PROJECT MANUAL
FOR

BYRUM BUILDING ROOF REPLACEMENT
NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
SCO ID#: 22-25783-01A; CODE: 42240; ITEM: 4T04

Prepared for

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
PROPERTY AND CONSTRUCTION
2104 UMSTEAD DRIVE
RALEIGH, NORTH CAROLINA 27603

Prepared by

ATLAS ENGINEERING, INC.
551-A PYLON DRIVE
RALEIGH, NORTH CAROLINA 27606
ATLAS JOB NO. J2740

MARCH 2024

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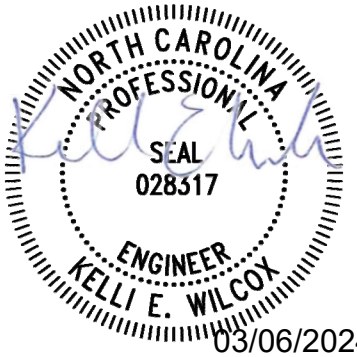

03/06/2024

Kelli Wilcox, P.E, R.R.C.
Principal Engineer

SET NO._____

ADVERTISEMENT FOR BIDS

Sealed proposals will be received until **2:00 P.M.** on **April 4, 2024** in the office of the **Caswell Developmental Center, Engineering Building, 2415 W. Vernon Avenue, Kinston, NC 28504, Attn: Mr. Marty Hill** for the construction of the **Byrum Building Roof Replacement** and immediately thereafter publicly opened and read at the same location.

Bids will be received for a **Single Prime Contract**. All proposals shall be lump sum.

A **pre-bid meeting** will be held for bidders on **March 19, 2024** at **1:30 p.m.** at the Engineering Building on the campus of the Caswell Developmental Center, 2415 W. Vernon Avenue, Kinston, NC 28504. Interested subcontractors and suppliers are strongly encouraged to attend.

Complete plans and specifications for this project can be obtained from ***Atlas Engineering, Inc., 551-A Pylon Drive, Raleigh, North Carolina 27606, (919) 420-7676 Attn: Kelli Wilcox, PE, RRC*** during normal office hours after **March 6, 2024**. Electronic documents are provided at no cost. Plan deposit of **Fifty dollars ($50.00)** in cash or certified check is required for hardcopy sets.

The state reserves the unqualified right to reject any and all proposals.

Signed: **North Carolina Department of Health and Human Services; Division of Property and Construction**
(*Owner)*

NOTICE TO BIDDERS

Sealed proposals will be received by the **NC Department of Health and Human Services** in the office of **Caswell Developmental Center, Engineering Building, 2415 W. Vernon Avenue, Kinston, NC 28504, Attn: Mr. Marty Hill** up to **2:00 p.m. on April 4, 2024** and immediately thereafter publicly opened and read in the office of the same location for the furnishing of labor, material and equipment entering into the construction of: **Byrum Building Roof Replacement** at the Caswell Developmental Center in Kinston, NC. The project includes installation of a new retrofit standing seam metal roof over approximately 37,800 square feet of existing shingled roof area and replacement of existing 1,650 square feet of low-sloped single-ply roof system with new heat welded thermoplastic membrane systems, extension of steel roof purlin bearing, asbestos-related protection/ventilation/cleaning of the attic spaces beneath work areas, and other associated work scope.

Bids will be received for a **Single Prime Contract**. All proposals shall be lump sum.

Pre-Bid Meeting

A pre-bid meeting will be held for all interested bidders on **March 19, 2024 at 1:30 p.m. at the Engineering Building, Caswell Developmental Center, 2415 W. Vernon Avenue, Kinston, NC 28504.** The meeting will address the project scope and description and answer specific questions and issues, anticipated project schedule, bidding procedures, and bid forms. Participants will also be able to visit the building attic and roof following the administrative portion of the meeting. Interested subcontractors and manufacturer representatives are strongly encouraged to attend.

Complete plans, specifications and contract documents will be open for inspection in the offices of Atlas Engineering, Inc. at 551A Pylon Drive, Raleigh, NC and in the electronic plan rooms of: Associated General Contractors, Carolinas Branch; McGraw-Hill Dodge Corporation; Reed Construction Data (RCD); Hispanic Contractors Association of the Carolinas (HCAC) in Winston-Salem, Charlotte and Raleigh Areas – 877-227-1680; and the East Coast Digital – Minority Plan Room Provider 703 SE Greenville Blvd, Greenville, NC 27858, 252-758-1616

Electronic copies of the documents are available at no cost by request from the architect via email to kelli@atlasnc.com. Hardcopies of the documents may be obtained upon deposit of fifty dollars ($50.00) in cash or certified check. The full plan deposit will be returned to those bidders provided all documents are returned in good, usable condition within ten (10) days after the bid date.

NOTE: The bidder shall include with the bid proposal the form *Identification of Minority Business Participation* identifying the minority business participation it will use on the project and shall include either *Affidavit **A*** or *Affidavit **B*** as applicable. Forms and instructions are included within the Proposal Form in the bid documents. Failure to complete these forms is grounds for rejection of the bid. (GS143-128.2c Effective 1/1/2002.)

All contractors are hereby notified that they must have proper license as required under the state laws governing their respective trades.

General contractors are notified that Chapter 87, Article 1, General Statutes of North Carolina, will be observed in receiving and awarding general contracts. General contractors submitting bids on this project must have license classification for Unlimited Building or Specialty-Roofing.

NOTE--SINGLE PRIME CONTRACTS: Under GS 87-1, a contractor that superintends or manages construction of any building, highway, public utility, grading, structure or improvement shall be deemed a "general contractor" and shall be so licensed. Therefore a single prime project that involves other trades will require the single prime contractor to hold a proper General Contractors license. **EXCEPT**: On public buildings being bid single prime, where the total value of the general construction does not exceed 25% of the total construction value, contractors under GS87- Arts 2 and 4 (Plumbing, Mechanical & Electrical) may bid and contract directly with the Owner as the SINGLE PRIME CONTRACTOR and may subcontract to other properly licensed trades. GS87-1.1- Rules .0210

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company, insured by the Federal Deposit Insurance Corporation, of an amount equal to not less than five percent (5%) of the proposal, or in lieu thereof a bidder may offer a bid bond of five percent (5%) of the bid executed by a surety company licensed under the laws of North Carolina to execute the contract in accordance with the bid bond. Said deposit shall be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten days after the award or to give satisfactory surety as required by law.

A performance bond and a payment bond will be required for one hundred percent (100%) of the contract price.

Payment will be made based on ninety-five percent (95%) of monthly estimates and final payment made upon completion and acceptance of work.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of 30 days.

The owner reserves the right to reject any or all bids and to waive informalities.

Designer:
Atlas Engineering, Inc.
551-A Pylon Drive, Raleigh, NC 27604
(919) 420-7676
PM- Kelli Wilcox: (919) 931-0961 (M)
Kelli@atlasnc.com

Owner:
NC Dept. of Health and Human Services
Division of Property and Construction
2104 Umstead Drive
Raleigh, NC 27603
PM- Medhat Metry: (919) 279-1462
medhat.metry@dhhs.nc.gov

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STANDARD FORM FOR CONSTRUCTION PROJECTS

STATE CONSTRUCTION OFFICE

NORTH CAROLINA

DEPARTMENT OF ADMINISTRATION

Form OC-15

This document is intended for use on State capital construction projects and shall not be used on any project that is not reviewed and approved by the State Construction Office. Extensive modification to the General Conditions by means of "Supplementary General Conditions" is strongly discouraged. State agencies and institutions may include special requirements in "Division 1 – General Requirements" of the specifications, where they do not conflict with the General Conditions.

