Hae-An Chyun A.I.A.

New Jersey Architect	20868

Sara MacDonald A.I.A.

New Jersey Architect	18503

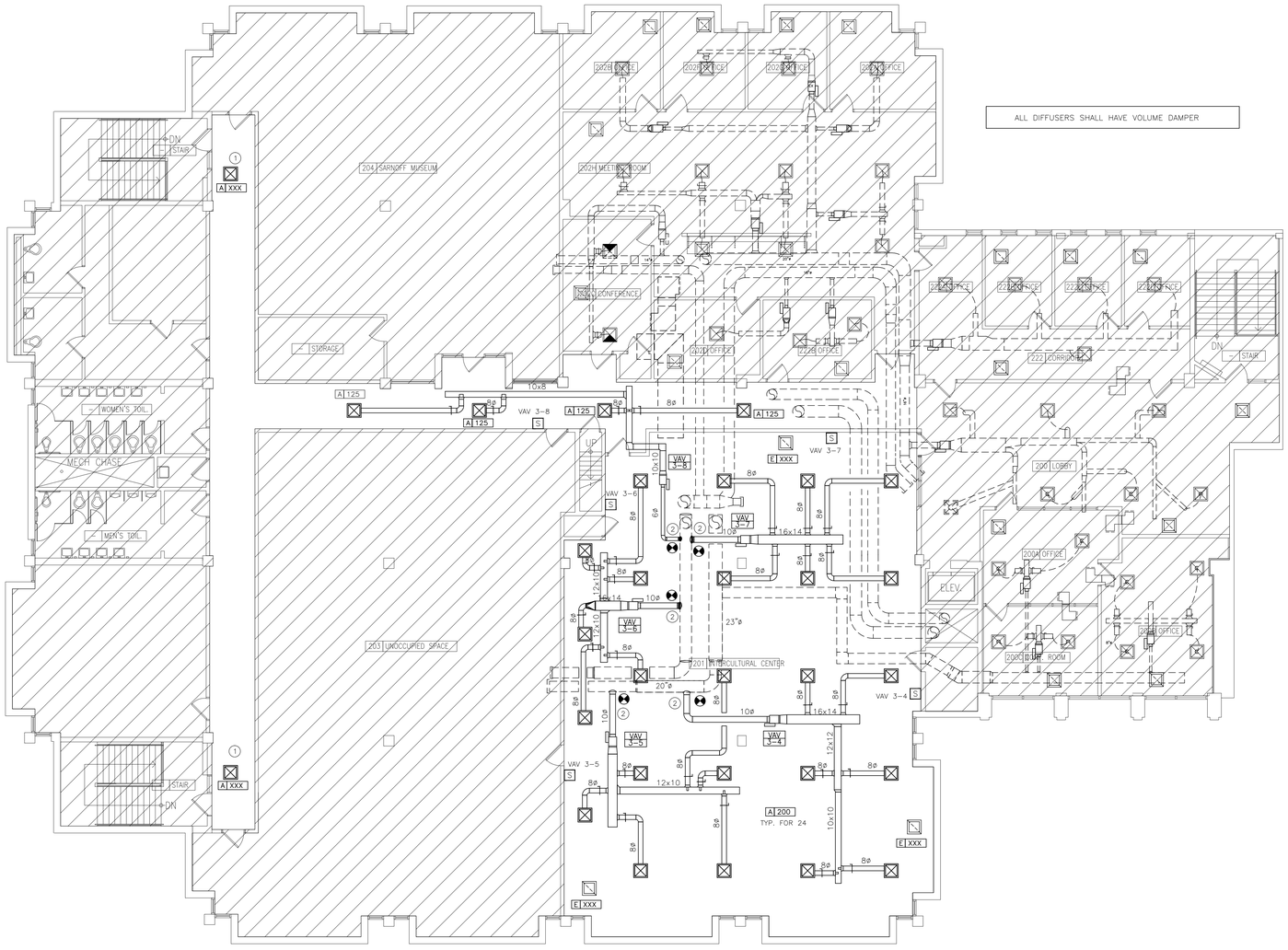
SIGNATURE

MECHANICAL PARTIAL DEMOLITION FLOOR PLAN

THIS SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX PROJECT MANAGER	SHEET NUMBER
XX DRAWN BY	MD-101
8500 PROJECT NUMBER	

29 JULY 2022
RELEASE DATE



MECHANICAL NEW WORK FLOOR PLAN

SCALE: 1/8 = 1'-0"

LEGEND

- EXISTING DUCT TO REMAIN
- NEW DUCT
- X XXX — CEILING DIFFUSER/GRILLE
  - CFM
  - TYPE

MECHANICAL NEW WORK KEYED NOTES (X)

1. INSTALL NEW DIFFUSER, CONNECT AND EXTEND EXISTING DUCT, DUCT SIZE TO MATCH EXISTING.
2. INSTALL NEW VAV AND CONNECT TO MAIN, RUN NEW DUCT AND CONNECT TO EXISTING.

PARETTE SOMJEN

ARCHITECTS

A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

□ Marc R. Parette A.I.A.

NCARB Registration	44264
New Jersey Architect	10436
New York Architect	024312
Pennsylvania Architect	014795B
Maryland Architect	10445
New Jersey Planner	4981
Alabama Architect	5996
Louisiana Architect	6261
Florida Architect	AR 93131
Michigan Architect	1301053053
Nevada Architect	6311

□ Gregory J. Somjen A.I.A.

NCARB Registration	47178
New Jersey Architect	13349
Massachusetts Architect	9629
Delaware Architect	6616
Virginia Architect	0401 011210
Connecticut Architect	8622
New York Architect	032435-1
Nevada Architect	6280
District Of Columbia Architect	101294

□ William H. Bannister, A.I.A.

New Jersey Architect	19142
Connecticut Architect	ARL0014499
North Carolina Architect	15027
South Carolina Architect	10382
Pennsylvania Architect	RA409555

□ Hae-An Chyun A.I.A.

New Jersey Architect	20868

□ Sara MacDonald A.I.A.

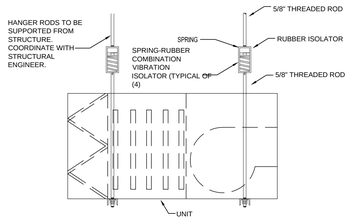
New Jersey Architect	18503

SIGNATURE

MECHANICAL PARTIAL NEW WORK FLOOR PLAN

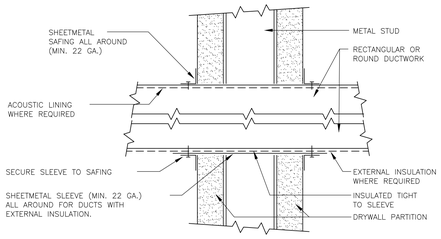
THIS SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX — PROJECT MANAGER	SHEET NUMBER
XX — DRAWN BY	M-101
8500 — PROJECT NUMBER	
29 JULY 2022 — RELEASE DATE	



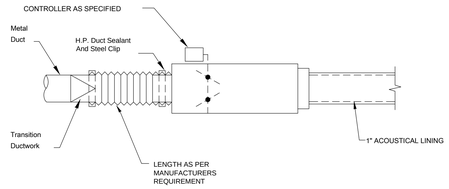
CEILING HUNG UNIT SUPPORT DETAIL

SCALE: N.T.S.

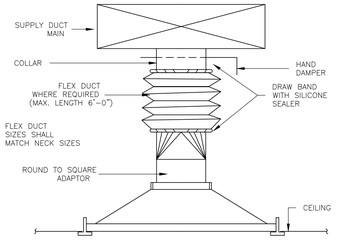


DUCT PENETRATION THROUGH NON-FIRE RATED WALL

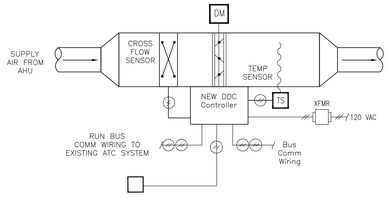
SCALE: N.T.S.



VAV BOX DETAIL



TYPICAL DIFFUSER CONNECTION

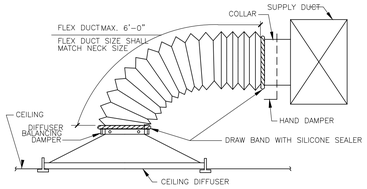


TYPICAL VAV BOX CONTROL DIAGRAM

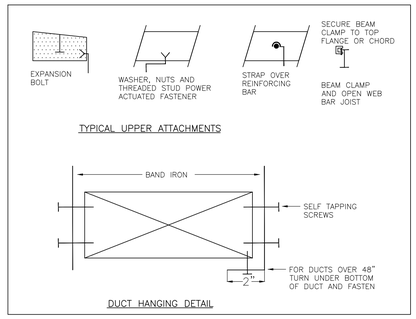
1. FURNISH AND INSTALL NEW DDC CONTROLLER FOR THE VAV, RV AND FAN COIL.
2. RECONNECT AND EXTEND ALL EXISTING WIRING TO NEW CONTROLLER.
3. NEW HONEYWELL TEMP SENSOR SHALL BE INSTALLED TO REPLACE EXISTING, FINAL LOCATION SHALL BE VERIFY AT FIELD. PROVIDE NEW WIRING AS REQUIRED.
4. ADJUST VAV AND RV SUPPLY AND RETURN CFM AS INDICATED ON VENTILATION SCHEDULE.
5. AS REQUIRED REPLACE EXISTING SENSORS IN FAN COIL.

SEQUENCE OF OPERATION - VAV TERMINALS

1. THE VAV TERMINAL MANUFACTURER SHALL PROVIDE THE BOXES COMPLETE WITH CROSS FLOW SENSORS. THE ATC CONTRACTOR SHALL PROVIDE, MOUNT, AND WIRE THE DDC CONTROL ACTUATOR, ROOM TEMPERATURE SENSOR, SUPPLY AIR SENSOR, AND ALL OTHER ASSOCIATED CONTROLS.
2. THE ROOM TEMPERATURE SENSOR SHALL PROPORTIONATELY POSITION THE PRIMARY AIR DAMPER TO MAINTAIN THE DESIRED SPACE TEMPERTURE. ON A RISE IN SPACE TEMPERATURE, AS READ BY THE ROOM SENSOR, THE DDC CONTROLLER SHALL MODULATE THE TERMINAL DAMPER TO DELIVER THE REQUIRED CFM OF PRIMARY AIR TO MAINTAIN SPACE TEMPERATURE. ON A CONTINUED RISE IN SPACE TEMPERATURE, THE DDC CONTROLLER SHALL PROPORTIONATELY OPEN TO ITS MAXIMUM POSITION.
3. ON A DECREASE IN SPACE TEPERATURE, AS READ BY THE ROOM SENSOR, THE DDC; CONTROLLER SHALL MODULATE THE PRIMARY AIR DAMPER CLOSED TO DELIVER THE REQUIRED CFM TQ MAINTAIN SPACE TEMPERATURE. AS THE ROOM TEMPERATURE CONTINUES TO FALL, THE BOX CONTROLLER SHALL CONTINUE TO MODULATE TO THE MINIMUM TERMINAL CFM.
4. THE ROOM TEMPERATURE SENSOR SHALL HAVE LOCAL SETPOINT FOR 75 DEGREE SUMMER AND 70'F WINTER (ADJ).
5. WHEN THE SYSTEM IS IN UNOCCUPIED MODE, THE AHU SUPPLY FAN SHALL START AND THE VAV TERMINAL DAMPER SHALL OPEN TO THE MAXIMUM POSITION TO MAINTAIN SPACE TEMPERATURE.



TYPICAL DIFFUSER CONNECTION DETAIL



DUCT SUPPORT SCHEDULE

* CONTRACTOR SHALL USE DUCT-MATE OR EQUAL WIRE ROPE HANGING SYSTEM WITH CLUTCHER MECHANICAL LOCKING MECHANISM, WITH E-Z LOCK WIRE ROPE BEAM CLAMP TO HANG FROM BEAM OR TRUSS TOP FLANGE OR CHORD

DUCT SUPPORT DETAILS

SCALE: N.T.S.

DIFFUSER AND REGISTER SCHEDULE

UNIT ID	MODEL	SIZE IN	DESCRIPTION	REMARKS
A	TMS-AA	24 x 24	ALUMINUM SUPPLY DIFFUSER, ROUND NECK, 3 CONE, LOUVER FACE, VOLUME CONTROL DAMPER.	1, 2, 3, 4, 5, 6, 7, 8
B	SG-SD	6 x 6	STEEL, MODULAR CORE SECURITY DIFFUSER, 2-WAY CORNER CORE, OPPOSED BLADE DAMPER & ABOVE CEILING ANGLE BRACKET MOUNTIN	1, 3, 4, 6
C	350-FL	12x12	ALUMINUM RETURN, EXHAUST REGISTER, 3/4" SPACING FRONT BLADES PARALLEL TO THE LONG DIMENSION.	1, 3, 4, 6
D	TMS-AA	12x12	ALUMINUM SUPPLY DIFFUSER, ROUND NECK, 3 CONE, LOUVER FACE, VOLUME CONTROL DAMPER.	1, 2, 3, 4, 5, 6, 7, 8
E	350-FL	24x24	ALUMINUM RETURN REGISTER, 3/4" SPACING FRONT BLADES PARALLEL TO THE LONG DIMENSION.	1, 3, 4, 6

REMARKS:
1. SELECTIONS ARE BASED ON TITUS
2. FLEXIBLE DUCTS CONNECTING THE DIFFUSERS SHALL BE FULL SIZE OF NECK DIAMETER.
3. MAXIMUM NOISE CRITERION RATING < 25 DBA.
4. BAKED ENAMEL FINISH, COLOR TO BE SELECTED BY ARCHITECT.
5. DIFFUSERS SHALL BE 4-WAY BLOW UNLESS OTHERWISE INDICATED ON PLANS.
6. MOUNTING FRAME TYPE SHALL BE COORDINATED WITH CEILING/WALL CONSTRUCTION TYPE.
7. NECK DIAMETER SHALL BE AS SCHEDULED IN TABLE 1.
8. ALL DUCT RUN-OUTS TO DIFFUSERS SHALL BE FULL-SIZE OF THE INDICATED NECK SIZE IN TABLE 1

TABLE 1

CFM	INLET
UP TO 275 CFM	8" DIAMETER
276 TO 380 CFM	10" DIAMETER
381 TO 500 CFM	12" DIAMETER
501 TO 700 CFM	14" DIAMETER
701 TO 901 CFM	15" DIAMETER

NEW VAV BOX SCHEDULE

VAV TAG	SERVING	MODEL NUMBER	INLET SIZE	MIN. CFM	MAX. CFM	ELECTRICAL VOLTS	PH.	HZ.	SERVED BY AHU UNIT	NOTES
VAV-3-4	RM-201	SDV-10	10	500	1200	120	1	60	3	ALL
VAV-3-5	RM-201	SDV-10	10	500	1200	120	1	60	3	ALL
VAV-3-6	RM-201	SDV-10	10	500	1200	120	1	60	3	ALL
VAV-3-7	RM-201	SDV-10	10	500	1200	120	1	60	3	ALL
VAV-3-8	CORRIDOR	SDV-6	6	500	500	120	1	60	3	ALL

NOTES:
1. SELECTIONS BASED ON PRICE
2. PROVIDE DDC DIGITAL CONTROL
3. PROVIDE SPACE SENSOR FOR EACH VAV
4. NORMALLY CLOSE PRIMARY AIR DAMPER
5. DISCONNECT FUSED SWITCH
6. DAMPER ACTUATOR
7. 24 V CONTROL TRANSFORMER
8. INDUCED AIR FILTER
9. CONNECT INLET SIZE TO MAIN DUCT

PARETTE SOMJEN

ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200
Yoram Ozer, P.E.
NJ License #24GE04672100

2022-07-29 ISSUE FOR BID

REV	DATE	REMARK

□ Marc R. Parette A.I.A.
NCARB Registration 44264
New Jersey Architect 10436
New York Architect 024312
Pennsylvania Architect 014798B
Maryland Architect 10445
New Jersey Planner 4981
Alabama Architect 5996
Louisiana Architect 6261
Florida Architect AR 93131
Michigan Architect 1301053053
Nevada Architect 6311

□ Gregory J. Somjen A.I.A.
NCARB Registration 47178
New Jersey Architect 13349
Massachusetts Architect 9629
Delaware Architect 6616
Virginia Architect 0401 011210
Connecticut Architect 8622
New York Architect 032435-1
Nevada Architect 6280
District Of Columbia Architect 101294

□ William H. Bannister, A.I.A.
New Jersey Architect 19142
Connecticut Architect ARI.0014499
North Carolina Architect 15027
South Carolina Architect 10382
Pennsylvania Architect RA409555

□ Hae-An Chyun A.I.A.
New Jersey Architect 20868

□ Sara MacDonald A.I.A.
New Jersey Architect 18503

SIGNATURE

MECHANICAL DETAILS AND SCHEDULES

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX
PROJECT MANAGER

XX
DRAWN BY

8500
PROJECT NUMBER

SHEET NUMBER
M-201

29 JULY 2022
RELEASE DATE

ELECTRICAL SYMBOL LIST:

DUPLEX RECEPTACLE

IG DUPLEX RECEPTACLE

QUAD RECEPTACLE

GFI — GROUND FAULT INTERRUPT RECEPTACLE

WP — GROUND FAULT INTERRUPT RECEPTACLE WITH WEATHER-PROOF COVER. MUST BE W/P WITH CORDS CONNECTED.