Twenty Fourth Edition January 2013

INSTRUCTIONS TO BIDDERS

For a proposal to be considered it must be in accordance with the following instructions:

1. **PROPOSALS**

Proposals must be made in strict accordance with the Form of Proposal provided therefor, and all blank spaces for bids, alternates, and unit prices applicable to bidder's work shall be properly filled in. When requested alternates are not bid, the proposer shall so indicate by the words "No Bid". Any blanks shall also be interpreted as "No Bid".The bidder agrees that bid on Form of Proposal detached from specifications will be considered and will have the same force and effect as if attached thereto. Photocopied or faxed proposals will not be considered. Numbers shall be stated both in writing and in figures for the base bids and alternates. If figures and writing differ, the written number will supersede the figures.

Any modifications to the Form of Proposal (including alternates and/or unit prices) will disqualify the bid and may cause the bid to be rejected.

The bidder shall fill in the Form of Proposal as follows:

a. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

b. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.

c. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.

d. If the proposal is made by a joint venture, it shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable.

e. All signatures shall be properly witnessed.

f. If the contractor's license of a bidder is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the proposal. The title "Licensee" shall appear under his/her signature.

Proposals should be addressed as indicated in the Advertisement for Bids and be delivered, enclosed in an opaque sealed envelope, marked "Proposal" and bearing the title of the work, name of the bidder, and the contractor's license number of the bidder. Bidders should clearly mark on the outside of the bid envelope which contract(s) they are bidding.

Bidder shall identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts or an affidavit indicating work under contract will be self-performed, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f). Failure to comply with these requirements is grounds for rejection of the bid.

For projects bid in the single-prime alternative, the names and license numbers of major subcontractors shall be listed on the proposal form.

It shall be the specific responsibility of the bidder to deliver his bid to the proper official at the selected place and prior to the announced time for the opening of bids. Later delivery of a bid for any reason, including delivery by any delivery service, shall disqualify the bid.

Unit prices quoted in the proposal shall include overhead and profit and shall be the full compensation for the contractor's cost involved in the work. See General Conditions, Article 19c-1.

2. EXAMINATION OF CONDITIONS

It is understood and mutually agreed that by submitting a bid the bidder acknowledges that he has carefully examined all documents pertaining to the work, the location, accessibility and general character of the site of the work and all existing buildings and structures within and adjacent to the site, and has satisfied himself as to the nature of the work, the condition of existing buildings and structures, the conformation of the ground, the character, quality and quantity of the material to be encountered, the character of the equipment, machinery, plant and any other facilities needed preliminary to and during prosecution of the work, the general and local conditions, the construction hazards, and all other matters, including, but not limited to, the labor situation which can in any way affect the work under the contract, and including all safety measures required by the Occupational Safety and Health Act of 1970 and all rules and regulations issued pursuant thereto. It is further mutually agreed that by submitting a proposal the bidder acknowledges that he has satisfied himself as to the feasibility and meaning of the plans, drawings, specifications and other contract documents for the construction of the work and that he accepts all the terms, conditions and stipulations contained therein; and that he is prepared to work in cooperation with other contractors performing work on the site.

Reference is made to contract documents for the identification of those surveys and investigation reports of subsurface or latent physical conditions at the site or otherwise affecting performance of the work which have been relied upon by the designer in preparing the documents. The owner will make copies of all such surveys and reports available to the bidder upon request.

Each bidder may, at his own expense, make such additional surveys and investigations as he may deem necessary to determine his bid price for the performance of the work. Any on-site investigation shall be done at the convenience of the owner. Any reasonable request for access to the site will be honored by the owner.

3. BULLETINS AND ADDENDA

Any addenda to specifications issued during the time of bidding are to be considered covered in the proposal and in closing a contract they will become a part thereof. It shall be the bidder’s responsibility to ascertain prior to bid time the addenda issued and to see that his bid includes any changes thereby required.

Should the bidder find discrepancies in, or omission from, the drawings or documents or should he be in doubt as to their meaning, he shall at once notify the designer who will send written instructions in the form of addenda to all bidders. Notification should be no later than seven (7) days prior to the date set for receipt of bids. Neither the owner nor the designer will be responsible for any oral instructions.

All addenda should be acknowledged by the bidder(s) on the Form of Proposal. However, even if not acknowledged, by submitting a bid, the bidder has certified that he has reviewed all issued addenda and has included all costs associated within his bid.

4. **BID SECURITY**

Each proposal shall be accompanied by a cash deposit or a certified check drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation, or a bid bond in an amount equal to not less than five percent (5%) of the proposal, said deposit to be retained by the owner as liquidated damages in event of failure of the successful bidder to execute the contract within ten (10) days after the award or to give satisfactory surety as required by law (G.S. 143-129).

Bid bond shall be conditioned that the surety will, upon demand, forthwith make payment to the obligee upon said bond if the bidder fails to execute the contract. The owner may retain bid securities of any bidder(s) who may have a reasonable chance of award of contract for the full duration of time stated in the Notice to Bidders. Other bid securities may be released sooner, at the discretion of the owner. All bid securities (cash or certified checks) shall be returned to the bidders promptly after award of contracts, and no later then seven (7) days after expiration of the holding period stated in the Notice to Bidders. Standard Form of Bid Bond is included in these specifications and shall be used.

5. **RECEIPT OF BIDS**

Bids shall be received in strict accordance with requirements of the General Statutes of North Carolina. Bid security shall be required as prescribed by statute. Prior to the closing of the bid, the bidder will be permitted to change or withdraw his bid. Guidelines for opening of public construction bids are available from the State Construction Office.

6. **OPENING OF BIDS**

Upon opening, all bids shall be read aloud. Once bidding is closed, there shall not be any withdrawal of bids by any bidder and no bids may be returned by the designer to any bidder. After the opening of bids, no bid may be withdrawn, except under the provisions of General Statute 143-129.1, for a period of thirty days unless otherwise specified. Should the successful bidder default and fail to execute a contract, the contract may be awarded to the next lowest and responsible bidder. The owner reserves the unqualified right to reject any and all bids. Reasons for rejection may include, but shall not be limited to, the following:

a. If the Form of Proposal furnished to the bidder is not used or is altered.

b. If the bidder fails to insert a price for all bid items, alternate and unit prices requested.

c. If the bidder adds any provisions reserving the right to accept or reject any award.

d. If there are unauthorized additions or conditional bids, or irregularities of any kind which tend to make the proposal incomplete, indefinite or ambiguous as to its meaning.

e. If the bidder fails to complete the proposal form where information is requested so the bid may be properly evaluated by the owner.

f. If the unit prices contained in the bid schedule are unacceptable to the owner and the State Construction Office.

g. If the bidder fails to comply with other instructions stated herein.

7. **BID EVALUATION**

The award of the contract will be made to the lowest responsible bidder as soon as practical. The owner may award on the basis of the base bid and any alternates the owner chooses.

Before awarding a contract, the owner may require the apparent low bidder to qualify himself to be a responsible bidder by furnishing any or all of the following data:

a. The latest financial statement showing assets and liabilities of the company or other information satisfactory to the owner.

b. A listing of completed projects of similar size.

c. Permanent name and address of place of business.

d. The number of regular employees of the organization and length of time the organization has been in business under present name.

e. The name and home office address of the surety proposed and the name and address of the responsible local claim agent.

f. The names of members of the firms who hold appropriate trade licenses, together with license numbers.

g. If prequalified, contractor info will be reviewed and evaluated comparatively to submitted prequalification package.

Failure or refusal to furnish any of the above information, if requested, shall constitute a basis for disqualification of any bidder.

In determining the lowest responsible, responsive bidder, the owner shall take into consideration the bidder's compliance with the requirements of G.S. 143-128.2(c), the past performance of the bidder on construction contracts for the State with particular concern given to completion times, quality of work, cooperation with other contractors, and cooperation with the designer and owner. Failure of the low bidder to furnish affidavit and/or documentation as required by G.S. 143-128.2(c) shall constitute a basis for disqualification of the bid.

Should the owner adjudge that the apparent low bidder is not the lowest responsible, responsive bidder by virtue of the above information, said apparent low bidder will be so notified and his bid security shall be returned to him.

8. **PERFORMANCE BOND**

The successful bidder, upon award of contract, shall furnish a performance bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

9. **PAYMENT BOND**

The successful bidder, upon award of contract, shall furnish a payment bond in an amount equal to 100 percent of the contract price. See Article 35, General Conditions.

10. **PAYMENTS**

Payments to the successful bidders (contractors) will be made on the basis of monthly estimates. See Article 31, General Conditions.

11. **PRE-BID CONFERENCE**

Prior to the date set for receiving bids, the Designer may arrange and conduct a Pre-Bid Conference for all prospective bidders. The purpose of this conference is to review project requirements and to respond to questions from prospective bidders and their subcontractors or material suppliers related to the intent of bid documents. Attendance by prospective bidders shall be as required by the "Notice to Bidders".

12. **SUBSTITUTIONS**

In accordance with the provisions of G.S. 133-3, material, product, or equipment substitutions proposed by the bidders to those specified herein can only be considered during the bidding phase until ten (10) days prior to the receipt of bids when submitted to the Designer with sufficient data to confirm material, product, or equipment equality. Proposed substitutions submitted after this time will be considered only as potential change order.

Submittals for proposed substitutions shall include the following information:

a. Name, address, and telephone number of manufacturer and supplier as appropriate.

b. Trade name, model or catalog designation.

c. Product data including performance and test data, reference standards, and technical descriptions of material, product, or equipment. Include color samples and samples of available finishes as appropriate.

d. Detailed comparison with specified products including performance capabilities, warranties, and test results.

e. Other pertinent data including data requested by the Designer to confirm product equality.

If a proposed material, product, or equipment substitution is deemed equal by the Designer to those specified, all bidders of record will be notified by Addendum**.**

GENERAL CONDITIONS OF THE CONTRACT

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ARTICLE 1 - DEFINITIONS

a. The **contract documents** consist of the Notice to Bidders; Instructions to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the drawing and specifications, including all bulletins, addenda or other modifications of the drawings and specifications incorporated into the documents prior to their execution; the proposal; the contract; the performance bond; the payment bond; insurance certificates; the approval of the attorney general; and the certificate of the Office of State Budget and Management. All of these items together form the contract.

b. The **owner** is the State of North Carolina through the agency named in the contract.

c. The **designer(s)** are those referred to within this contract, or their authorized representatives. The Designer(s), as referred to herein, shall mean architect and/or engineer. They will be referred to hereinafter as if each were of the singular number, masculine gender.

d. The **contractor**, as referred to hereinafter, shall be deemed to be either of the several contracting parties called the "Party of the First Part" in either of the several contracts in connection with the total project. Where, in special instances hereinafter, a particular contractor is intended, an adjective precedes the word "contractor," as "general," "heating," etc. For the purposes of a single prime contract, the term Contractor shall be deemed to be the single contracting entity identified as the “Party of the First Part” in the single Construction Contract. Any references or adjectives that name or infer multiple prime contractors shall be interpreted to mean the single prime Contractor.

e. A **subcontractor**, as the term is used herein, shall be understood to be one who has entered into a direct contract with a contractor, and includes one who furnishes materials worked to a special design in accordance with plans and specifications covered by the contract, but does not include one who only sells or furnishes materials not requiring work so described or detailed.

f. **Written notice** shall be defined as notice in writing delivered in person to the contractor, or to a partner of the firm in the case of a partnership, or to a member of the contracting organization, or to an officer of the organization in the case of a corporation, or sent to the last known business address of the contracting organization by registered mail.

g. **Work**, as used herein as a noun, is intended to include materials, labor, and workmanship of the appropriate contractor.

h. The **project** is the total construction work to be performed under the contract documents by the several contractors.

i. **Project Expediter,** as used herein, is an entity stated in the contract documents, designated to effectively facilitate scheduling and coordination of work activities. See Article 14(f) for responsibilities of a Project Expediter. **For the purposes of a single prime contract, the single prime contractor shall be designated as the Project Expediter.**

j. **Change order**, as used herein, shall mean a written order to the contractor subsequent to the signing of the contract authorizing a change in the contract. The change order shall be signed by the contractor, designer and the owner, and approved by the State Construction Office, in that order (Article 19).

k. **Field Order,** as used herein, shall mean a written approval for the contractor to proceed with the work requested by owner prior to issuance of a formal Change Order. The field order shall be signed by the contractor, designer, owner, and State Construction Office.

l. **Time of completion**, as stated in the contract documents, is to be interpreted as consecutive calendar days measured from the date established in the written Notice to Proceed, or such other date as may be established herein (Article 23).

m. **Liquidated damages,** as stated in the contract documents [, is an amount reasonably estimated in advance to cover the consequential damages associated with the Owner's economic loss in not being able to use the Project for its intended purposes at the end of the contract's completion date as amended by change order, if any, by reason of failure of the contractor(s) to complete the work within the time specified. Liquidated damages does not include the Owner's extended contract administration costs (including but not limited to additional fees for architectural and engineering services, testing services, inspection services, commissioning services, etc.), such other damages directly resulting from delays caused solely by the contractor, or consequential damages that the Owner identified in the bid documents that may be impacted by any delay caused soley by the Contractor (e.g., if a multi-phased project-subsequent phases, delays in start other projects that are dependent on the completion of this Project, extension of leases and/or maintenance agreements for other facilities).

n. **Surety**, as used herein, shall mean the bonding company or corporate body which is bound with and for the contractor, and which engages to be responsible for the contractor and his acceptable performance of the work.

o. **Routine written communications between the Designer and the Contractor** are any communication other than a "request for information" provided in letter, memo, or transmittal format, sent by mail, courier, electronic mail, or facsimile. Such communications can not be identified as "request for information".