DEDICATED DUPLEX RECEPTACLE

J-BOX FOR FURNITURE POWER CONNECTION, INSTALL FLEXIBLE CONDUIT CONNECTION FROM J-BOX TO FURNITURE, MAKE ALL FINAL CONNECTION.

J-BOX FOR FURNITURE DATA CONNECTION, 1" CONDUIT TO ABOVE CEILING, INSTALL FLEXIBLE CONDUIT CONNECTION FROM J-BOX TO FURNITURE,

COMBINATION FLOOR POWER/DATA/AV LEGRAND 8AT OR APPROVED EQUAL FOR THE DATA OUTLET RUN 1-1/4" UNDERSLAB CONDUIT WITH CAT6 WIRE TO THE NEAREST WALL AND RISE UP TO ABOVE CEILING OR AS INDICATED. FOR THE A/V RUN 2" CONDUIT AS INDICATED. FOR THE POWER RUN 1" UNDERSLAB CONDUIT AS INDICATED ON PLANS.

DATA/PHONE OUTLET RUN 1" CONDUIT TO ABOVE CEILING. RUN CAT 6 WIRE FROM OUTLET TO IDF ROOM.

CEILING WIFI ACCESS POINT.

POWER/LIGHTING PANEL (208/120V) OR 480/277

JUNCTION BOX

$ LIGHT SWITCH

$3 3=3WAY SWITCH "X"=SWITCH LETTER*

$4 4-WAY SWITCH "X"=SWITCH LETTER*

$x 2 OR MORE- SWITCHES IN MULTI-GANG BOX "X"=SWITCH LETTER*

$k KEY OPERATED SWITCH

COMBO OCCUPANCY SENSOR WITH SWITCH

EXIT LIGHT

DISCONNECT SWITCH

CL CLOCK TO MATCH EXISTING

SP SPEAKER

LINE VOLTAGE CEILING MOUNTED VACANCY SENSOR BY HUBBELL MODEL OMNIDT2000BP1277

LOW VOLTAGE CEILING MOUNTED VACANCY SENSOR BY HUBBELL MODEL OMNIDT2000RP PROVIDE WITH POWER PACK

F FIRE ALARM PULL SWITCH

HORNSTROBE 110 CANDELA

CEILING MOUNTED HORNSTROBE 110 CANDELA

CEILING MOUNTED STROBE

STROBE LIGHT 15 CANDELA

H CEILING MOUNTED HEAT DETECTOR

DT DUCT DETECTOR

HT ABOVE CEILING HEAT DETECTOR

S CEILING MOUNTED SMOKE DETECTOR

* SWITCHES AND LUMINARIES MAY BE LABELED WITH A LOWERCASE LETTER THAT IDENTIFIES THE SWITCHING CIRCUIT. MULTIPLE LETTERS INDICATE MULTIPLE SWITCHES MOUNTED IN A MULTI-GANG BOX. IF THERE ARE NO LETTERS, ALL LUMINARIES IN THAT AREA OR ROOM ARE CONTROLLED BY A SINGLE SWITCH.

LIGHTING FIXTURES THAT ARE HALF SHADED ARE LIGHTING FIXTURES WITH EM. BATTERY PACK, REFER TO LIGHTING FIXTURE SCHEDULE FOR MORE INFORMATION.

GENERAL FIRE ALARM NOTES

1. ALL NEW DEVICES SHALL BE COMPATIBLE WITH EXISTING SYSTEM.
2. CONNECT ALL DEVICES TO THE COMMUNICATIONS AND CONTROL LOOPS TO THE FIRE ALARM CONTROL PANEL.
3. SPACING CRITERIA FOR ALL ALARMS, SENSORS AND DEVICES, MUST BE IN COMPLIANCE W/ NFPA-72.
4. ALL CEILING MOUNTED FIRE ALARM DEVICES AND SENSORS MUST BE COORDINATED W/ RECESSED LIGHTING, AND ALL HVAC DUCT, DIFFUSERS, AND SUPPLY/RETURN GRILLS.
5. COORDINATE WITH MANUFACTURER ALL WIRING AND INSTALLATION METHODS PRIOR TO ANY WORK.
6. FIRE ALARM DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, NATIONAL ELECTRICAL CODE AND MEET ALL LOCALLY ENFORCED CODE AND ICC/ANSI-A117.1 REQUIREMENTS.
7. FIRE ALARM SYSTEM SHALL BE SUBMITTED TO LOCAL FIRE MARSHAL FOR APPROVAL PRIOR TO INSTALLATION.
8. ALL CABLES SHALL BE UL LISTED FIRE ALARM CABLE, POWER LIMITED, WITH RED JACKET, NEATLY CONCEALED EXPOSED IN CEILING JOIST SPACE BETWEEN THE TOP CORD AND THE BOTTOM CORD OF THE STEEL (I.E. FOLLOW STEEL FRAMING) OR FISHED IN CONCEALED SPACES WITH SUPPORTS & INSTALLATION PER CODE.
9. ALL JUNCTION BOXES ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE PAINTED RED.
10. DEVICE MOUNTING HEIGHT TO BE COORDINATED WITH & APPROVED BY AUTHORITIES HAVING JURISDICTION.
11. DRAWING IS DIAGRAMMATIC. COORDINATE EXACT ROUTING AND INSTALLATION METHODS IN FIELD.
12. NEW NOTIFICATION FIRE ALARM DEVICES SHALL BE INSTALLED ON A NEW OR EXISTING FIRE ALARM NOTIFICATION CIRCUIT. WHEN USING AN EXISTING NOTIFICATION CIRCUIT, E.C. SHALL CONFIRM THAT THE ADDITION OF THE NEW DEVICES SHALL NOT CAUSE THE CIRCUIT TO EXCEED THE MAXIMUM ALLOWABLE VOLTAGE DROP. INSTALLED NEW NOTIFICATION CIRCUIT IF REQUIRED.
13. E.C. SHALL CONFIRM THAT EXISTING FIRE ALARM SYSTEM BATTERY CAPACITY IS SUFFICIENT TO ACCOMMODATE THE NEW AND INSTALLED FIRE ALARM DEVICES. FURNISHED AND INSTALLED ADDITIONAL BATTERY IF REQUIRED.
14. APPROVED SHOP DRAWINGS SHALL INCLUDE BATTERY SIZE CALCULATION, VOLTAGE DROP CALCULATION AND SIGN AND SEAL BY A LICENSE NEW JERSEY ENGINEER.
15. EXISTING FIRE ALARM SYSTEM SHALL REMAIN FULLY OPERATIONAL DURING CONSTRUCTION, WHERE A SYSTEM SHUT DOWN IS NEEDED E.C. SHALL COMPLY WITH ALL THE REQUIREMENTS OF THE LOCAL FIRE OFFICIAL.

GENERAL ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH NFPA ARTICLE 70, NATIONAL ELECTRICAL CODE (NEC), LATEST EDITION, AND ALL OTHER APPLICABLE CODES.
2. MANUFACTURER'S DIRECTION SHALL BE FOLLOWED IN INSTALLING, TESTING AND PLACING INTO OPERATION ALL EQUIPMENT AND SYSTEMS.
3. ALL RACEWAYS ENTERING OR LEAVING THE BUILDING SHALL BE SEALED TO PREVENT WATER INTRUSION.
4. ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS AS DETERMINED BY THE ARCHITECT.
5. ALL WIRE SPLICES SHALL BE MADE WITH PRESSURE TYPE CONNECTORS. SPLICES IN DAMP OR WET LOCATIONS SHALL BE MADE WATERTIGHT AND WATERPROOF.
6. PROVIDE OUTLET BOXES AT ALL FIXTURES, JUNCTION BOXES AND WIRING DEVICES. BOXES SHALL BE PROPERLY SUPPORTED AND SIZED FOR THE NUMBER OF CONDUCTORS IN ACCORDANCE WITH NEC. INTERIOR BOXES SHALL BE GALVANIZED STEEL. EXTERIOR BOXES AND FITTINGS SHALL BE CAST ALUMINUM.
7. PROVIDE JUNCTION BOXES AND WIRING TROUGHS, SIZED AS PER NEC, WHERE SHOWN OR WHERE NECESSARY TO FACILITATE PULLING OF CONDUCTORS. BOXES AND TROUGH SHALL BE SHEET STEEL, EITHER GALVANIZED OR PAINTED FINISH. COVERS SHALL BE SCREW TYPE OR COMBINATION HINGED AND SCREWED.
8. PROVIDE EXPANSION FITTINGS AT BUILDING EXPANSION JOINTS. EXPANSION FITTINGS SHALL BE OZ-GEDNEY TYPE AX OR EQUAL WITH APPROPRIATE BONDING JUMPER.
9. PROVIDE ALL SAFETY SWITCHES AS SHOWN ON THE DRAWINGS AND\OR REQUIRED BY NEC FOR MOTOR, APPLIANCE AND ELECTRIC HEAT EQUIPMENT DISCONNECTION. ALL DISCONNECT SWITCHES SHALL BE LOCKABLE IN THE "ON" OR "OFF" POSITION.
10. ALL ELECTRICAL PANELS AND DISCONNECT SWITCHES, INCLUDING EXISTING EQUIPMENT, SHALL BE PROPERLY IDENTIFIED WITH PHENOLIC NAMEPLATES. PANELS SHALL HAVE TYPEWRITTEN SCHEDULES FOR ACTIVE AND SPARE CIRCUITS.
11. GROUNDING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
12. NEW PANELS SHALL BE AS SCHEDULED ON THE DRAWINGS. CIRCUIT BREAKERS SHALL BE BOLT-IN TYPE OF THE FRAME, TRIP AND INTERRUPTING CAPACITY SHOWN. ALL BUS SHALL BE COPPER. ALL PANELS SHALL HAVE A GROUND BUS.
13. PROVIDE ALL FINAL TESTS TO ASSURE A GROUNDED SYSTEM FREE FROM SHORT CIRCUITS OR UNINTENTIONAL GROUNDS.
14. THE SINGLE LINE DIAGRAM REPRESENTS THE ELECTRICAL CONNECTIONS BETWEEN VARIOUS EQUIPMENT AND PANELS SHOWN. THE SCOPE OF THE ELECTRICAL WORK SHALL INCLUDE THE PROVISION OF ALL DISTRIBUTION EQUIPMENT AND THE FEEDER CONNECTIONS SHOWN. EQUIPMENT SHALL BE LOCATED AND FEEDERS SHALL BE ROUTED AS SHOWN ON PLANS AND DETAILS AND AS REQUIRED FOR THE ELECTRICAL DISTRIBUTION INTENDED. EXCEPTIONS FROM THE SCOPE OF THE WORK: EQUIPMENT AND WIRING PROVIDED BY THE ELECTRICAL UTILITY.
15. PULL BOXES SHALL BE INSTALLED AS REQUIRED TO KEEP PULLING TENSIONS AND SIDEWALL PRESSURES BELOW CABLE VENDOR'S RECOMMENDATION.
16. ALL WIRING SHALL BE PROVIDED BASED ON CIRCUIT BREAKER TRIP RATING, PER NEC. EACH CONDUIT TO INCLUDE GROUNDING CABLE.

ELECTRICAL GENERAL DEMOLITION NOTES

1. PROVIDE TEMPORARY LIGHTING IN THE CONSTRUCTION AREAS AND ALSO MAINTAIN EGRESS LIGHTING AS NECESSARY BY REROUTING FROM THE NEAREST AVAILABLE PANEL. ALSO PROVIDE GFCI PROTECTED CONSTRUCTION OUTLETS FROM NEW TEMPORARY CIRCUITS. ALL TEMPORARY WIRING SHALL BE REMOVED PRIOR TO FINAL INSPECTION OF THE NEW WIRING.
2. ELECTRICAL DEMOLITION AND NEW WORK SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DEMOLITION DRAWINGS AND NOTES.
3. REROUTE WIRING PASSING THROUGH DEMOLITION AREAS TO MAINTAIN CONTINUITY AND POWER TO OTHER EXISTING AREAS TO REMAIN.
4. INFORMATION SHOWN IS BASED ON EXISTING BUILDING DRAWINGS WHICH MAY BE OUTDATED. CONTRACTOR SHALL FIELD VERIFY ALL CIRCUITS, FEEDERS, CONDUITS, PANELS, BRANCH WIRING AND FIELD CONDITIONS. PRIOR TO DEMOLITION, RECONNECTION AND NEW INSTALLATION.
5. THE ELECTRICAL CONTRACTOR SHALL VERIFY VOLTAGE, NUMBER OF PHASES, AND WIRING ON ALL EQUIPMENT BEING RELOCATED OR REMOVED FOR RELOCATION.
6. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER TURNOVER OF ELECTRICAL EQUIPMENT, LIGHTING FIXTURES AND E.T.C. BEFORE DEMOLITION BY G.C. IN SPACES SHOWN HATCHED.
7. DISCONNECT AND REMOVED ALL WIRING AND CONDUITS TO MECHANICAL EQUIPMENT TO BE REMOVED BACK TO SOURCE. REFER TO MECHANICAL DRAWINGS FOR ALL MECHANICAL EQUIPMENT TO BE REMOVED.
8. DISCONNECT AND RECONNECT ALL WIRING TO MECHANICAL EQUIPMENT TO BE REPLACED. REFER TO MECHANICAL DRAWINGS FOR ALL MECHANICAL EQUIPMENT TO BE REPLACED WITH NEW.
9. DRAWINGS DO NOT SHOW ALL CEILING MOUNTED LIGHTING FIXTURES, DEVICES AND RECEPTACLES.

CKT. SIZE	MAX. CKT. AMPS	VOLTS	PHASE	WIRE SIZE	MAX DISTANCE (FEET)	WIRE SIZE	MAX DISTANCE (FEET)	WIRE SIZE	MAX DISTANCE (FEET)	WIRE SIZE	MAX DISTANCE (FEET)	WIRE SIZE	MAX DISTANCE (FEET)
15	5	120	1	#12	350	#10	600						
15	12	120	1	#12	150	#10	250	#8	375	#6	575		
20	5	120	1	#12	350	#10	600						
20	10	120	1	#12	175	#10	300	#8	450	#6	700		
20	16	120	1	#12	100	#10	175	#8	275	#6	425		
30	24	120	1	#10	125	#8	175	#6	275	#4	450	#4	650
15	12	208	1	#12	250	#10	425	#8	650			#3	525
20	5	208	1	#12	625	#10	1025	#8					
20	10	208	1	#12	300	#10	525	#8					
20	16	208	1	#12	200	#10	325	#8	500				
30	20	208	1	#10	250	#8	400	#6	600				
30	24	208	1	#10	200	#8	325	#6	500				
40	32	208	1	#8	250	#6	375	#4	575				
50	40	208	1	#6	300	#4	450	#3					
60	48	208	1	#4	375	#3	450	#2					
20	5	208	3	#12	725	#10	1200	#8					
20	10	208	3	#12	350	#10	600	#8					
20	16	208	3	#12	225	#10	375	#8	500				
30	20	208	3	#10	300	#3	450	#6					
30	24	208	3	#10	250	#8	375	#6	575				
40	32	208	3	#8	275	#6	425	#4	650				
50	40	208	3	#6	350	#4	525	#3					
60	48	208	3	#4	425	#3	525	#2					
80	64	208	3	#3	400	#2	475	#1	575				
100	80	208	3	#1	450	#1/0	575	#2/0					
20	5	277	1	#12	825	#10		#8					
20	10	277	1	#12	425	#10	700	#8					
20	16	277	1	#12	250	#10	425	#8					
25	20	277	1	#12	200	#10	350	#8	500				
50	40	480	3	#6	500	#4		#3					

GENERAL NOTE:

1. MINIMUM WIRE SIZE SHALL BE #12.
2. WIRE SIZE SHALL BE AS PER CIRCUIT BREAKER SIZE.
3. ALL BRANCH CIRCUIT HOMERUNS 0 THRU 100 AMPS FROM EQUIPMENT AND DEVICES TO PANELBOARDS SHALL BE UP-SIZED TO ACCOUNT FOR VOLTAGE DROP AS TABULATED ABOVE. MAXIMUM VOLTAGE DROP TO BE 5% (2% ON FEEDERS, 3% ON BRANCH CIRCUITS).

VOLTAGE DROP SCHEDULE

GENERAL REQUIREMENTS

1. THE WORK TO BE DONE UNDER THIS PROJECT SHALL INCLUDE PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
2. ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK:
3. THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
4. ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ARCHITECT, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE SHALL BE RECOGNIZED.
5. THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
6. THE CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS AND DRAWINGS PROVIDED BY OTHER TRADES.
7. EXACT ROUTING OF RACEWAY SHALL BE DETERMINED IN THE FIELD.
8. KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
9. THE DRAWINGS ARE DIAGRAMMATIC AND ALL SPECIALTIES AND APPURTENANCES ARE NOT SHOWN, BUT SHALL BE PROVIDED AS REQUIRED.
10. THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.
11. THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE.
12. ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.
13. BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL VISIT THE JOB SITE AND FULLY AQUAINT HIMSELF/HERSELF WITH THE EXISTING JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS SHALL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
14. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
15. UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE ENGINEER.
16. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
17. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
18. ALL WORK SHALL BE PERFORMED BY THOSE SKILLED IN THEIR PARTICULAR TRADE IN A NEAT AND WORKMANLIKE MANNER.
19. ALL NEW ELECTRICAL MATERIAL AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES, INC. (UL) AND BEAR THE UL LABEL.