p. **Clarification or Request for information (RFI)** is a request from the Contractor seeking an interpretation or clarification by the Designer relative to the contract documents. The RFI, which shall be labeled (RFI), shall clearly and concisely set forth the issue or item requiring clarification or interpretation and why the response is needed. The RFI must set forth the Contractor's interpretation or understanding of the contract documents requirements in question, along with reasons for such an understanding.

q. **Approval** means written or imprinted acknowledgement that materials, equipment or methods of construction are acceptable for use in the work**.**

r. **Inspection** shall mean examination or observation of work completed or in progress to determine its compliance with contract documents.

s. **"Equal to" or "approved equal"** shall mean materials, products, equipment, assemblies, or installation methods considered equal by the bidder in all characteristics (physical, functional, and aesthetic) to those specified in the contract documents. Acceptance of equal is subject to approval of Designer and owner.

t. **"Substitution" or "substitute"** shall mean materials, products, equipment, assemblies, or installation methods deviating in at least one characteristic (physical, functional, or aesthetic) from those specified, but which in the opinion of the bidder would improve competition and/or enhance the finished installation. Acceptance of substitution is subject to the approval of the Designer and owner.

u. **Provide** shall mean furnish and install complete in place, new, clean, operational, and ready for use.

v. **Indicated and shown** shall mean provide as detailed, or called for, and reasonably implied in the contract documents.

w. **Special inspector** is one who inspects materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with the approved construction documents and referenced standards.

x. **Commissioning** is a quality assurance process that verifies and documents that building components and systems operate in accordance to the owner's project requirements and the project design documents.

y. **Designer Final Inspection** is the inspection performed by the design team to determine the completeness of the project in accordance with approved plans and specifications. This inspection occurs prior to SCO final inspection.

z. **SCO Final Inspection** is the inspection performed by the State Construction Office to determine the completeness of the project in accordance with NC Building Codes and approved plans and specifications.

aa. **Beneficial Occupancy** is requested by the owner and is occupancy or partial occupancy of the building after all life safety items have been completed as determined by the State Construction Office. Life safety items include but not limited to fire alarm, sprinkler, egress and exit lighting, fire rated walls, egress paths and security.

bb. Final Acceptance is the date in which the State Construction Office accepts the construction as totally complete. This includes the SCO Final Inspection and certification by the designer that all punch lists are completed.

ARTICLE 2 - INTENT AND EXECUTION OF DOCUMENTS

a. The drawings and specifications are complementary, one to the other, and that which is shown on the drawings or called for in the specifications shall be as binding as if it were both called for and shown. The intent of the drawings and specifications is to establish the scope of all labor, materials, transportation, equipment, and any and all other things necessary to provide a bid for a complete job. In case of discrepancy or disagreement in the contract documents, the order of precedence shall be: Form of Contract, specifications, large-scale detail drawings, small-scale drawings.

b. The wording of the specifications shall be interpreted in accordance with common usage of the language except that words having a commonly used technical or trade meaning shall be so interpreted in preference to other meanings.

c. The contractor shall execute each copy of the proposal, contract, performance bond and payment bond as follows:

   1. If the documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

   2. If the documents are executed by a partnership, that fact shall be evidenced by the word "Co-Partner" appearing after the name of the partner executing them.

3. If the documents are executed on the part of a corporation, they shall be executed by either the president or the vice president and attested by the secretary or assistant secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each signature page of the documents.

4. If the documents are made by a joint venture, they shall be executed by each member of the joint venture in the above form for sole owner, partnership or corporation, whichever form is applicable to each particular member.

5. All signatures shall be properly witnessed.

6. If the contractor's license is held by a person other than an owner, partner or officer of a firm, then the licensee shall also sign and be a party to the contract. The title "Licensee" shall appear under his/her signature.

7. The bonds shall be executed by an attorney-in-fact. There shall be attached to each copy of the bond a certified copy of power of attorney properly executed and dated.

8. Each copy of the bonds shall be countersigned by an authorized individual agent of the bonding company licensed to do business in North Carolina. The title "Licensed Resident Agent" shall appear after the signature.

9. The seal of the bonding company shall be impressed on each signature page of the bonds.

10. The contractor's signature on the performance bond and the payment bond shall correspond with that on the contract. The date of performance and payment bond shall not be prior to the date of the contract.

ARTICLE 3 - CLARIFICATIONS AND DETAIL DRAWINGS

a. In such cases where the nature of the work requires clarification by the designer, such clarification shall be furnished by the designer with reasonable promptness by means of written instructions or detail drawings, or both. Clarifications and drawings shall be consistent with the intent of contract documents, and shall become a part thereof.

b. The contractor(s) and the designer shall prepare, if deemed necessary, a schedule fixing dates upon which foreseeable clarifications will be required. The schedule will be subject to addition or change in accordance with progress of the work. The designer shall furnish drawings or clarifications in accordance with that schedule. The contractor shall not proceed with the work without such detail drawings and/or written clarifications.

ARTICLE 4 - COPIES OF DRAWINGS AND SPECIFICATIONS

The designer or Owner shall furnish free of charge to the contractors electronic copies of plans and specifications. If requested by the contractor, paper copies of plans and specifications shall be furnished free of charge as follows:

a. General contractor - Up to twelve (12) sets of general contractor drawings and specifications, up to six (6) sets of which shall include drawings and specifications of all other contracts, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

b. Each other contractor - Up to six (6) sets of the appropriate drawings and specifications, up to three (3) sets of which shall include drawings and specifications of all other contracts, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

c. Additional sets shall be furnished at cost, including mailing, to the contractor upon request by the contractor. This cost shall be stated in the bidding documents.

d. For the purposes of a single-prime contract, the contractor shall receive up to 30 sets of drawings and specifications, plus a clean set of black line prints on white paper of all appropriate drawings, upon which the contractor shall clearly and legibly record all work-in-place that is at variance with the contract documents.

ARTICLE 5 - SHOP DRAWINGS, SUBMITTALS, SAMPLES, DATA

a. Within 15 consecutive calendar days after the notice to proceed, each prime contractor shall submit a schedule for submission of all shop drawings, product data, samples, and similar submittals through the Project Expediter to the Designer. This schedule shall indicate the items, relevant specification sections, other related submittal, data, and the date when these items will be furnished to the designer.

b. The Contractor(s) shall review, approve and submit to the Designer all Shop Drawings, Coordination Drawings, Product Data, Samples, Color Charts, and similar submittal data required or reasonably implied by the Contract Documents. Required Submittals shall bear the Contractor's stamp of approval, any exceptions to the Contract Documents shall be noted on the submittals, and copies of all submittals shall be of sufficient quantity for the Designer to retain up to three (3) copies of each submittal for his own use plus additional copies as may be required by the Contractor. Submittals shall be presented to the Designer in accordance with the schedule submitted in paragraph (a). so as to cause no delay in the activities of the Owner or of separate Contractors.

c. The Designer shall review required submittals promptly, noting desired corrections if any, and retaining three (3) copies (1 for the Designer, 1 for the owner and 1 for SCO) for his use. The remaining copies of each submittal shall be returned to the Contractor not later than twenty (20) days from the date of receipt by the Designer, for the Contractor's use or for corrections and resubmittal as noted by the Designer. When resubmittals are required, the submittal procedure shall be the same as for the original submittal**s.**

d. Approval of shop drawings/submittals by the Designer shall not be construed as relieving the Contractor from responsibility for compliance with the design or terms of the contract documents nor from responsibility of errors of any sort in the shop drawings, unless such lack of compliance or errors first have been called in writing to the attention of the Designer by the Contractor.