PROJECT COORDINATION:

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
2. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND COORDINATING WITH THE DOCUMENTS OF ALL TRADES.
3. THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES.
4. ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
5. SHUT DOWN OF POWER SHALL BE COORDINATED WITH OWNER, AND ENGINEER AT LEAST 12 WORKING DAYS PRIOR TO SHUT DOWN. ANY SHUT DOWN SHALL BE DONE DURING NIGHT HOURS.
6. REFER TO THE HVAC DRAWINGS FOR THE LOCATIONS OF THE FOLLOWING:
A. MECHANICAL EQUIPMENT, CONTROL PANELS AND MOTORS
B. AUTOMATIC TEMPERATURE CONTROL SYSTEM PANELS AND DEVICES
C. MOTORIZED DAMPERS AND CONTROL VALVES
D. DUCT MOUNTED SMOKE DETECTORS

PROTECTION OF WORK:

1. EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION.
2. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

WARRANTIES AND BONDS:

1. ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF TWO YEARS AFTER FINAL ACCEPTANCE BY OWNER.
2. OBTAIN AND DELIVER TO THE ENGINEER TWO (2) COPIES OF ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

THE CONTRACTOR MUST OBTAIN THE MECHANICAL DRAWINGS FOR LOCATION OF EQUIPMENT AND CONTROL WIRING REQUIREMENTS. ONLY POWER FEEDERS WIRING TO EQUIPMENT ARE SCHEDULED ON THE ELECTRICAL DRAWINGS. FURNISH AND INSTALL ALL CODE REQUIRED DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT UNLESS SPECIFIED ON THE MECHANICAL DRAWINGS TO BE SUPPLIED BY THE MANUFACTURER, PROVIDE FUSED DISCONNECT SWITCH IF REQUIRED BY THE MANUFACTURER.

ELECTRICAL REQUIREMENTS

PERMITS:

1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

RACEWAYS:

2. ALL CONDUIT SHALL BE MINIMUM SIZE OF 3/4" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE GRC (GALVANIZED RIGID METAL CONDUIT).
3. ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NMC, WHERE CALLED FOR ON PROJECT DOCUMENTS, SHALL BE INSTALLED TO CONFORM TO THE NEC.
4. ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY SUCH AS MOTORS, TRANSFORMERS, ETC., SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT CONDUIT.
5. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED.
6. CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED, AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
7. ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
8. ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
9. ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
10. INDOOR CONDUIT SHALL BE CONCEALED TO THE MAXIMUM POSSIBLE EXTENT.
11. FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1-1/4", AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.

BOXES:

1. INTERIOR OUTLET BOXES SHALL BE METALLIC.
2. JUNCTION BOXES SHALL BE METALLIC, WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS. MOUNTING HEIGHTS OF EQUIPMENT AND DEVICES SHALL BE AS INDICATED ON THE DRAWINGS. WHERE MOUNTING HEIGHTS ARE NOT GIVEN ON THE DRAWINGS,
3. UTILIZE THE FOLLOWING MOUNTING HEIGHTS UNLESS OTHERWISE NOTED:
LIGHTING SWITCHES AND CONTROLS - 46" A.F.F TO CENTER OF THE BOX.
PANELBOARDS AND CABINETS - 78" TO TOP OF ENCLOSURE
RECEPTACLES - 16" TO BOTTOM OF BOX

WIRING:

1. ALL WIRE SHALL BE COPPER WITH 600 VOLT INSULATION, MINIMUM #12 AWG FOR POWER AND LIGHTING AND #16 AWG FOR CONTROL CIRCUITS.
2. THE USE OF MC CABLE IN CONCEAL SPACE IS PERMITTED.
3. PROVIDE A SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT, NEUTRALS SHALL NOT BE SHARED.
4. UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.

MECHANICAL SYSTEMS POWER:

1. EXCEPT AS OTHERWISE NOTED, EQUIPMENT FURNISHED UNDER THE MECHANICAL TRADE WILL INCLUDE MOTORS, STARTERS, CONTROL EQUIPMENT, INTERLOCK AND CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING FROM SOURCE THROUGH INTERVENING EQUIPMENT TO MOTOR TERMINALS. STARTERS SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR.
2. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, HORSEPOWER RATED, QUICK MAKE, QUICK BREAK TYPE, ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER, IN PROPER NEMA RATED ENCLOSURES. FUSED OR NON-FUSED AS REQUIRED. DISCONNECT SWITCHES SHALL BE PROVIDED BY CONTRACTOR, EXCEPT AS NOTED ON DRAWINGS.
3. THE RATING FOR DISCONNECT SWITCHES SHALL BE THE SAME AS, OR GREATER THAN, THE PROTECTIVE DEVICE SERVING THE EQUIPMENT.
4. A STRUT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.
5. THE CONTRACTOR SHALL WIRE ALL MECHANICAL AND FIRE ALARM EQUIPMENT SHOWN ON THE DRAWINGS. COORDINATE WITH MECHANICAL DRAWINGS.

PANELBOARDS:

1. PROVIDE A NEW TYPEWRITTEN CIRCUIT DIRECTORY FOR EACH NEW PANEL AND REVISED FOR EXISTING PANELS.
2. CIRCUIT NUMBERS SHOWN SHALL BE FOLLOWED. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.

IDENTIFICATION:

1. PROVIDE BLACK PHENOLIC IDENTIFICATION PLATES, WITH WHITE LETTERS ON ALL NEW AND EXISTING ELECTRICAL EQUIPMENT ATTACH WITH SUITABLE ADHESIVE.
2. INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDING STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT.
3. APPLY CABLE/CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET.

RECORD DRAWINGS:

1. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS.
2. UPON PROJECT COMPLETION, CONTRACTOR SHALL COMPLETE THE MARK UP OF ALL PROJECT DRAWINGS TO RECORD INSTALLED CONDITIONS AND SUBMIT TO ENGINEER.

PARETTE SOMJEN
ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT
Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
-	2022-07-29	ISSUE FOR BID

Marc R. Parette A.I.A.
NCARB Registration 44264
New Jersey Architect 10436
New York Architect 024312
Pennsylvania Architect 014798B
Maryland Architect 10445
New Jersey Planner 4981
Alabama Architect 5996
Louisiana Architect 6261
Florida Architect AR 93131
Michigan Architect 1301053053
Nevada Architect 6311

Gregory J. Somjen A.I.A.
NCARB Registration 47178
New Jersey Architect 13349
Massachusetts Architect 9629
Delaware Architect 6616
Virginia Architect 0401 011210
Connecticut Architect 8622
New York Architect 032435-1
Nevada Architect 6280
District Of Columbia Architect 101294

William H. Bannister, A.I.A.
New Jersey Architect 19142
Connecticut Architect ARI.0014499
North Carolina Architect 15027
South Carolina Architect 10382
Pennsylvania Architect RA409555

Hae-An Chyun A.I.A.
New Jersey Architect 20868

Sara MacDonald A.I.A.
New Jersey Architect 18503

SIGNATURE

GENERAL NOTES AND SYMBOL LIST

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

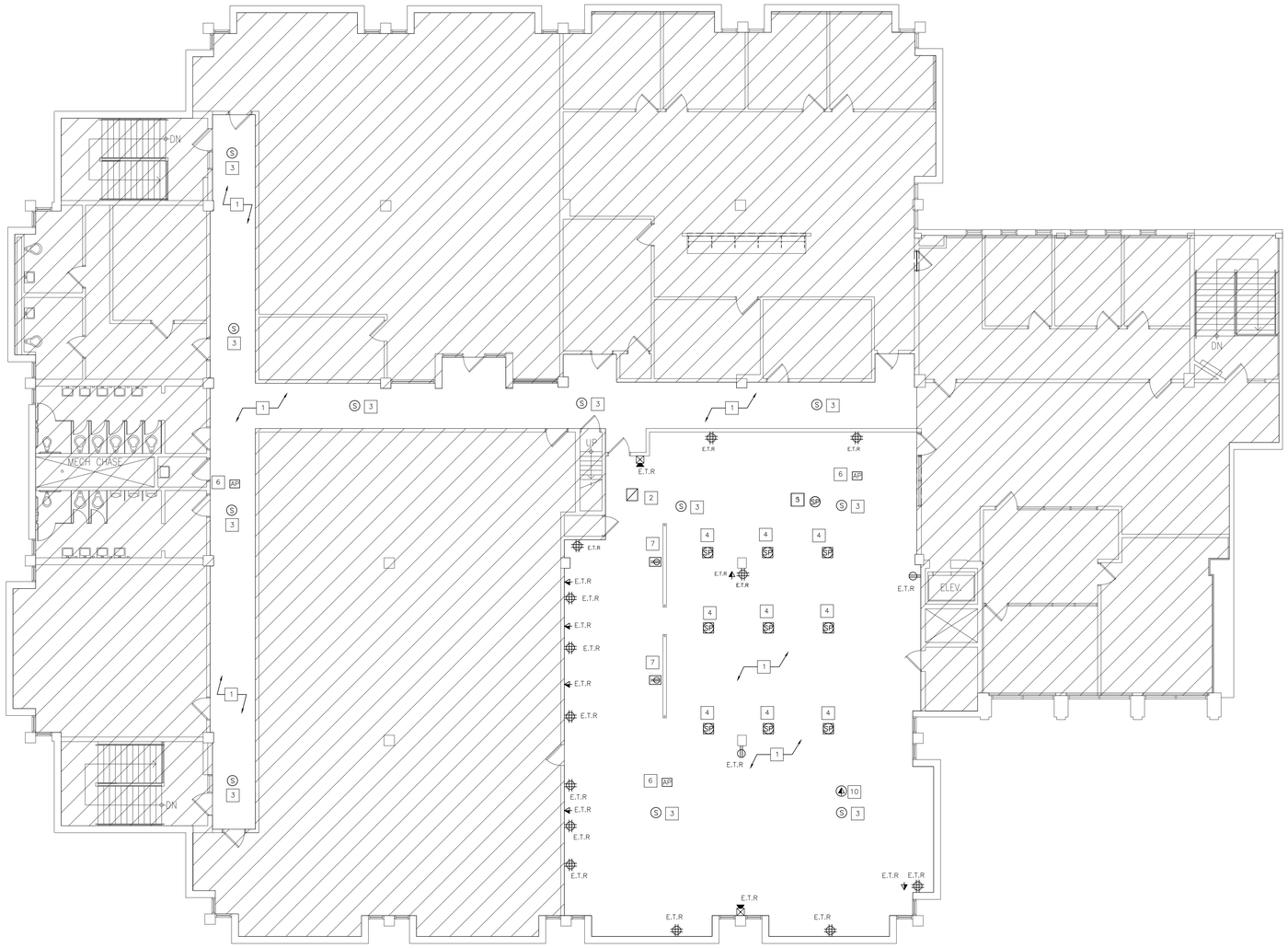
xx PROJECT MANAGER

xx DRAWN BY

8500 PROJECT NUMBER

SHEET NUMBER E-001

29 JULY 2022
RELEASE DATE



ELECTRICAL DEMOLITION PLAN PART A

SCALE: 1/8" = 1'-0"

ELECTRICAL DEMO KEYED NOTES [X]

1. EXISTING CEILING TO BE REMOVED AND REPLACED, AS REQUIRED DISCONNECT ALL ELECTRICAL, DATA AND SOUND WIRING. UNLESS OTHERWISE NOTED LEAVE ALL WIRING IN SAFE CONDITION, EXISTING LIGHTING BRANCH CIRCUIT WIRING SHALL BE REMOVED. AFTER CEILING REPLACEMENT EXTEND AND RECONNET ALL ITEMS AT APPROXIMATELY SAME LOCATION.
2. EXISTING EXHAUST FAN TO BE REMOVED, DISCONNECT AND REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.
3. EXISTING FIRE ALARM DEVICE TO BE REMOVED AND RE-INSTALL AS APPROXIMATELY SAME LOCATION, DISCONNECT ALL WIRING, LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
4. EXISTING CEILING SPEAKER TO BE REMOVED AND RE-INSTALL AS APPROXIMATELY SAME LOCATION, DISCONNECT ALL WIRING, LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
5. EXISTING CEILING SPEAKER TO BE REMOVED, DISCONNECT AND REMOVE ALL WIRING BACK TO SOURCE.
6. EXISTING CEILING ACCESS POINT
   - 6.1. EXISTING CEILING ACCESS POINT TO BE REMOVED AND RE-INSTALL AS APPROXIMATELY SAME LOCATION.
   - 6.2. DISCONNECT ALL WIRING, COLLECT ALL ATTACHMENTS, CORDS AND ACCESSORIES (AP, CEILING CLIP AND MOUNT, PATCH CORD, NYLON BUSHING) AND DELIVER TO OWNER.
   - 6.3. LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
   - 6.4. PROTECT AND MAINTAIN ABOVE-CEILING DATA OUTLET LOCATION TO-REMAIN. EACH OUTLET LOCATION IS INDICATED BY A LABEL AFFIXED TO THE FACE OF CEILING GRID BELOW. DOCUMENT EXISTING LABEL INFORMATION AND CHARACTERISTICS FOR DUPLICATION AND RE-INSTALLATION.
   - 6.5. WHERE CEILING GRID LABEL IS MISSING, COORDINATE WITH TCNJ IT FOR REQUIRED TEXT.
7. EXISTING STAGE LIGHTING TO REMAIN, EXISTING STAGE LIGHTING CEILING RECEPTACLE TO BE REMOVED AND RE-INSTALLAS APPROXIMATELY SAME LOCATION, DISCONNECT ALL WIRING, LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
8. EXISTING RECESSED CAN LIGHTS TO REMAIN, DISCONNECT AND RECONNECT AS SHOWN ON NEW WORK PLAN.
9. EXISTING LIGHTS TO BE REMOVED AND REPLACED, DISCONNECT AND REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.
10. EXISTING DATA OUTLET TO BE REMOVED AND REINSTALL AT NEW CEILING.

PARETTE SOMJEN

ARCHITECTS

A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

- Marc R. Parette A.I.A.
  - NCARB Registration 44264
  - New Jersey Architect 10436
  - New York Architect 024312
  - Pennsylvania Architect 014798B
  - Maryland Architect 10445
  - New Jersey Planner 4981
  - Alabama Architect 5996
  - Louisiana Architect 6261
  - Florida Architect AR 93131
  - Michigan Architect 1301053053
  - Nevada Architect 6311
- Gregory J. Somjen A.I.A.
  - NCARB Registration 47178
  - New Jersey Architect 13349
  - Massachusetts Architect 9629
  - Delaware Architect 6616
  - Virginia Architect 0401 011210
  - Connecticut Architect 8622
  - New York Architect 032435-1
  - Nevada Architect 6280
  - District Of Columbia Architect 101294
- William H. Bannister, A.I.A.
  - New Jersey Architect 19142
  - Connecticut Architect ARL0014499
  - North Carolina Architect 15027
  - South Carolina Architect 10382
  - Pennsylvania Architect RA409555
- Hae-An Chyun A.I.A.
  - New Jersey Architect 20868
- Sara MacDonald A.I.A.
  - New Jersey Architect 18503

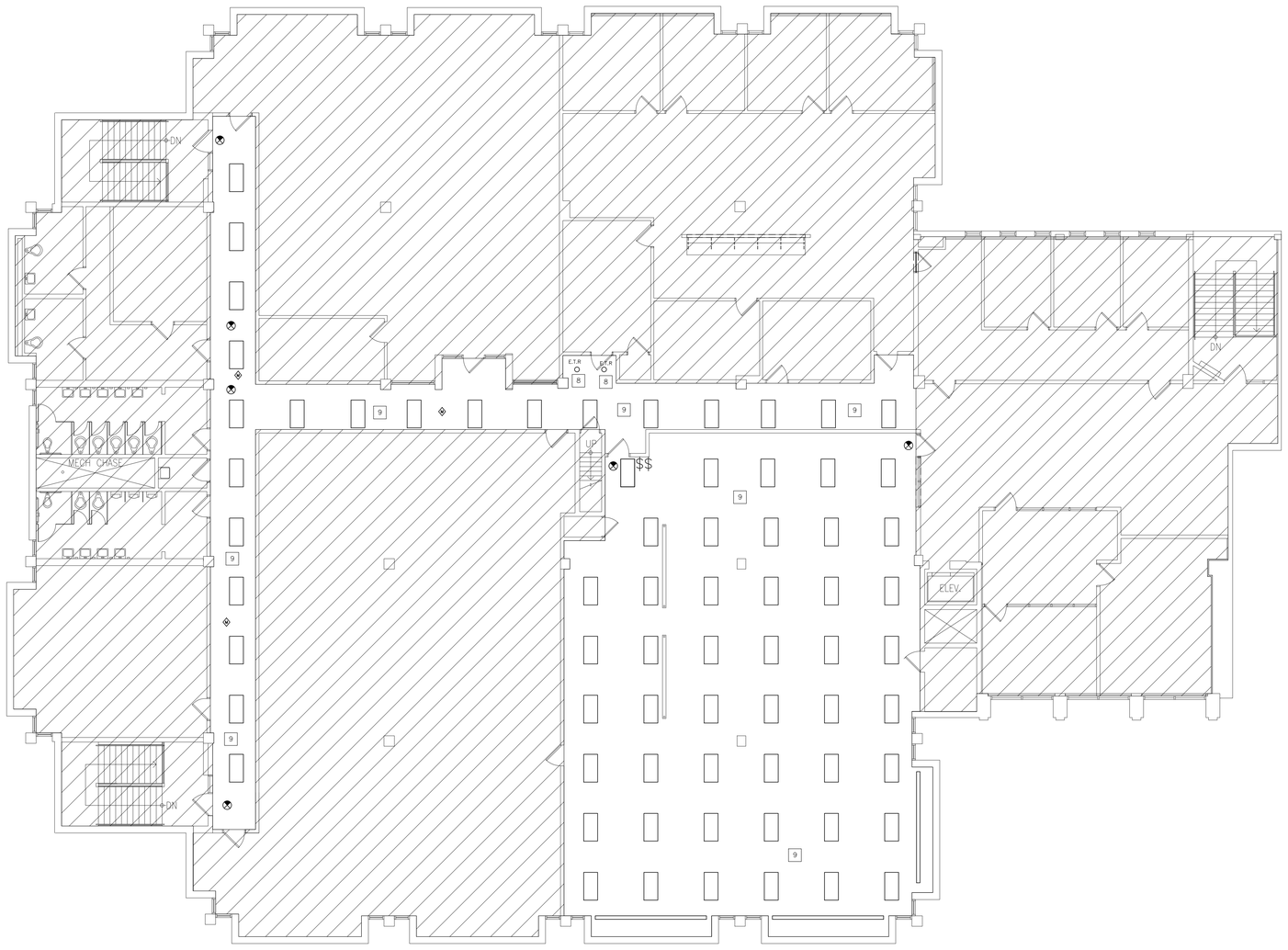
SIGNATURE

ELECTRICAL DEMOLITION PLAN PART A

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX — PROJECT MANAGER	SHEET NUMBER
XX — DRAWN BY	ED-101
8500 — PROJECT NUMBER	

29 JULY 2022
RELEASE DATE



ELECTRICAL DEMOLITION PLAN PART B

SCALE: 1/8" = 1'-0"

ELECTRICAL DEMO KEYED NOTES [X]

1. EXISTING CEILING TO BE REMOVED AND REPLACED, AS REQUIRED DISCONNECT ALL ELECTRICAL, DATA AND SOUND WIRING. UNLESS OTHERWISE NOTED LEAVE ALL WIRING IN SAFE CONDITION, EXISTING LIGHTING BRANCH CIRCUIT WIRING SHALL BE REMOVED. AFTER CEILING REPLACEMENT EXTEND AND RECONNET ALL ITEMS AT APPROXIMATELY SAME LOCATION.
2. EXISTING EXHAUST FAN TO BE REMOVED, DISCONNECT AND REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.
3. EXISTING FIRE ALARM DEVICE TO BE REMOVED AND RE-INSTALL AS APPROXIMATELY SAME LOCATION, DISCONNECT ALL WIRING, LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
4. EXISTING CEILING SPEAKER TO BE REMOVED AND RE-INSTALL AS APPROXIMATELY SAME LOCATION, DISCONNECT ALL WIRING, LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
5. EXISTING CEILING SPEAKER TO BE REMOVED, DISCONNECT AND REMOVE ALL WIRING BACK TO SOURCE.
6. EXISTING CEILING ACCESS POINT
   - 6.1. EXISTING CEILING ACCESS POINT TO BE REMOVED AND RE-INSTALL AS APPROXIMATELY SAME LOCATION.
   - 6.2. DISCONNECT ALL WIRING, COLLECT ALL ATTACHMENTS, CORDS AND ACCESSORIES (AP, CEILING CLIP AND MOUNT, PATCH CORD, NYLON BUSHING) AND DELIVER TO OWNER.
   - 6.3. LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
   - 6.4. PROTECT AND MAINTAIN ABOVE-CEILING DATA OUTLET LOCATION TO-REMAIN. EACH OUTLET LOCATION IS INDICATED BY A LABEL AFFIXED TO THE FACE OF CEILING GRID BELOW. DOCUMENT EXISTING LABEL INFORMATION AND CHARACTERISTICS FOR DUPLICATION AND RE-INSTALLATION.
   - 6.5. WHERE CEILING GRID LABEL IS MISSING, COORDINATE WITH TCNJ IT FOR REQUIRED TEXT.
7. EXISTING STAGE LIGHTING TO REMAIN, EXISTING STAGE LIGHTING CEILING RECEPTACLE TO BE REMOVED AND RE-INSTALLAS APPROXIMATELY SAME LOCATION, DISCONNECT ALL WIRING, LEAVE WIRING IN SAFE CONDITION, EXTEND WIRING TO NEW LOCATION AND RECONNECT.
8. EXISTING RECESSED CAN LIGHTS TO REMAIN, DISCONNECT AND RECONNECT AS SHOWN ON NEW WORK PLAN.
9. EXISTING LIGHTS TO BE REMOVED AND REPLACED, DISCONNECT AND REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.
10. EXISTING DATA OUTLET TO BE REMOVED AND REINSTALL AT NEW CEILING.

PARETTE SOMJEN

ARCHITECTS

A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
2	2022-07-29	ISSUE FOR BID

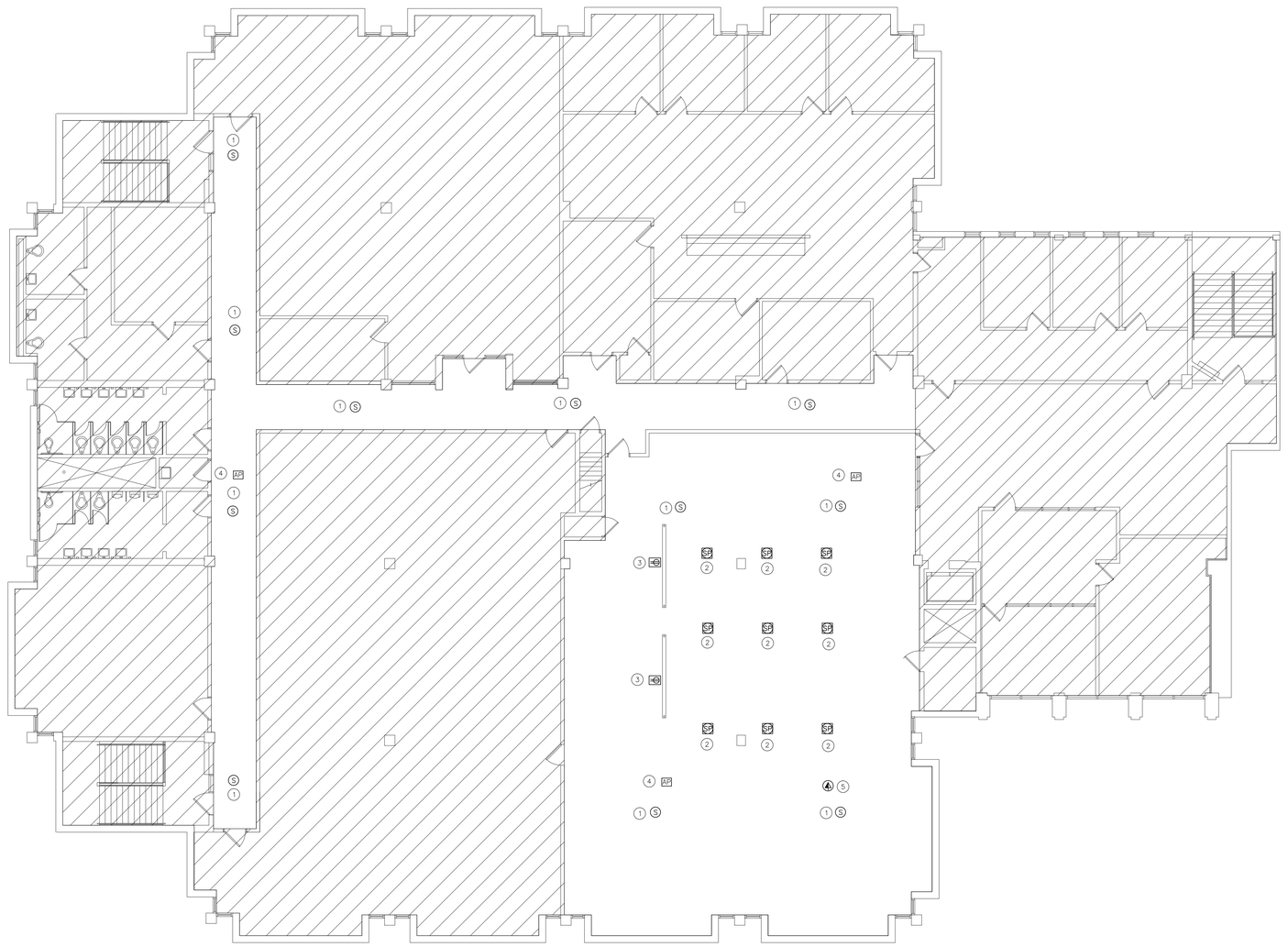
- Marc R. Parette A.I.A.
  - NCARB Registration 44264
  - New Jersey Architect 10436
  - New York Architect 024312
  - Pennsylvania Architect 014798B
  - Maryland Architect 10445
  - New Jersey Planner 4981
  - Alabama Architect 5996
  - Louisiana Architect 6261
  - Florida Architect AR 93131
  - Michigan Architect 1301053053
  - Nevada Architect 6311
- Gregory J. Somjen A.I.A.
  - NCARB Registration 47178
  - New Jersey Architect 13349
  - Massachusetts Architect 9629
  - Delaware Architect 6616
  - Virginia Architect 0401 011210
  - Connecticut Architect 8622
  - New York Architect 032435-1
  - Nevada Architect 6280
  - District Of Columbia Architect 101294
- William H. Bannister, A.I.A.
  - New Jersey Architect 19142
  - Connecticut Architect ARI.0014499
  - North Carolina Architect 15027
  - South Carolina Architect 10382
  - Pennsylvania Architect RA409555
- Hae-An Chyun A.I.A.
  - New Jersey Architect 20868
- Sara MacDonald A.I.A.
  - New Jersey Architect 18503

SIGNATURE

ELECTRICAL DEMOLITION PLAN PART B

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX PROJECT MANAGER	SHEET NUMBER
XX DRAWN BY	ED-102
8500 PROJECT NUMBER	
29 JULY 2022 RELEASE DATE	



ELECTRICAL POWER PLAN

SCALE: 1/8" = 1'-0"

IT/DATA GENERAL NOTES

1. EXISTING COMMUNICATIONS CABLING IN CEILING SPACE SHALL BE ASSUMED TO BE ACTIVE AND TO-REMAIN UNLESS OTHERWISE NOTED. CABLING AND CABLING PATHWAYS SHALL BE PROTECTED FROM DAMAGE AND MAINTAINED THROUGHOUT DEMOLITION AND INSTALLATION WORK. DAMAGED CABLING SHALL BE REPLACED IN ITS ENTIRETY BY OWNER'S IT CONTRACTOR, TO THE CURRENT SPECIFICATION FOR CABLING INSTALLATIONS AND AT CONTRACTOR'S EXPENSE. EXISTING DAMAGE TO CABLING SHALL BE IMMEDIATELY PHOTO-DOCUMENTED AND BROUGHT TO THE ATTENTION OF THE TCNJ PROJECT MANAGER.
2. ROUTING OR ORIENTATION OF CABLING AND DUCTWORK WITH RESPECT TO EACH OTHER SHALL BE SUCH THAT COMMUNICATIONS OUTLETS ARE NOT HIDDEN OR OBSTRUCTED.
3. FURNISH ADDITIONAL, INDEPENDENT SUPPORT OF EXISTING COMMUNICATIONS CABLING IN CEILING SPACE TO PREVENT CABLES AND BUNDLES FROM RESTING ON CEILING GRID, DUCTWORK, FIXTURES, ETC. SUPPORT TYPICALLY CONSISTS OF INDEPENDENTLY-ANCHORED CEILING WIRE AND J-HOOK (E.G. CADDY CAT32) ATTACHED.

FIRE ALARM PANEL IS BY HONEYWELL
XLS3200 LOCATED IN THE FIRST FLOOR

ELECTRICAL KEYED NOTES (X)

1. RELOCATED FIRE ALARM DEVICE CONNECT TO EXTENDED EXISTING WIRING.
2. RELOCATED CEILING SPEAKER CONNECT TO EXTENDED EXISTING WIRING.
3. RELOCATED CEILING STAGE LIGHTING RECEPTACLE CONNECT TO EXTENDED EXISTING WIRING.
4. RELOCATED ACCESS POINT
   - 4.1. CEILING ACCESS POINT TO BE RE-INSTALLED AT APPROXIMATELY SAME LOCATION.
   - 4.2. INSTALL GRID CLIP, ADAPTER, TILE BUSHING AND PATCH CORD.
   - 4.3. ABOVE-CEILING DATA OUTLET LOCATIONS. EACH OUTLET LOCATION IS INDICATED BY A LABEL AFFIXED TO THE FACE OF CEILING GRID BELOW. LABEL STOCK IS PLASTIC SELF-LAMINATED (E.G. P-TOUCH), BASE COLOR IN CONTRAST TO CEILING GRID COLOR (E.G. BLACK TAPE ON WHITE GRID). DUPLICATE THE EXISTING CEILING GRID LABEL FOR REPLACEMENT. WHERE CEILING GRID LABEL IS MISSING, COORDINATE WITH TCNJ IT FOR REQUIRED TEXT; MATCH LABEL CHARACTERISTICS WITH OTHER EXISTING LABELS.
5. REINSTALL DATA OUTLET AT NEW CEILING.

PLUMBING MECHANICAL ELECTRICAL FEEDERS SCHEDULE
REFER TO MECHANICAL, PLUMBING DRAWINGS FOR EXACT LOCATION

EQ. TAG	CIRCUIT NUMBER	VOLTAGE	PHASE	FEEDER DATA QTY	WIRE	GRD
VAV 3-4	LC-40	120	1	2	12	12
VAV 3-5	LC-40	120	1	2	12	12
VAV 3-6	LC-40	120	1	2	12	12
VAV 3-7	LC-40	120	1	2	12	12
VAV 3-8	LC-40	120	1	2	12	12

CIRCUIT BREAKER NUMBER ARE FOR REFERENCE ONLY FIELD VERIFY SPARE CIRCUIT BREAKER
REFER TO MECHANICAL DRAWINGS FOR LOCATION OF ALL EQUIPMENT

EXISTING PANEL LC — 120/208 — 3ø, 4W, 225A — (X) MAIN LUGS ONLY

CIR. #	DESCRIPTION	# OF POLES	C.B.	LOAD	A#	B#	C#	LOAD	C.B.	# OF POLES	DESCRIPTION	CIR. #
1	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	2
3	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	4
5	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	6
7	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	8
9	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	10
11	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	12
13	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	14
15	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	16
17	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	18
19	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	20
21	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	22
23	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	24
25	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	26
27	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	28
29	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	30
31	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	32
33	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	34
35	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	36
37	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	38
39	EX. BRANCH CIRCUIT	1	20		–	500	–	500	20	* 1	VAV-3-4 THRU 3-8	40
41	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	42

* SPARE CIRCUIT BREAKER REUSE WITH NEW WIRING

PARETTE SOMJEN
ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT
Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200
Yoram Ozer, P.E.
NJ License #24GE04672100

1 2022-07-29 ISSUE FOR BID

REV	DATE	REMARK

□ Marc R. Parette A.I.A.

NCARB Registration	44264
New Jersey Architect	10436
New York Architect	024312
Pennsylvania Architect	014798B
Maryland Architect	10445
New Jersey Planner	4981
Alabama Architect	5996
Louisiana Architect	6261
Florida Architect	AR 93131
Michigan Architect	1301053053
Nevada Architect	6311

□ Gregory J. Somjen A.I.A.

NCARB Registration	47178
New Jersey Architect	13349
Massachusetts Architect	9629
Delaware Architect	6616
Virginia Architect	0401 011210
Connecticut Architect	8622
New York Architect	032435-1
Nevada Architect	6280
District Of Columbia Architect	101294

□ William H. Bannister, A.I.A.