ARTICLE 6 - WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE

a. The contractor shall maintain, in readable condition at his job office, one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the designer, his authorized representative, owner or State Construction Office.

b. The contractor shall maintain at the job office, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on project drawings by the contractor and submitted to the designer upon project completion and no later than 30 days after final acceptance of the project.

c. The contractor shall maintain at the job office a record of all required tests that have been performed, clearly indicating the scope of work inspected and the date of approval or rejection.

ARTICLE 7 - OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

All drawings and specifications are instruments of service and remain the property of the owner. The use of these instruments on work other than this contract without permission of the owner is prohibited. All copies of drawings and specifications other than contract copies shall be returned to the owner upon request after completion of the work.

ARTICLE 8 - MATERIALS, EQUIPMENT, EMPLOYEES

a. The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of his work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

b. All materials shall be new and of quality specified, except where reclaimed material is authorized herein and approved for use. Workmanship shall at all times be of a grade accepted as the best practice of the particular trade involved, and as stipulated in written standards of recognized organizations or institutes of the respective trades except as exceeded or qualified by the specifications.

c. Upon notice, the contractor shall furnish evidence as to quality of materials.

d. Products are generally specified by ASTM or other reference standard and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict bidders to a specific brand, make, manufacturer or specific name; that they are used only to set forth and convey to bidders the general style, type, character and quality of product desired; and that equivalent products will be acceptable. Request for substitution of materials, items, or equipment shall be submitted to the designer for approval or disapproval; such approval or disapproval shall be made by the designer prior to the opening of bids. Alternate materials may be requested after the award if it can clearly be demonstrated that it is an added benefit to the owner and the designer and owner approves.

e. The designer is the judge of equality for proposed substitution of products, materials or equipment.

g. If at any time during the construction and completion of the work covered by these contract documents, the language, conduct, or attire of any workman of the various crafts be adjudged a nuisance to the owner or designer, or if any workman be considered detrimental to the work, the contractor shall order such parties removed immediately from grounds.

ARTICLE 9 - ROYALTIES, LICENSES AND PATENTS

It is the intention of the contract documents that the work covered herein will not constitute in any way infringement of any patent whatsoever unless the fact of such patent is clearly evidenced herein. The contractor shall protect and save harmless the owner against suit on account of alleged or actual infringement. The contractor shall pay all royalties and/or license fees required on account of patented articles or processes, whether the patent rights are evidenced hereinafter.

ARTICLE 10 - PERMITS, INSPECTIONS, FEES, REGULATIONS

a. The contractor shall give all notices and comply with all laws, ordinances, codes, rules and regulations bearing on the conduct of the work under this contract. If the contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. See Instructions to Bidders, Paragraph 3, Bulletins and Addenda. Any necessary changes required after contract award shall be made by change order in accordance with Article 19. If the contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the designer, he shall bear all cost arising therefrom. Additional requirements implemented after bidding will be subject to equitable negotiations.

b. All work under this contract shall conform to the North Carolina State Building Code and other State, local and national codes as are applicable. The cost of all required inspections and permits shall be the responsibility of the contractor and included within the bid proposal. All water taps, meter barrels, vaults and impact fees shall be paid by the contractor unless otherwise noted.

d. Projects constructed by the State of North Carolina or by any agency or institution of the State are not subject to inspection by any county or municipal authorities and are not subject to county or municipal building codes. The contractor shall, however, cooperate with the county or municipal authorities by obtaining building permits. Permits shall be obtained at no cost.

e. Projects involving local funding (community colleges) are subject also to county and municipal building codes and inspection by local authorities. The contractor shall pay the cost of these permits and inspections.

ARTICLE 11 - PROTECTION OF WORK, PROPERTY AND THE PUBLIC

a. The contractors shall be jointly responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. They shall be responsible for any damage to the owner's property, or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. They shall be responsible for and pay for any damages caused to the owner. All contractors shall have access to the project at all times.

b. The contractor shall provide cover and protect all portions of the structure when the work is not in progress, provide and set all temporary roofs, covers for doorways, sash and windows, and all other materials necessary to protect all the work on the building, whether set by him, or any of the subcontractors. Any work damaged through the lack of proper protection or from any other cause, shall be repaired or replaced without extra cost to the owner.

c. No fires of any kind will be allowed inside or around the operations during the course of construction without special permission from the designer and owner.

d. The contractor shall protect all trees and shrubs designated to remain in the vicinity of the operations by building substantial boxes around same. He shall barricade all walks, roads, etc., as directed by the designer to keep the public away from the construction. All trenches, excavations or other hazards in the vicinity of the work shall be well barricaded and properly lighted at night.

e. The contractor shall provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. *Accident Prevention Manual in Construction*, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of the work. He shall clearly mark or post signs warning of hazards existing, and shall barricade excavations, elevator shafts, stairwells and similar hazards. He shall protect against damage or injury resulting from falling materials and he shall maintain all protective devices and signs throughout the progress of the work.

f. The contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974, *Federal Register*), and revisions thereto as adopted by General Statutes of North Carolina 95-126 through 155.

g. The contractor shall designate a responsible person of his organization as safety officer/inspector to inspect the project site for unsafe health and safety hazards, to report these hazards to the contractor for correction, and whose duties also include accident prevention on the project, and to provide other safety and health measures on the project site as required by the terms and conditions of the contract.The name of the safety inspector shall be made known to the designer and owner at the time of the preconstruction conference and in all cases prior to any work starting on the project.

h. In the event of emergency affecting the safety of life, the protection of work, or the safety of adjoining properties, the contractor is hereby authorized to act at his own discretion, without further authorization from anyone, to prevent such threatened injury or damage.

Any compensation claimed by the contractor on account of such action shall be determined as provided for under Article 19(b).

i. Any and all costs associated with correcting damage caused to adjacent properties of the construction site or staging area shall be borne by the contractor. These costs shall include but not be limited to flooding, mud, sand, stone, debris, and discharging of waste products.

ARTICLE 12 - SEDIMENTATION POLLUTION CONTROL ACT OF 1973

a. Any land-disturbing activity performed by the contractor(s) in connection with the project shall comply with all erosion control measures set forth in the contract documents and any additional measures which may be required in order to ensure that the project is in full compliance with the Sedimentation Pollution Control Act of 1973, as implemented by Title 15, North Carolina Administrative Code, Chapter 4, Sedimentation Control, Subchapters 4A, 4B and 4C, as amended (15 N.C.A.C. 4A, 4B and 4C).

b. Upon receipt of notice that a land-disturbing activity is in violation of said act, the contractor(s) shall be responsible for ensuring that all steps or actions necessary to bring the project in compliance with said act are promptly taken.

c. The contractor(s) shall be responsible for defending any legal actions instituted pursuant to N.C.G.S. 113A-64 against any party or persons described in this article.

d. To the fullest extent permitted by law, the contractor(s) shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, civil penalties, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance of work or failure of performance of work, provided that any such claim, damage, civil penalty, loss or expense is attributable to a violation of the Sedimentation Pollution Control Act. Such obligation shall not be construed to negate, abridge or otherwise reduced any other right or obligation of indemnity which would otherwise exist as to any party or persons described in this article.