New Jersey Architect	19142
Connecticut Architect	ARL0014499
North Carolina Architect	15027
South Carolina Architect	10382
Pennsylvania Architect	RA409555

□ Hae-An Chyun A.I.A.
New Jersey Architect 20868

□ Sara MacDonald A.I.A.
New Jersey Architect 18503

SIGNATURE

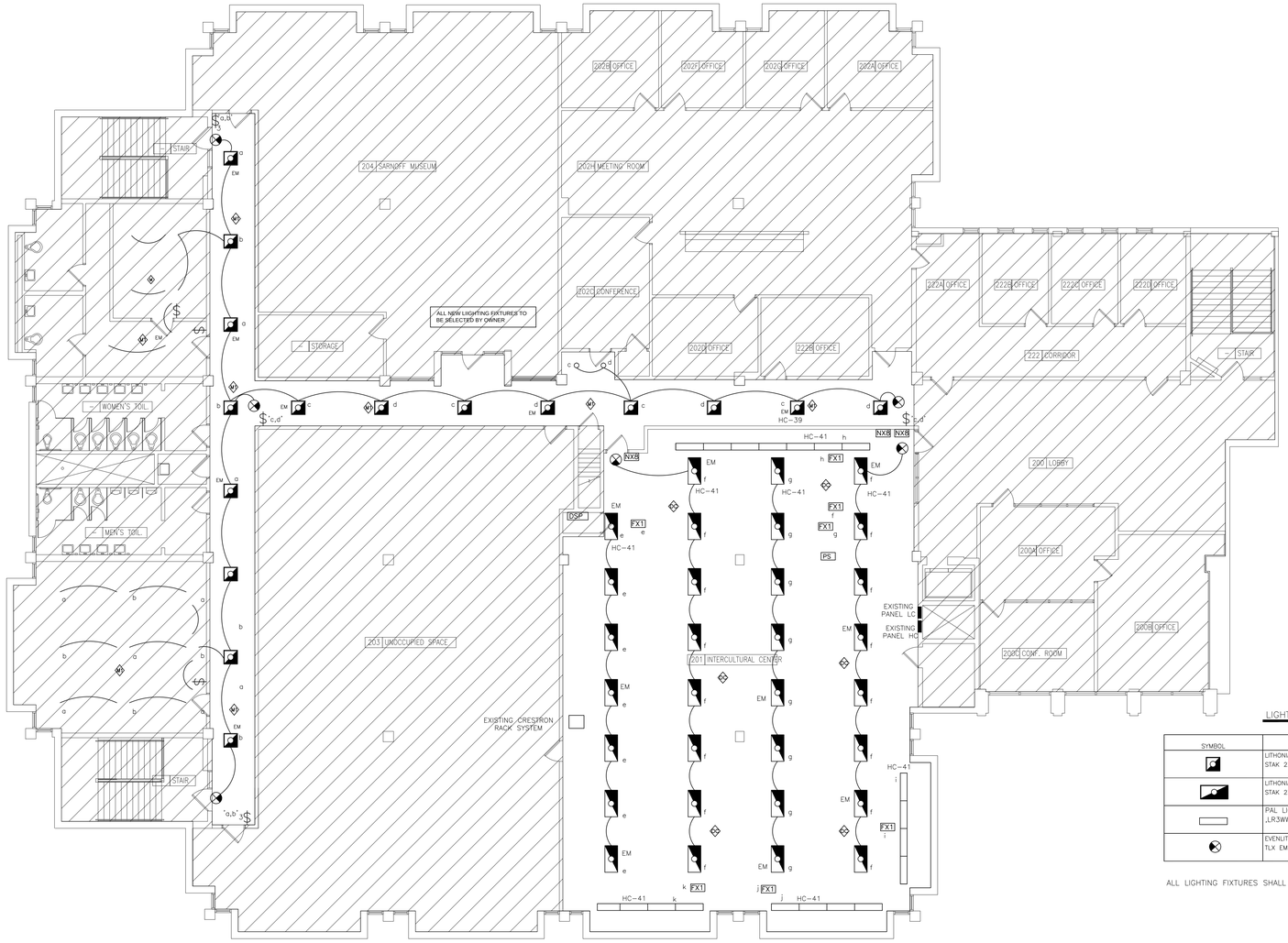
ELECTRICAL POWER PLAN

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX — PROJECT MANAGER
XX — DRAWN BY
8500 — PROJECT NUMBER

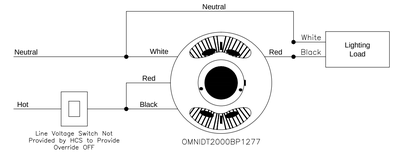
SHEET NUMBER
E-101

29 JULY 2022
RELEASE DATE:



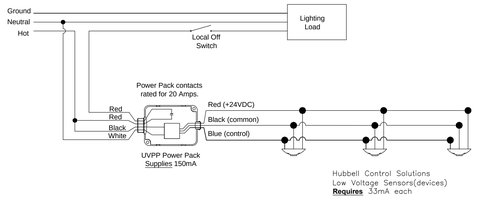
ELECTRICAL LIGHTING PLAN

SCALE: 1/8" = 1'-0"



TYP. WIRING DIAGRAM FOR LINE-VOLTAGE CEILING SENSORS

SCALE: N.T.S.



TYP. WIRING DIAGRAM FOR LOW-VOLTAGE CEILING SENSORS

SCALE: N.T.S.

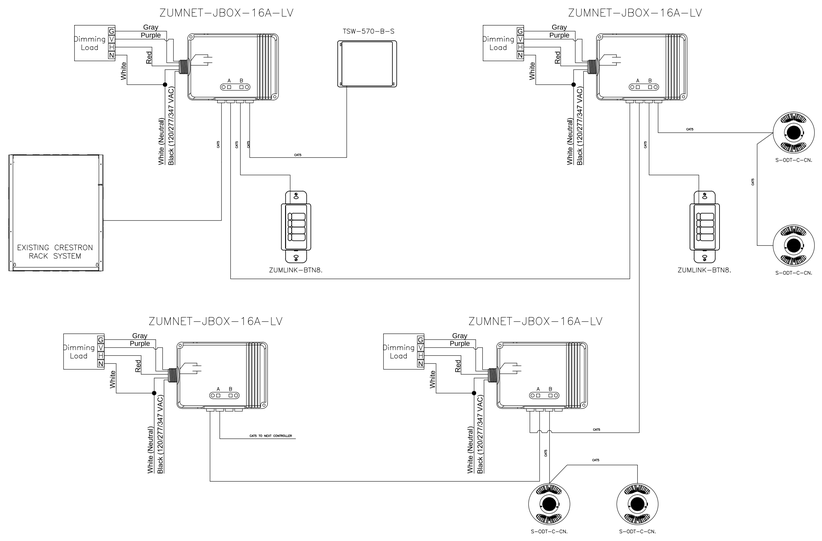
LIGHTING FIXTURE SCHEDULE

SYMBOL	MANUFACTURER, MODEL NUMBER	DESCRIPTION	VOLT	LAMP TYPE	REMARKS
	LITHONIA STACK STAK 2X2 3000 80 35K COL MIN10 ZT MVOLT	2X2 RECESSED LED LAMP	UNV	LED 24.1W	FIXTURE WITH EM DESIGNATION SHALL BE FURNISH WITH EM BATTERY PACK
	LITHONIA STACK STAK 2X4 4000 80 35K COL MIN10 ZT MVOLT	2X2 RECESSED LED LAMP	UNV	LED 33.2W	FIXTURE WITH EM DESIGNATION SHALL BE FURNISH WITH EM BATTERY PACK
	PAL LIGHTING JLR3WW MO K35 80 XX XX UNV DIM0	WALL WALL RECESSED LED LIGHTS	UNV	LED 25W	
	EVENLITE TLX EM RU W SD	EXIT SIGN WITH BATTERY BACKUP SINGLE OR DOUBLE FACE AS REQUIRED	120/277	LED	SINGLE OR DOUBLE FACE AS REQUIRED

ALL LIGHTING FIXTURES SHALL BE PROVIDED BY OWNER INSTALL BY CONTRACTOR

EXISTING PANEL HC				480/277		3ø, 4W, 225A			(X) MAIN LUGS ONLY				
CIR. #	DESCRIPTION	# OF POLES	C.B.	LOAD	Aø	Bø	Cø	LOAD	C.B.	# OF POLES	DESCRIPTION	CIR. #
1	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	2
3	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	4
5	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	6
7	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	8
9	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	10
11	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	12
13	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	14
15	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	16
17	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	18
19	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	20
21	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	22
23	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	24
25	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	26
27	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	28
29	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	30
31	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	32
33	EX. BRANCH CIRCUIT	1	20		–	0	–		20	1	EX. BRANCH CIRCUIT	34
35	EX. BRANCH CIRCUIT	1	20		–	–	0		20	1	EX. BRANCH CIRCUIT	36
37	EX. BRANCH CIRCUIT	1	20		0	–	–		20	1	EX. BRANCH CIRCUIT	38
39	CORRIDOR LIGHTING	* 1	20	500	–	500	–		20	1	EX. BRANCH CIRCUIT	40
41	ROOM 201 LIGHTS	* 1	20	1500	–	–	1500		20	1	SPARE	42

* SPARE CIRCUIT BREAKER REUSE WITH NEW WIRING



TYPICAL LIGHTING CONTROL NETWORK DIAGRAM

ALL EXIT SIGNS AND EM BALLAST SHALL BE CONNECTED TO UNSWITCH LEG AHEAD OF ANY CONTROL AND LIGHTING CONTROL PANEL

LEGEND

- LOW VOLTAGE DUAL TECHNOLOGY VACANCY SENSOR CRESTRON MODEL GLS-ODT-C-CN.
- FX1 x — 1 RELAY ROOM CONTROLLER BY CRESTRON MODEL ZUMNET-JBOX-16A-LV. "X" DENOTES ALL FIXTURES WITH "X" DESIGNATION SHALL BE WIRED VIA ROOM CONTROLLER.
- PS — LIGHTING CONTROL POWER SUPPLY BY CRESTRON MODEL ZUMLINK-JBOX-PSU
- DSP — 5 IN. WALL MOUNT TOUCH SCREEN CRESTRON MODEL TSW-570-B-S
- NX8 — LIGHTING CONTROL WALL SWITCH (8) BUTTONS CRESTRON MODEL ZUMLINK-BTN8.

PARETTE SOMJEN

ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

- Marc R. Parette A.I.A.
  - NCARB Registration 44264
  - New Jersey Architect 10436
  - New York Architect 024312
  - Pennsylvania Architect 014795B
  - Maryland Architect 10445
  - New Jersey Planner 4981
  - Alabama Architect 5996
  - Louisiana Architect 6261
  - Florida Architect AR 93131
  - Michigan Architect 1301053053
  - Nevada Architect 6311
- Gregory J. Somjen A.I.A.
  - NCARB Registration 47178
  - New Jersey Architect 13349
  - Massachusetts Architect 9629
  - Delaware Architect 6616
  - Virginia Architect 0401 011210
  - Connecticut Architect 8622
  - New York Architect 032435-1
  - Nevada Architect 6280
  - District Of Columbia Architect 101294
- William H. Bannister, A.I.A.
  - New Jersey Architect 19142
  - Connecticut Architect AR1401499
  - North Carolina Architect 15027
  - South Carolina Architect 10382
  - Pennsylvania Architect RA409555
- Hae-An Chyun A.I.A.
  - New Jersey Architect 20868
- Sara MacDonald A.I.A.
  - New Jersey Architect 18503

SIGNATURE

ELECTRICAL LIGHTING PLAN

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX PROJECT MANAGER	SHEET NUMBER E-201
XX DRAWN BY	
8500 PROJECT NUMBER	

29 JULY 2022

FIRE SPRINKLER PERFORMANCE SPECIFATIONS

1.) GENERAL REQUIREMENTS:

A. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL CONDITIONS.

B. VERIFY ALL GOVERNING DIMENSIONS IN THE BUILDING.

C. COORDINATE ALL WORK WITH OTHER TRADES TO MINIMIZE INTERFERENCE WITH EXISTING AND NEW FACILITIES. TO FACILITATE TIMELY COMPLETION AND AVOID NECESSITY FOR CUTTING AND PATCHING, FURNISH TO OTHER AFFECTED TRADES ALL NECESSARY INFORMATION WORKING DRAWINGS OR MATERIALS REQUIRED FOR INSTALLATION AND COMPLETION OF ALL WORK.

D. PROVIDE WORKMANSHIP OF HIGHEST GRADE. INSTALL ALL PIPING AND SPRINKLER HEADS IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS, REQUIREMENTS OF NFPA-13, LOCAL FIRE DEPARTMENT, OWNER'S INSURANCE UNDERWRITERS AND BUILDING CODE LATEST EDITION.

E. PROVIDE ONE YEAR GUARANTEE AGAINST DEFECTIVE WORKMANSHIP AND MATERIALS.

F. NO SHUT-DOWN OF EXISTING FIRE PROTECTION SYSTEMS SHALL BE DONE WITHOUT PRIOR WRITTEN PERMISSION FROM BUILDING MANAGEMENT. REQUESTS FOR SHUT DOWNS MUST BE DELIVERED TO THE BUILDING MANAGEMENT AT LEAST (7) WORKING DAYS PRIOR TO THE REQUESTED SHUTDOWN AND SHALL BE SUBJECT TO THE FINAL APPROVAL OF THE MANAGER. KEEP THE SHUT DOWN TIME TO A MINIMUM. DRAINAGE SHALL BE TO A PROPERLY CONNECTED RECEPTACLE WITHOUT CAUSING DAMAGE TO OTHER WORK AND PROPERTY.

G. THIS IS A PERFORMANCE SPRINKLER DESIGN SPECIFICATION. THE CONTRACTOR SHALL FOLLOW NFPA 13 AND THE GUIDELINES SHOWN ON THESE DRAWINGS TO DEVELOP THE SPRINKLER DESIGN FOR THIS PROJECT. THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED HYDRAULIC CALCULATIONS AND SHOP DRAWINGS INCLUDING DETAILS FOR REVIEW BY LOCAL CODE OFFICIAL, ENGINEER AND ARCHITECT.

H. FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE LOCAL FIRE MARSHALL CONCERNING FIRE ALARM SYSTEM AND/OR FIRE SPRINKLER SHUTDOWN PLANS, PROCEDURES, AND FIRE WATCH PLANS THAT MAY BE REQUIRED FOR SYSTEM INTERRUPTIONS DURING DEMOLITION AND CONSTRUCTION.

2.) SCOPE OF WORK:

A. PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT, HYDRAULIC CALCULATIONS, PERMITS, CERTIFICATES, INSPECTION, TESTING AND OTHER SERVICES NECESSARY OR REQUIRED FOR COMPLETE SAFE INSTALLATION OF WORK IN FULL CONFORMANCE WITH NFPA-13 REQUIREMENTS AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED.

B. CUTTING AND PATCHING.

3.) WORK NOT INCLUDED:

1.) FINISHED PAINTING.

4.) SUBMITTALS:

A. SHOP DRAWINGS

1.) SPRINKLERS

2.) VALVES

3.) HANGERS

4.) PIPING LAYOUT COORDINATED WITH ALL TRADES INCLUDE ON EACH WORKING DRAWING LAYOUT CERTIFICATE THAT ALL RELATED CONDITIONS HAVE BEEN CHECKED WITH ALL TRADES, AND THAT NO CONFLICT EXISTS. SUBMISSION WILL NOT BE APPROVED WITHOUT SUCH CERTIFICATION.

5.) CONTRACTOR SHALL PREPARE SHOP DRAWINGS TO SHOW LOCATION AND ARRANGEMENT OF ALL NEW EQUIPMENT. SHOP DRAWINGS TO SHOW ALL INTERFERING EXISTING CONDITIONS AND THE REROUTING AND EXTENDING OF SITE EXISTING CONDITIONS, BUT MAINTAINING CONTINUITY OF ALL EXISTING SYSTEMS. SHOP DRAWINGS MUST BE SUBMITTED AND APPROVED PRIOR TO LABOR AND MATERIAL SUPPLIED BY CONTRACTOR.

6.) HYDRAULIC CALCULATIONS BROUGHT BACK TO THE CONNECTION TO THE RISER. VERIFY PRESSURE AT THE RISER, PROVIDE CALCULATION SUMMARY SHEET AS PER FIG. 22.3.5.1(a) OF NFPA-13. INDICATE SOURCE OF WATER SUPPLY.

7.) THE CONTRACTOR SHALL SUBMIT SIGNED AND SEALED SPRINKLER HYDRAULIC CALCULATION FOR REVIEW AND APPROVAL BY THE ARCHITECT/ENGINEER OF RECORD.

8.) FURNISH AND INSTALL "AS-BUILT" SHOP DRAWINGS FOR SPRINKLER INSTALLATION.

6.) CONNECTION TO EXISTING WORK:

A. CONNECT NEW WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING PIPING DISTURBED IN MAKING SUCH CONNECTIONS TO PERFECT CONDITIONS. TEMPORARY SHUT DOWN OF EXISTING SERVICES ONLY WITH WRITTEN APPROVAL OF THE BUILDING MANAGER, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATIONS.

7.) MATERIALS - GENERAL:

A. TYPE AND SIZE OF MATERIALS SHALL BE APPROVED AS PER NFPA STANDARDS AND OWNER'S INSURANCE UNDERWRITERS. SYSTEM AS INSTALLED SHALL MEET ALL REQUIREMENTS AND RECEIVE APPROVAL OF SAME BEFORE FINAL PAYMENT.

B. ALL MATERIALS SHALL BE UL LISTED AND FM APPROVED.

8.) HANGERS AND SUPPORTS:

A. ALL SPRINKLER PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED ADDITION OF NFPA-13.

B. SPRINKLER HEADS SHALL BE CENTERED ON ½ CEILING TILES OR AS PER CONTRACT DWGS.

C. UNLESS OTHERWISE SPECIFICALLY APPROVED, HANGER SIZE AND SPACING SHALL BE WITHIN FOLLOWING LIMITS:

PIPE SIZE	MAX. HANGER SPACING	MIN. ROD SIZE
1"	8 FT. O.C.	3/8"
1-1/4" TO 2"	10 FT. O.C.	3/8"
2-1/2" TO 3-1/2"	12 FT. O.C.	1/2"

THE ABOVE HANGER SPACINGS APPLY TO STRAIGHT RUNS OF PIPE ONLY . AT POINTS WHERE VALVES, SPECIALTIES OR BRANCH CONNECTIONS ARE LOCATED, ADDITIONAL HANGERS OR SUPPORTS SHALL BE USED TO PROPERLY SUPPORT THE LOAD.

9.) SUPPORTS:

A. ALL PIPING SHALL BE HUNG FROM EXISTING STRUCTURAL STEEL AND/OR CONCRETE BEAMS. PROVIDE AUXILIARY STEEL WHEN REQUIRED.

B. BEAM CLAMPS: APPROVED C-CLAMPS WITH LOCKNUT.

10.) SLEEVES AND ESCUTCHEONS

A. SLEEVES FOR PIPING PASSING THROUGH MASONRY WALLS SHALL BE SCHEDULE 40, STANDARD GALVANIZED STEEL PIPE. IN FRAMED PARTITIONS SHALL BE 20 GAUGE SHEET METAL. THE SPACE BETWEEN THE PIPE AND IT'S SLEEVE SHALL NOT EXCEED ONE-HALF INCH. THE SLEEVE SHALL HAVE SUFFICIENT LENGTH TO BE FLUSH WITH THE FINISHED WALL SURFACES.

B. EXPOSED PIPING PASSING THROUGH WALLS, FLOORS OR CEILING SHALL BE FITTED WITH CHROMIUM PLATED CAST BRASS ESCUTCHEONS WITH FASTENING SET SCREWS SIMILAR TO FEE & MASON MANUFACTURING CO., F. & S. MANUFACTURING CO., OR RITTER PATTERN AND CASTING CO.

11.) CUTTING AND PATCHING

A. PIPING PASSING THROUGH WALLS SHALL HAVE A TRIM OPENING CUT NO GREATER THAN NECESSARY FOR THE INSTALLATION OF A SLEEVE SECURED THEREIN.

B. PIPING PASSING THROUGH CONCRETE FLOORS SHALL HAVE THE OPENING CORE DRILLED SO THAT THE SPACE BETWEEN THE OPENING AND THE PIPE SHALL NOT EXCEED ONE-HALF INCH.

C. ANNULAR SPACES BETWEEN PIPING AND SLEEVES OR CORE DRILLED FLOOR OPENING SHALL BE PACKED WITH MINERAL WOOL AND SEALED, TO RETAIN THE FIRE INTEGRITY OF THE WALLS AND FLOORS. WITH A NON-HARDENING COMPOUND SIMILAR AND EQUAL TO UNISEAL OR DUXSEAL AS MANUFACTURED BY THE J.M. CLIPPER CORPORATION.

12.) PIPE

A SPRINKLER STANDARD WEIGHT SCHEDULE 40 BLACK STEEL PIPE, SEAMLESS OR WELDED MILD STEEL, CONFORMING TO ASTM A-795/A-53.

13.) FITTINGS

A. CAST IRON: THREADED CLASS 125, ASME B16.4.

B. MALLEABLE IRON: CLASS 150 THREADED, ASME B16.3.

C. GROOVED IRON FITTINGS AND COUPLINGS WITH PRESSURE RATING, SIMILAR TO VICTAULIC SHALL BE PERMITTED.

D. REDUCERS AND INCREASERS: OF TAPERED TYPE, BUSHINGS NOT PERMITTED.

14.) SPRINKLER HEADS

A. CAST BRASS, CLOSED FUSIBLE LINK, SPRAY TYPE, 1/2 IN. ORIFICE, ORDINARY DEGREE TEMPERATURE RATING (165 DEG. F), EXCEPT AS NOTED.

1.) SPRINKLERS IN AREAS WITH HUNG CEILINGS SHALL BE TYCO SERIES RFII, QUICK RESPONSE, CONCEALED AUTOMATIC SPRINKLERS. THE HEADS MUST BE COMPLETE WITH WHITE FLUSH COVER PLATE 165°F TEMPERATURE RATING, COLOR TO BE FACTORY APPLIED.

2.) UPRIGHT AND PENDENT SPRINKLERS SHALL BE TYCO MODEL TY-FRL QUICK RESPONSE AUTOMATIC SPRINKLERS

B. HIGHER TEMPERATURE RATING WHERE SUBJECT TO ABNORMAL HEATING CONDITIONS AND/OR WHERE INDICATED.

C. SPRINKLER HEADS TO BE CENTERED ON CEILING TILES, OR AS PER CONTRACT DWGS.

15.) DRAINAGE

A. PROVISIONS SHALL BE MADE FOR COMPLETE DRAINAGE OF THE SYSTEM.

16.) TESTS

A. PERFORM HYDROSTATIC TESTS FOR ALL SECTIONS OF THE PIPING SYSTEMS INSTALLED UNDER THIS SECTION. AT NOT LESS THAN 200 PSIG PRESSURE FOR TWO HOURS, OR AT 50 PSI IN EXCESS OF THE MAXIMUM PRESSURE, WHEN THE MAXIMUM PRESSURE TO BE MAINTAINED IN THE SYSTEM IS IN EXCESS OF 150 PSIG. THE TEST PRESSURE SHALL BE READ FROM A GAUGE LOCATED AT THE LOW ELEVATION POINT OF THE INDIVIDUAL SYSTEM, OR PORTION OF THE SYSTEM BEING TESTED.

B. TESTS SHALL BE MADE IN THE PRESENCE OF THE ARCHITECT OR HIS REPRESENTATIVES. AT LEAST 48 HOURS NOTICE SHALL BE GIVEN IN ADVANCE OF ALL TESTS.

FIRE PROTECTION GENERAL NOTES

1.) COMPLY WITH REQUIREMENTS OF OWNER'S INSURANCE UNDERWRITER FOR SUBMITTALS, APPROVALS, MATERIALS, INSTALLATION, INSPECTIONS AND TESTING (FM GLOBAL).

2.) INSTALLER'S QUALIFICATIONS: A QUALIFIED FIRM THAT IS EXPERIENCED (MINIMUM OF 5 PREVIOUS PROJECTS SIMILAR IN SIZE AND SCOPE TO THE PROJECT) IN SUCH WORK, FAMILIAR WITH PRECAUTIONS REQUIRED, AND IN COMPLIANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

3.) CONTRACTOR SHALL PERFORM FIELD ACCEPTANCE TESTS OF EACH FIRE PROTECTION SYSTEM. FLUSH, TEST AND INSPECT SPRINKLER PIPING SYSTEMS ACCORDING TO NFPA 13 CHAPTER "SYSTEM ACCEPTANCE."

4.) CONTRACTOR SHALL COORDINATE COMPLETE SPRINKLER LAY-OUT WITH CEILINGS, LIGHTING, HVAC DIFFUSERS, ETC.

5.) FURNISH SPRINKLER CABINETS OF FINISHED STEEL AND HINGED COVER SIMILAR TO POTTER-ROEMER FIG. 6162 WITH SPACE FOR A MINIMUM OF 6 SPARE SPRINKLER PLUS SPRINKLER WRENCH, SUITABLE FOR WALL MOUNTING.

6.) FURNISH SIX (6) EXTRA SPRINKLER HEADS THAT MATCH EXISTING SPRINKLERS AND ASSOCIATED WRENCHES.

7.) CONTRACTOR SHALL SUBMIT PRODUCT DATA FOR EACH TYPE SPRINKLER HEAD, VALVE, PIPING SPECIALTY AND FIRE PROTECTION SPECIALTY.

8.) INSTALL SPRINKLER PIPING TO PROVIDE FOR SYSTEM DRAINAGE IN ACCORDANCE WITH NFPA 13.

9.) INSTALL TEST CONNECTION SIZED AND LOCATED IN ACCORDANCE WITH NFPA 13 COMPLETE WITH SHUT-OFF VALVE. TEST CONNECTIONS MAY ALSO SERVE AS DRAIN PIPES.

10.) FLUSH TEST AND INSPECT SPRINKLER PIPING SYSTEMS IN ACCORDANCE WITH NFPA 13.

11.) HANGERS AND SUPPORTS SHALL COMPLY WITH NFPA 13. SUPPORT SPACING AND LOCATIONS FOR STEEL PIPING SHOULD BE INSTALLED ACCORDING TO MANUFACTURERS WRITTEN INSTRUCTIONS FOR RIGID SYSTEMS. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 15072 FOR VIBRATION ISOLATION AND SIESMIC RESTRAINTS.

12.) CONTRACTOR FOR THIS WORK SHALL CAREFULLY REVIEW AND ACQUAINT HIMSELF WITH DRAWINGS OF ALL TRADES IN ORDER THAT HE FULLY UNDERSTAND THE WORK REQUIRED. HE SHALL FIELD MEASURE AND VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE PROCEEDING WITH THE WORK.

13.) CONTRACTOR TO PAY FOR AND SUPPLY ALL DUMPSTERS FOR DEBRIS REMOVALS, COORDINATE AND OBTAIN APPROVAL FOR DUMPSTER LOCATIONS ON SITE AND DEBRIS REMOVAL ROUTES WITH OWNER.

14.) SPRINKLER SYSTEM TO BE TESTED AS PER NFPA #13.
REPLACE PIPING SYSTEM COMPONENTS WHICH DO NOT PASS THE TEST PROCEDURES SPECIFIED AND RETEST REPAIRED PORTIONS OF THE SYSTEM.

15.) PIPING IN GENERAL TO BE CONCEALED ABOVE HUNG CEILING WITH DROP NIPPLES TO SPRINKLER HEADS.

16.) SPRINKLER HEADS ARE SHOWN FOR DESIGN GUIDENCE. CONTRACTOR SHALL PROVIDE AND INSTALL NEW SPRINKLERS IN ACCORDANCE WITH NFPA 13 AND THE BUILDING CODE OF NEW JERSEY.

17.) SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED IN ACCORDANCE WITH NFPA 13.

18.) ALL PIPE AND FITTINGS TO CONFORM TO NFPA #13 REQUIREMENTS.

19.) ALL MAINS TO BE SCHEDULE # 10 WITH GROOVED FITTINGS.

20.) ALL BRANCH LINES TO BE SCHEDULE # 40 WITH THREADED FITTINGS.

21.) SPRINKLER HEADS TO BE INSTALLED IN THE CENTERLINE
OF TILES. YES ☒ NO ☐

22.) THE EXISTING FIRE DEPARTMENT CONNECTION SHALL REMAIN

23.) AS THE ACTUAL LIFE SPAN OF THE SPRINKLER SYSTEM IS DEPENDENT ON MANY VARIABLES, INCLUDING BUT NOT LIMITED TO WATER QUALITY AND ATMOSPHERIC CONDITIONS, THE ENGINEER ASSUMES NO LIABILITY OR RESPONSIBILITY OF THE EXPECTED LIFE SPAN OF THE SPRINKLER SYSTEM DO TO MICRO-BIOLOGICALLY INFLUENCED CORROSION (MIC). THE SPRINKLER CONTRACTOR AND/OR THE GENERAL CONTRACTOR SHALL HAVE THE SPRINKLER SYSTEMS TESTED AND TREATED (IF NECESSARY) FOR PROTECTION AGAINST MICRO-BIOLOGICALLY INFLUENCED CORROSION (MIC).

24.) THIS CONTRACTOR TO PROVIDE ALL LABOR AND MATERIALS TO EXTEND AND MODIFY EXISTING WET PIPE SPRINKLER SYSTEMS THIS CONTRACTOR TO SHUT DOWN EXISTING SPRINKLER SYSTEM, DRAIN, CAP EXISTING MAIN TO ALLOW NEW WORK AS INDICATED ON DRAWINGS. CONTRACTOR TO REACTIVATE EXISTING SPRINKLER SYSTEM THROUGH-OUT EXISTING REMAINING BUILDING TO KEEP BUILDING IN OPERATION DURING RENOVATIONS. THIS CONTRACTOR TO COMPLETE THIS SEQUENCE OF WORK AS MANY TIME AS NEEDED TO COMPLETE ALL REQUIRED NEW WORK OF THIS PROJECT.

FIRE PROTECTION DEMOLITION NOTES

1. ALL EQUIPMENT DESIGNATED TO BE RELOCATED SHALL BE TESTED FOR PROPER OPERATION PRIOR TO RELOCATING. ANY EQUIPMENT WHICH DOES NOT OPERATE PROPERLY SHALL BE IMMEDIATELY REPORTED TO THE OWNER AND ENGINEER. EQUIPMENT SHALL BE CAREFULLY REMOVED AND AS INDICATED WITHOUT DAMAGING THE EQUIPMENT.
2. SPRINKLER CONTRACTOR SHALL PERFORM ALL PATCHING OR REPAIRS REQUIRED BY THE REMOVAL OF SPRINKLER SYSTEMS.
3. SPRINKLER CONTRACTOR TO USE ALL MEANS NECESSARY TO PROTECT EXISTING OBJECT DESIGNATED TO REMAIN AND IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE ALL REPAIRS OR REPLACEMENTS.
4. REMOVALS SHALL INCLUDE ALL RELATED ACCESSORIES, WIRING OR ANCILLARY DEVICES AS NECESSARY.
5. SPRINKLER CONTRACTOR TO REMOVE FROM PREMISES IN A TIMELY MANNER AND MAINTAIN A CLEAN WORKSPACE.
6. PRIOR TO COMMENCING WORK, THE SPRINKLER CONTRACTOR SHALL INSPECT ALL EXISTING UTILITIES AT THE SITE AND DETERMINE METHODS FOR DISCONNECTING, CAPPING, PROTECTING, OR REMOVING THE SAME IN ACCORDANCE WITH REQUIREMENTS OF UTILITY COMPANY, OWNER, OR OTHER AGENCY HAVING JURISDICTION.
7. CONTRACTOR TO PERFORM ACTUAL DEMOLITION AND REMOVAL OF ALL EXISTING SPRINKLER PIPING AND HEADS, ETC. IN ALL AREAS TO BE RENOVATED. COORDINATE ALL REMOVALS AND FOLLOW SCHEDULE OF GENERAL CONTRACTOR. THIS WORK SHALL BE CONSIDERED TO BE INCLUDED IN SCOPE OF THIS CONTRACT, AT THE TIME OF BIDDING. THE CONTRACTOR IS REQUIRED TO MAKE A COMPLETE SURVEY OF THE EXISTING CONDITIONS, AND THEN THE CONTRACTOR SHALL DETERMINE THE EXTENT OF DEMOLITION WORK AND/OR RELOCATION WORK REQUIRED TO ACCOMPLISH THE WORK SHOWN ON DRAWINGS. THIS SHALL BE INCLUDED WITH THE BID.

GENERAL NOTES:

SPRINKLER NOTES

WORK SHALL BE COMPLETE IN ALL RESPECTS INCLUDING CONNECTION TO EXISTING BUILDING MAIN AND REQUIRED ACCESSORIES.

DEMOLITION WORK

COMPLETELY REMOVE, CUT BACK, TERMINATE AND/OR CONCEAL WITHIN CEILING, EXISTING PIPING NOT USED IN THIS DESIGN. REWORK EXISTING PIPING, AS REQUIRED BY NEW CONSTRUCTION OR AS INDICATED ON THE DRAWINGS. CONTRACTOR SHALL MAINTAIN CONTINUNITY OF ALL EXISTING SYSTEMS.

VISIT THE SITE

VISIT THE SITE AND NOTE ALL EXISTING CONDITIONS AS WELL AS ALL CONDITIONS THAT SHALL BE MET BEFORE SUBMITTING BID. LACK OF THOROUGH UNDERSTANDING SHALL NOT CONSTITUTE AN EXCUSE FOR ERRORS OR OMISSIONS, OR A REQUEST FOR EXTRA COMPENSATION.

WORK SHALL INCLUDE ALL LABOR AND MATERIAL, FURNISHED AND INSTALLED, FOR A WET TYPE AUTOMATIC SPRINKLER SYSTEM WITHIN THE BUILDING.

HANGERS AND SUPPORTS SHALL BE IN ACCORDANCE WITH LATEST NFPA-13.

CONNECT TO EXISTING MAIN AS REQUIRED. REMOVE AND REINSTALL RELOCATED AND/OR NEW SPRINKLER HEADS AND REPIPE OR PROVIDE NEW PIPE COMPATIBLE TO EXISTING MATERIALS.

PROVIDE FINAL SHOP DRAWINGS OF PIPING LAYOUT AND/OR ALL NEW EQUIPMENT.

ALL WORK SHALL BE PERFORMED ACCORDING TO OWNERS INSURANCE UNDERWRITERS, THE LATEST NFPA-13 REQUIREMENTS AND IBC CODES.

PROVIDE GUARANTEES, TEST AND PERMITS IN ACCORDANCE WITH CODES FOR ONE (1) YEAR.

NEW PIPE FITTINGS: STANDARD WEIGHT STEEL PIPE WITH STANDARD WEIGHT CAST IRON FITTINGS. ALL NEW PIPING SHALL BE SIZED AS PER LATEST NFPA PIPE SCHEDULE OR HYDRAULIC CALCULATIONS PERFORMED BY SPRINKLER CONTRACTOR.

SPRINKLER HEADS: UNDERWRITER APPROVED, RECESSED PENDANT SPRINKLER HEADS AND RECESSED ESCUTCHEON QUICK RESPONSE GEM, OR EQUAL, MODEL 700 HEAD, MODEL 705 RECESSED ESCUTCHEON.

SPRINKLER CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AS REQUIRED IN EXISTING AREAS MODIFIED BY NEW WORK. RELOCATED HEADS SHALL BE LOCATED IN CENTER OF TILES. COORDINATE ALL HEADS WITH OTHER TRADES PRIOR TO INSTALLATION.

SPRINKLER SPECIFICATIONS

ALL SPRINKLER WORK SHALL BE COMPLETE IN ALL RESPECTS INCLUDING CONNECTION TO SERVICE, ALARM VALVE AND REQUIRED ACCESSORIES, DRAINS AND TEST CONNECTIONS. THE ENTIRE INSTALLATION SHALL COMPLY WITH NFPA-13. PLANS AND SPECIFICATIONS AND INSTALLATION ARE SUBJECT TO APPROVAL BY THE OWNER'S SELECTED INSURANCE UNDERWRITERS, IN ADDITION TO LOCAL SUBCODE OFFICIAL.