ARTICLE 13 - INSPECTION OF THE WORK

a. It is a condition of this contract that the work shall be subject to inspection during normal working hours and during any time work is in preparation and progress by the designer, designated official representatives of the owner, State Construction Office and those persons required by state law to test special work for official approval. The contractor shall therefore provide safe access to the work at all times for such inspections.

b. All instructions to the contractor will be made only by or through the designer or his designated project representative. Observations made by official representatives of the owner shall be conveyed to the designer for review and coordination prior to issuance to the contractor.

c. All work shall be inspected by designer, special inspector and/or State Construction Office prior to being covered by the contractor. Contractor shall give a minimum two weeks notice unless otherwise agreed to by all parties. If inspection fails, after the first reinspection all costs associated with additional reinspections shall be borne by the contractor.

d. Where special inspection or testing is required by virtue of any state laws, instructions of the designer, specifications or codes, the contractor shall give adequate notice to the designer of the time set for such inspection or test, if the inspection or test will be conducted by a party other than the designer. Such special tests or inspections will be made in the presence of the designer, or his authorized representative, and it shall be the contractor's responsibility to serve ample notice of such tests.

e. All laboratory tests shall be paid by the owner unless provided otherwise in the contract documents except the general contractor shall pay for laboratory tests to establish design mix for concrete, and for additional tests to prove compliance with contract documents where materials have tested deficient except when the testing laboratory did not follow the appropriate ASTM testing procedures.

f. Should any work be covered up or concealed prior to inspection and approval by the designer, special inspector, and/or State Construction Office such work shall be uncovered or exposed for inspection, if so requested by the designer in writing. Inspection of the work will be made upon notice from the contractor. All cost involved in uncovering, repairing, replacing, recovering and restoring to design condition, the work that has been covered or concealed will be paid by the contractor involved.

ARTICLE 14 - CONSTRUCTION SUPERVISION AND SCHEDULE

a. Throughout the progress of the work, each contractor shall keep at the job site**,** a competent superintendent and supervisory staff satisfactory to the designer and the owner. The superintendent and supervisory staff shall not be changed without the consent of the designer and owner unless said superintendent ceases to be employed by the contractor or ceases to be competent as determined by the contractor, designer or owner. The superintendent and other staff designated by the contractor in writing shall have authority to act on behalf of the contractor, and instructions, directions or notices given to him shall be as binding as if given to the contractor. However, directions, instructions, and notices shall be confirmed in writing.

b. The contractor shall examine and study the drawings and specifications and fully understand the project design, and shall provide constant and efficient supervision to the work. Should he discover any discrepancies of any sort in the drawings or specifications, he shall report them to the designer without delay. He will not be held responsible for discrepancies in the drawings and/or specifications, but shall be held responsible to report them should they become known to him.

c. All contractors shall be required to cooperate and consult with each other during the construction of this project. Prior to installation of work, all contractors shall jointly prepare coordination drawings, showing locations of various ductworks, piping, motors, pumps, and other mechanical or electrical equipment, in relation to the structure, walls and ceilings. These drawings shall be submitted to the designer through the Project Expediter for information only**.** Each contractor shall lay out and execute his work to cause the least delay to other contractors. Each contractor shall be financially responsible for any damage to other contractor's work and for undue delay caused to other contractors on the project.

d. The contractor is required to attend job site progress conferences as called by the designer. The contractor shall be represented at these job progress conferences by both home office and project personnel. These representatives shall have authority to act on behalf of the contractor. These meetings shall be open to subcontractors, material

suppliers and any others who can contribute toward maintaining required job progress. It shall be the principal purpose of these meetings, or conferences, to effect coordination, cooperation and assistance in every practical way toward the end of maintaining progress of the project on schedule and to complete the project within the specified contract time. Each contractor shall be prepared to assess progress of the work as required in his particular contract and to recommend remedial measures for correction of progress as may be appropriate. The designer or his authorized representative shall be the coordinator of the conferences and shall preside as chairman. The contractor shall turn over a copy of his daily reports to the Designer and Owner at the job site progress conference. Owner will determine daily report format.

e The contractor(s) shall, employ an engineer or a land surveyor licensed in the State of North Carolina to lay out the work and to establish a bench mark in a location where same will not be disturbed and where direct instruments sights may be taken.

f. The designer shall designate a Project Expediter on projects involving two or more prime contracts. The Project Expediter shall be designated in the Supplementary General Conditions. The Project Expediter shall have at a minimum the following responsibilities**.**

1. Prepare the project construction schedule and shall allow all prime contractors (multi-prime contract) and subcontractors (single-prime contract) performing general, plumbing, HVAC, and electrical work equal input into the preparation of the initial construction schedule.

2. Maintain a project progress schedule for all contractors.

3. Give adequate notice to all contractors to ensure efficient continuity of all phases of the work.

4. Notify the designer of any changes in the project schedule.

5. Recommend to the owner whether payment to a contractor shall be approved**.**

g. It shall be the responsibility of the Project Expediter to cooperate with and obtain from several prime contractors and subcontractors on the job, their respective work activities and integrate these activities into a project construction schedule in form of a detailed bar chart or Critical Path Method (CPM), schedule. Each prime contractor shall provide work activities within fourteen (14) days of request by the Project Expediter. A "work activity", for scheduling purposes, shall be any component or contractual requirement of the project requiring at least one (1) day, but not more than fourteen (14) days, to complete or fulfill**.** The project construction schedule shall graphically show all salient features of the work required to construct the project from start to finish and within the allotted time established in the contract. The time (in days) between the contractor's early completion and contractual completion dates is part of the project total float time; and shall be used as such, unless amended by a change order**.** On a multi-prime project, each prime contractor shall review the proposed construction schedule and approve same in writing**.** The Project Expediter shall submit the proposed construction schedule to the designer for comments. The complete Project construction schedule shall be of the type set forth in the Supplementary General Condition or subparagraph (1) or (2) below, as appropriate:

1. For a project with total contracts of $500,000 or less, a bar chart schedule will satisfy the above requirement. The schedule shall indicate the estimated starting and completion dates for each major element of the work.

2. For a project with total contracts over $500,000, a Critical Path Method (CPM) schedule shall be utilized to control the planning and scheduling of the Work. The CPM schedule shall be the responsibility of the Project Expediter and shall be paid for by the Project Expediter.