SHOP DRAWINGS

PREPARE COMPLETE SHOP DRAWINGS AND/OR HYDRAULIC CALCULATIONS FOR A COMPLETE SPRINKLER SYSTEM. SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY AN NJ LICENSE PROFESSIONAL ENGINEER PRESENTLY ACTIVE IN THE DESIGN AND INSTALLATION OF SPRINKLER SYSTEMS.

PARETTE SOMJEN

ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00359800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

☐ Marc R. Parette A.I.A.

NCARB Registration	44264
New Jersey Architect	10436
New York Architect	024312
Pennsylvania Architect	014799B
Maryland Architect	10445
New Jersey Planner	4981
Alabama Architect	5996
Louisiana Architect	6261
Florida Architect	AR 93131
Michigan Architect	1301053053
Nevada Architect	6311

☐ Gregory J. Somjen A.I.A.

NCARB Registration	47178
New Jersey Architect	13349
Massachusetts Architect	9629
Delaware Architect	6616
Virginia Architect	0401 011210
Connecticut Architect	8622
New York Architect	032435-1
Nevada Architect	6280
District Of Columbia Architect	101294

☐ William H. Bannister, A.I.A.

New Jersey Architect	19142
Connecticut Architect	AR1.0014499
North Carolina Architect	15027
South Carolina Architect	10382
Pennsylvania Architect	RA409555

☐ Hae-An Chyun A.I.A.

New Jersey Architect	20868

☐ Sara MacDonald A.I.A.

New Jersey Architect	18503

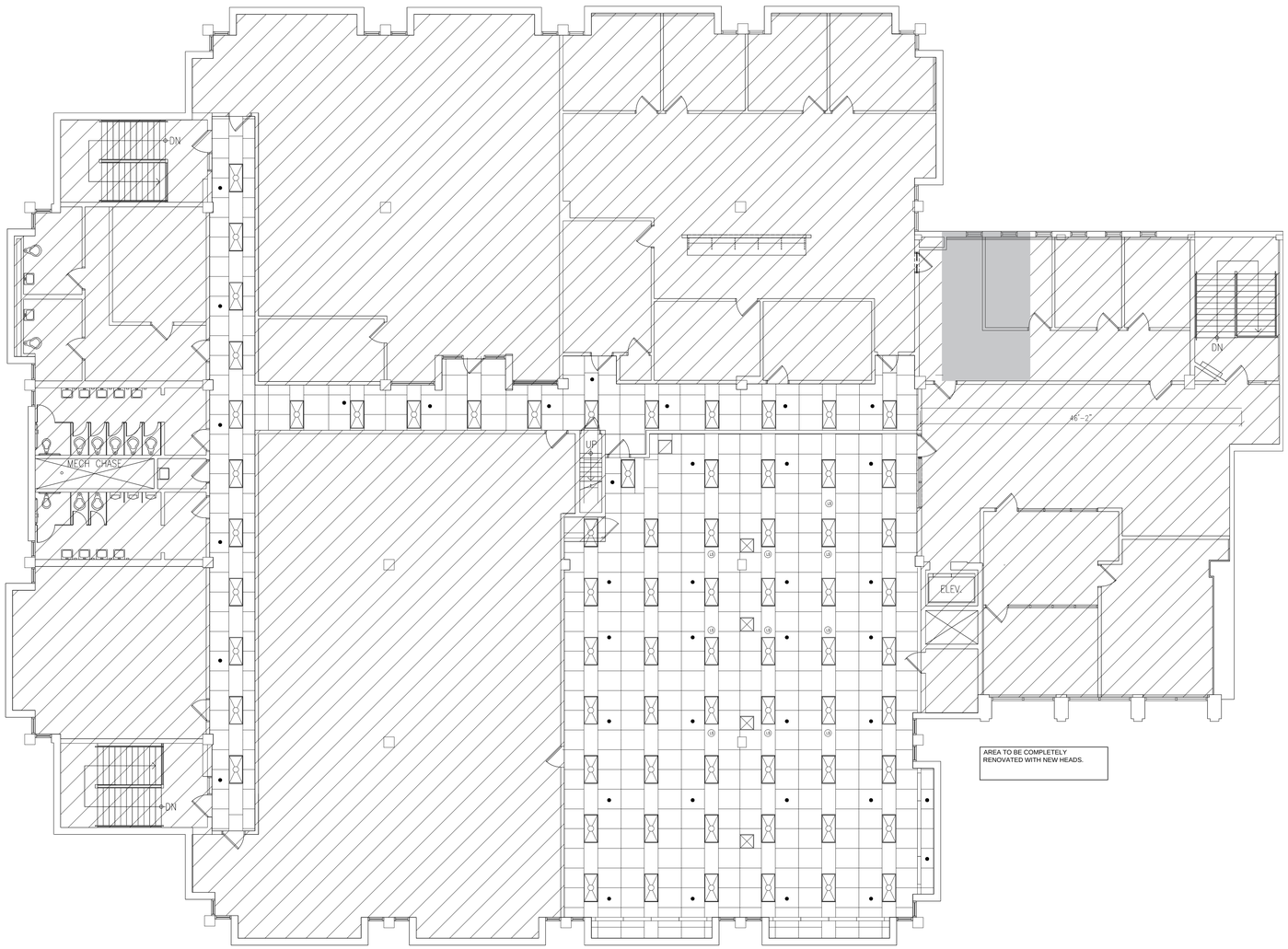
SIGNATURE

GENERAL NOTES AND SYMBOL LIST

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX PROJECT MANAGER	SHEET NUMBER
XX DRAWN BY	FP-001
8500 PROJECT NUMBER	

29 JULY 2022
RELEASE DATE



AREA TO BE COMPLETELY RENOVATED WITH NEW HEADS.

EXISTING PARTIAL FLOOR PLAN

SCALE 1/8"=1'-0"

PARETTE SOMJEN

ARCHITECTS

A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800

439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT

Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200

Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

□ Marc R. Parette A.I.A.

NCARB Registration	44264
New Jersey Architect	10436
New York Architect	024312
Pennsylvania Architect	014798B
Maryland Architect	10445
New Jersey Planner	4981
Alabama Architect	5996
Louisiana Architect	6261
Florida Architect	AR 93131
Michigan Architect	1301053053
Nevada Architect	6311

□ Gregory J. Somjen A.I.A.

NCARB Registration	47178
New Jersey Architect	13349
Massachusetts Architect	9629
Delaware Architect	6616
Virginia Architect	0401 011210
Connecticut Architect	8622
New York Architect	032435-1
Nevada Architect	6280
District Of Columbia Architect	101294

□ William H. Bannister, A.I.A.

New Jersey Architect	19142
Connecticut Architect	ARI.0014499
North Carolina Architect	15027
South Carolina Architect	10382
Pennsylvania Architect	RA409555

□ Hae-An Chyun A.I.A.

New Jersey Architect	20868

□ Sara MacDonald A.I.A.

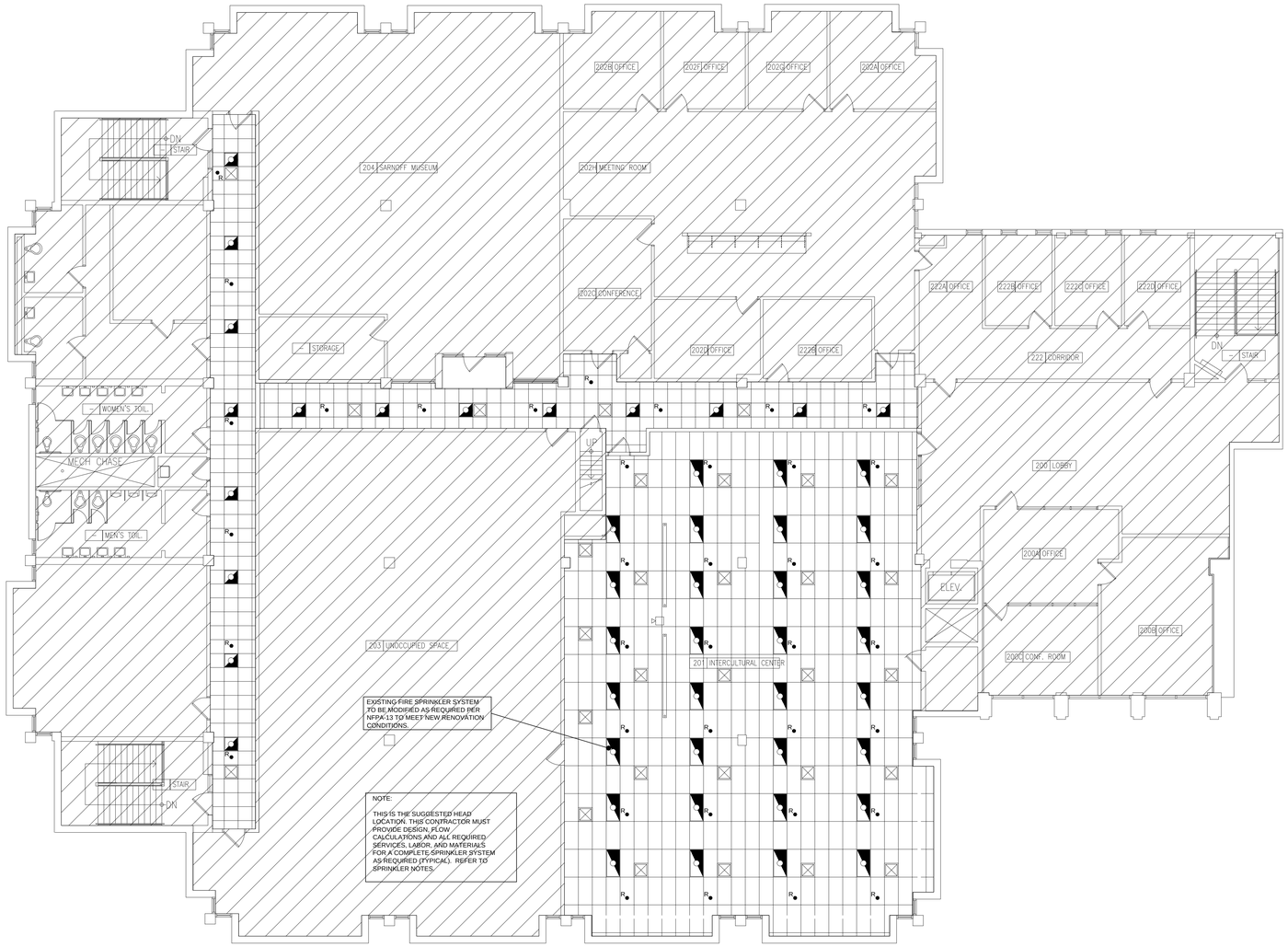
New Jersey Architect	18503

SIGNATURE

EXISTING FIRE PROTECTION FLOOR PLAN

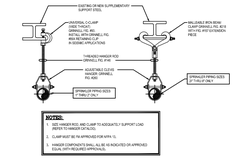
THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX PROJECT MANAGER	SHEET NUMBER
XX DRAWN BY	FP-101
8500 PROJECT NUMBER	
29 JULY 2022 RELEASE DATE	

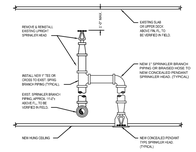


PROPOSED NEW FLOOR PLAN

SCALE 1/8"=1'-0"



TYPICAL SPRINKLER HANGER DETAILS



TYPICAL DETAIL OF SPRINKLER HEAD MODIFICATION

PARETTE SOMJEN

ARCHITECTS
A LIMITED LIABILITY CORPORATION
CERT. NO. 21AC00039800
439 Route 46 East
Rockaway, NJ 07866
Tel. 973.586.2400
Fax. 973.586.2401
www.planetPSA.com

ROSCOE WEST HALL PARTIAL CEILING REPLACEMENT AT:

THE COLLEGE OF NEW JERSEY

2000 PENNINGTON ROAD
EWING, NEW JERSEY 08628

CONSULTANT
Eden Engineering
14 Quaker Drive
East Brunswick, NJ 08816
732-568-4866 (O)
Certificate of Authorization: 24GA28156200
Yoram Ozer, P.E.
NJ License #24GE04672100

REV	DATE	REMARK
1	2022-07-29	ISSUE FOR BID

□ Marc R. Parette A.I.A.
NCARB Registration 44264
New Jersey Architect 10436
New York Architect 024312
Pennsylvania Architect 014798B
Maryland Architect 10445
New Jersey Planner 4981
Alabama Architect 5996
Louisiana Architect 6261
Florida Architect AR 93131
Michigan Architect 1301053053
Nevada Architect 6311

□ Gregory J. Somjen A.I.A.
NCARB Registration 47178
New Jersey Architect 13349
Massachusetts Architect 9629
Delaware Architect 6616
Virginia Architect 0401 011210
Connecticut Architect 8622
New York Architect 032435-1
Nevada Architect 6280
District Of Columbia Architect 101294

□ William H. Bannister, A.I.A.
New Jersey Architect 19142
Connecticut Architect ARL0014499
North Carolina Architect 15027
South Carolina Architect 10382
Pennsylvania Architect RA409555

□ Hae-An Chyun A.I.A.
New Jersey Architect 20868

□ Sara MacDonald A.I.A.
New Jersey Architect 18503

SIGNATURE

FIRE PROTECTION NEW FLOOR PLAN

THE SCALE REPRESENTED ON THESE DRAWINGS IS ONLY VALID IF THE DRAWING IS 42" x 30". DRAWINGS WHICH ARE NOT PLOTTED AT THE SPECIFIED SHEET SIZE ARE NOT TO SCALE.

XX PROJECT MANAGER	SHEET NUMBER
XX DRAWN BY	FP-102
8500 PROJECT NUMBER	

29 JULY 2022

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: [Roscoe West Hall '68 2nd Floor Ceiling Replacement] (the "Project")

The Architect: Parette Somjen Architects
439 Route 46 East
Rockaway, NJ 07866

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:

$\_\_1/20th of 1%\_\_\_\_\_$ 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:

Name	Position
_____	Project Executive
_____	Project Manager
_____	Project Superintendent
_____	Project Scheduler

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

Date_____

By_____
Anup Kapur,
Executive Director of Procurement

Date_____

By_____
Sharon Blanton,
Vice President for Operations

Date_____

By_____
Valarie McDuffie
Interim Treasurer

Date_____

By_____
Dave McNamara,
Associate Vice President for Facilities Management

Date_____

CONTRACTOR:

By_____

Title_____

Date_____

TCNJ
THE COLLEGE OF NEW JERSEY

Mandatory Documents

FORM #	TITLE OF FORM
1	MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
2	OWNERSHIP DISCLOSURE FORM
3	NON-COLLUSION STATEMENT
4	TWO-YEAR CHAPTER 51/EXECUTIVE ORDER 117 VENDOR CERTIFICATION AND DISCLOSURE OF POLITICAL CONTRIBUTIONS
5	DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM
6	VENDOR QUALIFICATION SHEET

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
FORM # 1

The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

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 with- out 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 Ameri- cans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. l7:27‑7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a un- ion 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. l7:27‑7.2. 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 con- tractor 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 contactor or subcontractor shall interview the referred minority or women worker.

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

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

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

(3) 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 subcon- tractor shall not be required to employ women and minority advanced trainees and trainees in numbers which re- sult 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 work- force 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 l0 of the Administrative Code (NJAC 17:27-1.1 et seq).**

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 re- place the mandatory contract language and good faith efforts requirements for construction con- tracts 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 College of New Jersey that its contracts should create a work- force that reflects the diversity of the State of New Jersey. Therefore, contractors engaged by The College of New Jersey 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 College of New Jersey'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 College of New Jersey's contract with the contractor. Payment may be withheld from a contractor's con- tract 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 College of New Jersey 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 College of New Jersey 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.

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

Firm Name: _____

Signature: _____

Title: _____

Date: _____

OWNERSHIP DISCLOSURE
FORM # 2

The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

BID SOLICITATION # AND TITLE: _____

VENDOR NAME: _____

PURSUANT TO N.J.S.A. 52:25-24.2, ALL PARTIES ENTERING INTO A CONTRACT WITH THE STATE ARE REQUIRED TO PROVIDE A STATEMENT OF OWNERSHIP.

1. The vendor is a **Non-Profit Entity**; and therefore, no disclosure is necessary.
2. The vendor is a **Sole Proprietor**; and therefore, no other disclosure is necessary.
   A Sole Proprietor is a person who owns an unincorporated business by himself or her-self.
   A limited liability company with a single member is not a Sole Proprietor.
3. The vendor is a **corporation, partnership, or limited liability company;** and therefore, disclosure is necessary.
   If you answered **YES** to Question 3, you must disclose the following information below: **(a)** the names and addresses of all stockholders in the corporation who own 10% or more of its stock, of any class; **(b)** all individual partners in the partnership who own a 10% or greater interest therein; or, **(c)** all members in the limited liability company who own a 10% or greater interest therein.*

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

4. For each of the corporations, partnerships, or limited liability companies identified in response to Question #3 above, are there any individuals, partners, members, stockholders, corporations, partnerships, or limited liability companies owning a 10% or greater interest of those listed business entities?

   If you answered **YES** to Question 4, you must disclose the following information below: **(a)** the names and addresses of all stockholders in the corporation who own 10% or more of its stock, of any class; **(b)** all individual partners in the partnership who own a 10% or greater interest therein; or, **(c)** all members in the limited liability company who own a 10% or greater interest therein. The disclosure(s) shall be continued until the names and addresses of every non-corporate stockholder, individual partner, and/or member a 10% or greater interest has been identified.*

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

NAME		
ADDRESS		
ADDRESS		
CITY	STATE	ZIP

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

_____

_____

_____

** Attach additional sheets if necessary*

NON-COLLUSION STATEMENT
FORM # 3

The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

Date:

The College of New Jersey
The Office of Finance & Business Services, Purchasing Department
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 # 4

The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

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/bso/**) 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.

Two-Year Chapter 51/Executive Order 117 Vendor Certification and Disclosure of Political Contributions
FORM # 4

The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

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 Gubernatorial or Lieutenant Gubernatorial 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:

1. **I have read the Information and Instructions accompanying this form prior to completing the certification on behalf of the business entity.**

2. **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 Legisative 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.

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN
FORM # 5

The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

BID SOLICITATION # AND TITLE: _____

VENDOR NAME: _____

Pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4) any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must certify that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the New Jersey Department of the Treasury's Chapter 25 List as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at https://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Vendors/Bidders must review this list prior to completing the below certification. If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

CHECK THE APPROPRIATE BOX

☐ I certify, pursuant to N.J.S.A. 52:32-57, et seq. (P.L. 2012, c.25 and P.L. 2021, c.4), that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List of entities determined to be engaged in prohibited activities in Iran.

OR

☐ I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the New Jersey Department of the Treasury's Chapter 25 List. I will provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, has engaged in regarding investment activities in Iran by completing the information requested below.

Entity Engaged in Investment Activities _____
Relationship to Vendor/ Bidder _____
Description of Activities _____
_____
_____
Duration of Engagement _____
Anticipated Cessation Date _____

**Attach Additional Sheets If Necessary.*

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I may be subject to criminal prosecution under the law, and it will constitute a material breach of my contract(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

_____ _____
Signature Date

_____
Print Name and Title

TCNJ
THE COLLEGE OF NEW JERSEY

VENDOR QUALIFICATION SHEET
FORM # 6

The College of New Jersey
PO Box 7718
Ewing, NJ 08628-0718

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. Vendors must comply with the College's terms and conditions available on the Purchasing website.

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.

All vendors are encouraged to register with the State of New Jersey, Division of Purchase and Property via NJSTART.

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 and personnel that will be responsible for managing contract/service:

   Name: _____

   Title: _____

   Telephone Number: _____

   Email Address: _____

   Street Address: _____

   City/State/Zip: _____

   Federal Identification Number: _____

4. Does your firm have a New Jersey Business Registration Certificate? Yes ☐ No ☐
   If yes, please attach a copy of the certificate. If you would like to register, visit the State website here.

5. Is your firm registered under any of the following categories in the State of New Jersey? **If yes, please attach a copy of the certificate or certification statement from the New Jersey Division of Revenue and Enterprise Services.** If no and you would like to register, please contact the New Jersey Division of Revenue and Enterprise Services at 609-292-2146.

Small Business Enterprise (SBE):	**Yes** ☐	**No** ☐
Women-Owned Business Enterprise (WBE):	**Yes** ☐	**No** ☐
Minority-Owned Business Enterprise (MBE):	**Yes** ☐	**No** ☐
Veteran-Owned Business (VOB):	**Yes** ☐	**No** ☐
Disabled Veteran-Owned Business (DVOB):	**Yes** ☐	**No** ☐

VENDOR QUALIFICATIONS- continued

Under NJ Executive Order 34, TCNJ is responsible for soliciting demographic, ethnic, and gender information from its vendors. 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. 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 (African-American, Hispanic, Asian, and/or Native American) Yes ☐ No ☐

2. Is more than fifty percent (50%) of your company woman owned? 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

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: _____

Email Address: _____

B. Client Name: _____

Contact Name: _____

Telephone Number: _____

Email Address: _____

C. Client Name: _____

Contact Name: _____

Telephone Number: _____

Email Address: _____

VENDOR QUALIFICATIONS- continued

12. Please answer the questions below related to your prior experience If any of the responses are yes, attach a summary of details on a separate sheet.

Has the bidder:

a. been found, though 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? Yes ☐ No ☐

b. 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 or requiring the local unit to look to the bidder's surety for completion of the contract or tender of the costs of completion? Yes ☐ No ☐

c. 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. Yes ☐ No ☐

Firm Name: _____

Signature: _____

Title: _____

Date: _____

GENERAL CONDITIONS
OF THE
CONTRACT FOR CONSTRUCTION

Last Revised May 2021

TABLE OF CONTENTS

Page

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

1.1 Definitions 1
1.2 Intent Of Contract Documents. 3
1.3 Interpretation Of Contract Documents 3
1.4 Law And Referenced Standards 3
1.5 Plans And Specifications. 4
1.6 Order Of Precedence Of Contract Documents 4
1.7 Organization Of Plans And Specifications. 4
1.8 Required Approvals. 5
1.9 Conformity Of Work To Contract Documents. 5
1.10 Work Involving Existing Structures. 5
1.11 Verification Of Dimensions. 5
1.12 Manufacturer Literature. 5
1.13 Quality -- General Requirement 6
1.14 Examination Of Contract Documents Before Bidding/Errors. 6
1.15 Site Information. 6
1.16 Sufficiency Of Documents Provided For Bidding. 6
1.17 Examination Of Site Before Bidding. 7
1.18 Hazardous Materials On Site. 7
1.19 Limitation On Claims Based On Contract Documents And Information Provided For Bidding. 7

ARTICLE 2 THE COLLEGE 8

2.1 General Rights And Responsibilities Of The College. 8
2.2 The College's Representative, Authority To Decide Contract Questions. 8
2.3 Required Approvals. 9
2.4 Information Required From The College. 9
2.5 Permits. 9
2.6 The College's Inspection Of The Project 9
2.7 The College's Inspectors, Duties And Limitations 10
2.8 The College's Rejection Of Defective Work. 11

ARTICLE 3 THE ARCHITECT 11

3.1 The Architect's General Role. 11
3.2 The Architect's Access And Facilities. 11
3.3 Limitation Of The Architect's Responsibilities. 11
3.4 The Architect's Rejection Of Work. 12
3.5 The Architect's Review Of The Contractor's Submittals. 12

TABLE OF CONTENTS
(continued)

Page

3.6 The Architect's Review Of The Contractor's As-Built Plans..... 12
3.7 The Architect's Determination Of Substantial and Final Completion..... 12

ARTICLE 4 THE CONTRACTOR..... 12

4.1 The Contractor's Responsibility For Performance Of The Contract And Work. 12
4.2 The Contractor's Key Personnel. 13
4.3 The Contractor's Supervision Of Contract Work/The Superintendent..... 13
4.4 Cooperation With The College And Other Contractors..... 13
4.5 Performance Of The College Directives. 14

ARTICLE 5 PERFORMANCE OF WORK..... 15

5.1 Protection Of Work/Materials..... 15
5.2 Safety And Safety Programs. 15
5.3 Emergencies Affecting Safety. 15
5.4 Working Hours..... 16
5.5 Site Security. 16
5.6 Site Use. 16
5.7 Building Access. 16
5.8 Minimize Interruption. 16
5.9 Submittals (Shop Drawings, Product Data, Samples). 17
5.10 Layout And Dimensional Control..... 17
5.11 Construction Access, Roads, Walks, And Parking. 18
5.12 Construction Site Condition, Storage, Dust Control..... 18
5.13 Photographs..... 18
5.14 Project Sign. 19
5.15 Soil Conservation. 19
5.16 Temporary Facilities, Services, Electric, Heat And Enclosures. 19
5.17 Substitutions..... 20
5.18 License Fees. 20

ARTICLE 6 SUBCONTRACTORS 20

6.1 The Contractor's Responsibility For Subcontracted Work. 20
6.2 Subcontractor Identification And Approval..... 21
6.3 Subcontractor Qualifications. 21
6.4 Subcontractor Compliance With Contract/Subcontractor Supervisors..... 22
6.5 No Contractual Relationship Between The College And Subcontractors. 22
6.6 Contingent Assignment of Subcontracts..... 22

TABLE OF CONTENTS
(continued)

Page

ARTICLE 7 TIME, LIQUIDATED DAMAGES, DELAY CLAIMS AGAINST THE COLLEGE 23

7.1 Contract Times. 23
7.2 Liquidated Damages For Delay. 23
7.3 Delay Claims By The Contractor Against The College -- Limitations. 23

ARTICLE 8 PROJECT SCHEDULE 24

8.1 General Project Schedule Requirements. 24
8.2 Form And Content Of Project Schedule. 24
8.3 Computerization Of Project Schedule. 26
8.4 Weather Inclusion In Project Schedule. 26
8.5 Project Schedule Updates. 26
8.6 Meetings/Eight Week Bar Charts. 27
8.7 Project Schedule Documentation For Contract Payments. 27
8.8 Progress and Recovery Project Schedules. 28
8.9 The Contractor's Failure to Provide Project Schedule Updates. 28
8.10 Scheduler Qualifications. 28

ARTICLE 9 EXTENSIONS, COMPENSATION FOR CERTAIN EXTENSIONS. 28

9.1 Delays Warranting Extensions Of Contract Times. 28
9.2 Weather Delays. 29
9.3 Float Time Use. 29
9.4 Calculation Of Extensions. 29
9.5 Elimination of Delays and Extensions (Acceleration). 30
9.6 Requests For Extensions Required. 30
9.7 Compensation For Certain Extensions And Limitations. 30

ARTICLE 10 PAYMENTS TO THE CONTRACTOR. 31

10.1 Contract Price 31
10.2 Monthly Progress Payments. 31
10.3 Unit Schedule Breakdown/CPM Activity Price Breakdown. 32
10.4 Invoices For Monthly Progress Payments: Form and Content. 32
10.5 Payment For Materials And Equipment Procured But Not Installed. 33
10.6 Retainage 34
10.7 Payment For Change Order Work. 34
10.8 Final Payment. 34
10.9 Payment Terms. 34
10.10 Payment Based On Partial Acceptance (Limitation). 35
10.11 Failure To Pay Amounts In Dispute Not To Affect Performance. 35
10.12 Reasons For Withholding Payment. 35

TABLE OF CONTENTS
(continued)

Page

10.13 Set-Off For State Tax Indebtedness. 36
10.14 Maintenance Of Cost And Accounting Records. 36
10.15 Written Evidence of Payment to Subcontractors 37

ARTICLE 11 CHANGES. 37

11.1 Changes Authorized. 37
11.2 Change Request Or Directive. 37
11.3 Change Orders Which Are Protested. 38
11.4 Changes Affecting Contract Times. 38
11.5 Contractor Initiated Change Order Requests. 38
11.6 Change Order Amounts. 39
11.7 Right To Audit Extra Costs (Before And After Payment). 40
11.8 Change Orders With Both Price Increases and Decreases. 40
11.9 Waiver Of Rights In Connection With Change Orders Issued Without Protest. 40

ARTICLE 12 COMPLETION. 40

12.1 Substantial Completion. 40
12.2 Final Completion. 41

ARTICLE 13 SUSPENSION AND TERMINATION OF CONTRACT. 42

13.1 Suspension By The College. 42
13.2 Termination For Convenience. 43
13.3 Termination For Cause. 44
13.4 Surety Takeover Following Termination For Cause. 45
13.5 Suspension By The Contractor For Non-Payment. 45

ARTICLE 14 WARRANTY/DEFECTIVE WORK AND MATERIALS 46

14.1 General Work One Year Warranty; HVAC Systems Two Year Warranty 46
14.2 Defective Work, Materials And Equipment. 47

ARTICLE 15 INDEMNIFICATION/LIABILITY TO THIRD PARTIES. 47

15.1 The Contractor's Indemnification Obligation. 47
15.2 The Subcontractor's Indemnification Obligation. 49

ARTICLE 16 INSURANCE AND BONDS. 49

16.1 The Contractor's Insurance. 49
16.2 The Subcontractor's Insurance. 51
16.3 Payment And Performance Bond. 51

TABLE OF CONTENTS
(continued)

Page

ARTICLE 17 DISPUTE RESOLUTION. 51

17.1 Mediation. 51
17.2 Method Of Binding Dispute Resolution. 51
17.3 Arbitration (If The College Elects To Arbitrate). 51
17.4 Consolidation Or Joinder. 52
17.5 Work During Pendency Of Dispute. 52
17.6 Prompt Payment Claims 53
17.7 The Contractor's Claims: Procedures And Limitations. 53
17.8 Dispute Resolution Process In The Contractor's Subcontracts. 53

ARTICLE 18 MISCELLANEOUS. 53

18.1 Prevailing Wage. 53
18.2 Employment Discrimination. 54
18.3 Patents. 55
18.4 The Contractor's Compliance With Law. 55
18.5 Environmental Protection – The Contractor's Duty To Comply With Applicable Law. 56
18.6 No Personal Liability Of College Officials. 56
18.7 Recovery Of Monies By The College From Other Contracts With The Contractor. 56
18.8 Buy American Requirement. 56
18.9 Compliance With Grant Requirements. 57
18.10 Modification Of Contract. 57
18.11 State Sales Tax Exemption. 57
18.12 Successors and Assigns. 57
18.13 Construction Liens. 57
18.14 Independent Contractor Status. 58
18.15 Third Party Beneficiary Rights Not Intended. 58
18.16 Gifts To College Employees And Agents Prohibited. 58
18.17 Compliance With Procurement Statutes. 58
18.18 Conflict Of Interest. 59
18.19 Confidential Information. 60
18.20 Publicity. 60

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 thePlans 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 resultin 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 writtendecision 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 ormaterials 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 ContractDocuments 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 omissionsin 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 whichit 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 SiteSuperintendent.

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. TheContractor shall also comply with any inspection and testing procedures specified in the ContractDocuments.

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 be to 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 theseGeneral 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 doso.

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 individualson 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 bythe 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 preventedwith 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 failureto 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 itsapproval 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 competentand licensed New Jersey engineer or land surveyor as appropriate to perform all layout Work andto 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 theArchitect, 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 onit 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 aprofessional 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 theProject 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 conditioningsystem 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 andshall 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 ofWork 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 reasonableobjection 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 orduties 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 directlyagainst 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 tortuous 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 theContract 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 theMilestone, 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 progressmeetings, the Contractor shall provide a look ahead summary and detailed bar charts showing theWork 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 ProjectSchedule 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 fallenbehind the Project Schedule so as to jeopardize the achievement of Milestone, SubstantialCompletion 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 tothe 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 acceptin 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 theburden of proof with respect to weather delays shall be upon Contractor. No time extensionswill 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 timeshown on the Project Schedule shall not be used by the Contractor in a manner that is detrimentalto 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 thosemeasures 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 shallperform 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 toeach, and suggestions or proposals to reduce or eliminate the delay. This limited time frame is toprovide the College the opportunity to immediately address the issue and limit the amount oftime 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 responsibleunder 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 Articleshall 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 GeneralConditions 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 Conditionsand 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 topay 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'ssubmission 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 otherdocuments that the Contractor is required by the Contract Documents to provide to the College atthe time of Final Completion. The final invoice must also include a written signed consent to thefinal 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 responsiblebecause 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 tothe 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 andthe overpayment to the College, or the College may deduct the cost of the audit and theoverpayment 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 paidSubcontractors 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 checksmade payable jointly to the Contractor and a Subcontractor; however, by doing so, the College isnot undertaking any obligation on the part of the Contractor, nor does the Subcontractor have anyclaims 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 inthe Contract Price because of extensions resulting from changes shall be governed by Article 9of 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 andsuppliers 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 requirementsof 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 becompleted 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 agreesthat 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 ContractDocuments 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 inwriting and list the incomplete or unsatisfactory items. The Contractor shall immediatelycomplete 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 Subcontractorsand 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 additionalcompensation 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 bythe College. When the Contract is terminated, the Contractor shall deliver materials purchasedfor 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 andshall 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 andequipment 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 form 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 ornot 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 theContractor, 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 forthe Contractor or Subcontractor under workers' compensation acts, disability benefit acts orother 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 afterthe 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 CG 00 01 12 07 or later occurrence form of insurance including contractual liability with limits of at least one million dollars ($ 1,000,000) per occurrence, and at least two million dollars ($ 2,000,000) in the aggregate. The general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit. The CGL policy shall also include products/completed operations with limits of at least one million ($ 1,000,000) in the aggregate. 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 one million dollars ($ 1,000,000) combined single limit for bodily injury and property damagefor each occurrence.

(c) **Workers Compensation/ Employer's Liability.** Worker's Compensation Insurance applicable to the laws of the State of New Jersey and other Stateor Federal jurisdictions required to protect the employees of the Contractorand any Subcontractor, sub-subcontractor or supplier who will be engaged in the performance of the Contract. The certificate must so indicate that noproprietor, partner, executive officer or member is excluded. This insurance shall include Employers' Liability Insurance 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 employee, 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' 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 thepolicies 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 bythe 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 arbitrationshall 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 ifcomplete 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 orentity 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 suitprovisions. 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 thefinancing of minority and women outreach and training programs, the College reserves the rightsto 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 allmoney due or to become due hereunder may be forfeited, for any violationof this Article of the Contract occurring after notice to the Contractor fromthe 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 languageof 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 othercontracts 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 rightsagainst 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 employeesof 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 ofthe 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 particularthe 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 anyState 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, asdefined 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 employeehas 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 Statevendor 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, anyState 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 servicesby 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 theExecutive 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 ofa 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.