Bar Chart Schedule: Where a bar chart schedule is required, it shall be time-scaled in weekly increments, shall indicate the estimated starting and completion dates for each major element of the work by trade and by area, level, or zone, and shall schedule dates for all salient features, including but not limited to the placing of orders for materials, submission of shop drawings and other Submittals for approval, approval of shop drawings by designers, the manufacture and delivery of material, the testing and the installation of materials, supplies and equipment, and all Work activities to be performed by the Contractor. The Contractor shall allow sufficient time in his schedule for all commissioning, required inspections and completion of final punchlist(s). Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

CPM Schedule: Where a CPM schedule is required, it shall be in time-scaled precedence format using the Project Expediter's logic and time estimates. The CPM schedule shall be drawn or plotted with activities grouped or zoned by Work area or subcontract as opposed to a random (or scattered) format. The CPM schedule shall be time-scaled on a weekly basis and shall be drawn or plotted at a level of detail and logic which will schedule all salient features of the work to be performed by the Contractor. The Contractor shall allow sufficient time in his schedule for all commissioning, required inspections and completion of final punchlist(s).. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

The CPM schedule will identify and describe each activity, state the duration of each activity, the calendar dates for the early and late start and the early and late finish of each activity, and clearly highlight all activities on the critical path. "Total float" and "free float" shall be indicated for all activities. Float time shall not be considered for the exclusive use or benefit of either the Owner or the Contractor, but must be allocated in the best interest of completing the Work within the Contract time. Extensions to the Contract time, when granted by Change Order, will be granted only when equitable time adjustment exceeds the Total Float in the activity or path of activities affected by the change. On contracts with a price over $2,500,000, the CPM schedule shall also show what part of the Contract Price is attributable to each activity on the schedule, the sum of which for all activities shall equal the total Contract Price.

Early Completion of Project: The Contractor may attempt to complete the project prior to the Contract Completion Date. However, such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the Owner under this Contract, nor shall it change the Time

for Completion or the Contract Completion Date. The Contractor shall not be required to pay liquidated damages to the Owner because of its failure to complete by its planned earlier date. Likewise, the Owner shall not pay the Contractor any additional compensation for early completion nor will the Owner owe the Contractor any compensation should the Owner, its officers, employees, or agents cause the Contractor not to complete earlier than the date required by the Contract Documents.

h. The proposed project construction schedule shall be presented to the designer no later than fifteen (15) days after written notice to proceed. No application for payment will be processed until this schedule is accepted by the designer and owner.

i. The approved project construction schedule shall be distributed to all contractors and displayed at the job site by the Project Expediter.

j. The several contractors shall be responsible for their work activities and shall notify the Project Expediter of any necessary changes or adjustments to their work. The Project Expediter shall maintain the project construction schedule, making biweekly adjustments, updates, corrections, etc., that are necessary to finish the project within the Contract time, keeping all contractors and the designer fully informed. Copy of a bar chart schedule annotated to show the current progress shall be submitted by the Contractor(s) to the designer, along with monthly request for payment. For project requiring CPM schedule, the Contractor shall submit a biweekly report of the status of all activities. The bar chart schedule or status report shall show the actual Work completed to date in comparison with the original Work scheduled for all activities. If any activities of the work of several contractors are behind schedule, the contractor must indicate in writing, what measures will be taken to bring each such activity back on schedule and to ensure that the Contract Completion Date is not exceeded. A plan of action and recovery schedule shall be developed and submitted to the designer by the Project Expediter, when (1) the contractor's report indicates delays, that are in the opinion of the designer or the owner, of sufficient magnitude that the contractor's ability to complete the work by the scheduled completion is brought into question; (2) the updated construction schedule is thirty (30) days behind the planned or baseline schedule and no legitimate time extensions, as determined by the Designer, are in process; and (3) the contractor desires to make changes in the logic (sequencing of work) or the planned duration of future activities of the CPM schedule which, in the opinion of the designer or the owner, are of a major nature. The plan of action, when required shall be submitted to the Owner for review within two (2) business days of the Contractor receiving the Owner's written demand. The recovery schedule, when required, shall be submitted to the Owner within five (5) calendar days of the Contractor's receiving the Owner's written demand. Failure to provide an updated construction schedule or a recovery schedule may be grounds for rejection of payment applications or withholding of funds as set forth in Article 33.

k. The Project Expediter shall notify each contractor of such events or time frames that are critical to the progress of the job. Such notice shall be timely and reasonable. Should the progress be delayed due to the work of any of the several contractors, it shall be the duty of the Project Expediter to immediately notify the contractor(s) responsible for such delay, the designer, the State Construction Office and other prime contractors. The designer shall determine the contractor(s) who caused the delays and notify the bonding company of the responsible contractor(s) of the delays; and shall make a recommendation to the owner regarding further action.

l. Designation as Project Expediter entails an additional project control responsibility and does not alter in any way the responsibility of the contractor so designated, nor the

responsibility of the other contractors involved in the project. The project expeditor's Superintendent(s) shall be in attendance at the Project site at all times when work is in progress unless conditions are beyond the control of the Contractor or until termination of the Contract in accordance with the Contract Documents. It is understood that such Superintendent shall be acceptable to the Owner and Designer and shall be the one who will be continued in that capacity for the duration of the project unless he ceases to be on the Contractor's payroll or the Owner otherwise agrees. The Superintendent shall not be employed on any other project for or by the Contractor or by any other entity during the course of the Work. If the Superintendent is employed by the Contractor on another project without the Owner's approval, then the Owner may deduct from the Contractor's monthly general condition costs and amount representing the Superintendent's cost and shall deduct that amount for each month thereafter until the Contractor has the Superintendent back on the Owner's Project full-time.

ARTICLE 15 - SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS

a. Effective from January 1, 2002, Chapter 143, Article 8, was amended, to allow public contracts to be delivered by the following delivery methods: single-prime, dual (single-prime and separate-prime), construction manager at risk, and alternative contracting method as approved by the State Building Commission. The owner reserves the right to prepare separate specifications, receive separate bids, and award separate contracts for such other major items of work as may be in the best interest of the State. For the purposes of a single prime contract, refer to Article 1 – Definitions.

b. All contractors shall cooperate with each other in the execution of their work, and shall plan their work in such manner as to avoid conflicting schedules or delay of the work. See Article 14, Construction Supervision.

c. If any part of contractor's work depends upon the work of another contractor, defects which may affect that work shall be reported to the designer in order that prompt inspection may be made and the defects corrected. Commencement of work by a contractor where such condition exists will constitute acceptance of the other contractor's work as being satisfactory in all respects to receive the work commenced, except as to defects which may later develop. The designer shall be the judge as to the quality of work and shall settle all disputes on the matter between contractors.

d. Any mechanical or electrical work such as sleeves, inserts, chases, openings, penetrations, etc., which is located in the work of the general contractor shall be built in by the general contractor. The respective mechanical and electrical contractors shall set all sleeves, inserts and other devices that are to be incorporated into the structure in cooperation and under the supervision of the general contractor. The responsibility for the exact location of such items shall be that of the mechanical and/or electrical contractor.

e. The designer and the owner shall have access to the work whenever it is in preparation and progress and during normal working hours. The contractor shall provide facilities for such access so the designer may perform his functions under the contract documents.

f. Should a contractor cause damage to the work or property of another contractor, he shall be directly responsible, and upon notice, shall promptly settle the claim or otherwise resolve the dispute.

ARTICLE 16 - SUBCONTRACTS AND SUBCONTRACTORS

a. Within thirty (30) days after award of the contract, the contractor shall submit to the designer, owner and to the State Construction Office a list giving the names and addresses of subcontractors and equipment and material suppliers he proposes to use, together with the scope of their respective parts of the work. Should any subcontractor be disapproved by the designer or owner, the designer or owner shall submit his reasons for disapproval in writing to the State Construction Office for its consideration with a copy to the contractor. If the State Construction Office concurs with the designer's or owner's recommendation, the contractor shall submit a substitute for approval. The designer and owner shall act promptly in the approval of subcontractors, and when approval of the list is given, no changes of subcontractors will be permitted except for cause or reason considered justifiable by the designer or owner.

b. The designer will furnish to any subcontractor, upon request, evidence regarding amounts of money paid to the contractor on account of the subcontractor's work.

c. The contractor is and remains fully responsible for his own acts or omissions as well as those of any subcontractor or of any employee of either. The contractor agrees that no contractual relationship exists between the subcontractor and the owner in regard to the contract, and that the subcontractor acts on this work as an agent or employee of the contractor.

d. The owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

ARTICLE 17 - CONTRACTOR AND SUBCONTRACTOR RELATIONSHIPS

The contractor agrees that the terms of these contract documents shall apply equally to each subcontractor as to the contractor, and the contractor agrees to take such action as may be necessary to bind each subcontractor to these terms. The contractor further agrees to conform to the Code of Ethical Conduct as adopted by the Associated General Contractors of America, Inc., with respect to contractor-subcontractor relationships, and that payments to subcontractors shall be made in accordance with the provisions of G.S. 143-134.1 titled Interest on final payments due to prime contractors: payments to subcontractors.

a. On all public construction contracts which are let by a board or governing body of the state government or any political subdivision thereof, except contracts let by the Department of Transportation pursuant to G.S. 136-28.1, the balance due prime contractors shall be paid in full within 45 days after respective prime contracts of the project have been accepted by the owner, certified by the architect, engineer or designer to be completed in accordance with terms of the plans and specifications, or occupied by the owner and used for the purpose for which the project was constructed, whichever occurs first. Provided, however, that whenever the architect or consulting engineer in charge of the project determines that delay in completion of the project in accordance with terms of the plans and specifications is the fault of the contractor, the project may be occupied and used for the purposes for which it was constructed without payment of any interest on amounts withheld past the 45 day limit. No payment shall be delayed because of the failure of another prime contractor on such project to complete his contract. Should final payment to any prime contractor beyond the date such contracts have been certified to be completed by the designer or architect, accepted by the owner, or occupied by the owner and used for the purposes for which the project was constructed, be delayed by more than 45 days, said prime contractor shall be paid interest, beginning on the 46th day, at the rate of one percent (1%) per month or fraction thereof unless a lower rate is

agreed upon on such unpaid balance as may be due. In addition to the above final payment provisions, periodic payments due a prime contractor during construction shall be paid in accordance with the payment provisions of the contract documents or said prime contractor shall be paid interest on any such unpaid amount at the rate stipulated above for delayed final payments. Such interest shall begin on the date the payment is due and continue until the date on which payment is made. Such due date may be established by the terms of the contract. Funds for payment of such interest on state-owned projects shall be obtained from the current budget of the owning department, institution or agency. Where a conditional acceptance of a contract exists, and where the owner is retaining a reasonable sum pending correction of such conditions, interest on such reasonable sum shall not apply.

b. Within seven days of receipt by the prime contractor of each periodic or final payment, the prime contractor shall pay the subcontractor based on work completed or service provided under the subcontract. Should any periodic or final payment to the subcontractor be delayed by more than seven days after receipt of periodic or final payment by the prime contractor, the prime contractor shall pay the subcontractor interest, beginning on the eighth day, at the rate of one percent (1%) per month or fraction thereof on such unpaid balance as may be due.

c. The percentage of retainage on payments made by the prime contractor to the subcontractor shall not exceed the percentage of retainage on payments made by the owner to the prime contractor. Any percentage of retainage on payments made by the prime contractor to the subcontractor that exceeds the percentage of retainage on payments made by the owner to the prime contractor shall be subject to interest to be paid by the prime contractor to the subcontractor at the rate of one percent (1%) per month or fraction thereof.

d. Nothing in this section shall prevent the prime contractor at the time of application and certification to the owner from withholding application and certification to the owner for payment to the subcontractor for unsatisfactory job progress; defective construction not remedied; disputed work; third-party claims filed or reasonable evidence that claim will be filed; failure of subcontractor to make timely payments for labor, equipment and materials; damage to prime contractor or another subcontractor; reasonable evidence that subcontract cannot be completed for the unpaid balance of the subcontract sum; or a reasonable amount for retainage not to exceed the initial percentage retained by owner.

ARTICLE 18 - DESIGNER'S STATUS

a. The designer shall provide general administration of the performance of construction contracts, including liaison and necessary inspection of the work to ensure compliance with plans and specifications. He is the agent of the owner only for the purpose of constructing this work and to the extent stipulated in the contract documents. He has authority to direct work to be performed, to stop work, to order work removed, or to order corrections of faulty work, where any such action by the designer may be necessary to assure successful completion of the work.

b. The designer is the impartial interpreter of the contract documents, and, as such, he shall exercise his powers under the contract to enforce faithful performance by both the owner and the contractor, taking sides with neither.

c. Should the designer cease to be employed on the work for any reason whatsoever, then the owner shall employ a competent replacement who shall assume the status of the former designer.

d. The designer and his consultants will make inspections of the project. He will inspect the progress, the quality and the quantity of the work.

e. The designer and the owner shall have access to the work whenever it is in preparation and progress during normal working hours. The contractor shall provide facilities for such access so the designer and owner may perform their functions under the contract documents.

f. Based on the designer's inspections and evaluations of the project, the designer shall issue interpretations, directives and decisions as may be necessary to administer the project. His decisions relating to artistic effect and technical matters shall be final, provided such decisions are within the limitations of the contract.

ARTICLE 19 - CHANGES IN THE WORK

a. The owner may have changes made in the work covered by the contract. These changes will not invalidate and will not relieve or release the contractor from any guarantee given by him pertinent to the contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the surety or sureties of said bond. All extra work shall be executed under conditions of the original contract.

b. Except in an emergency endangering life or property, no change shall be made by the contractor except upon receipt of approved change order or written field order from the designer, countersigned by the owner and the state construction office authorizing such change. No claim for adjustments of the contract price shall be valid unless this procedure is followed.

A field order, transmitted by fax, electronically, or hand delivered, may be used where the change involved impacts the critical path of the work. A formal change order shall be issued as expeditiously as possible.

In the event of emergency endangering life or property, the contractor may be directed to proceed on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the designer or owner, a correct account of costs together with all proper invoices, payrolls and supporting data. Upon completion of the work the change order will be prepared as outlined under either Method "c(1)" or Method "c(2)" or both.

c. In determining the values of changes, either additive or deductive, contractors are restricted to the use of the following methods:

1. Where the extra work involved is covered by unit prices quoted in the proposal, or subsequently agreed to by the Contractor, Designer, Owner and State Construction Office the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved, except is such cases where a quantity exceeds the estimated quantity allowance in the contract by one hundred percent (100%) or more. In such cases, either party may elect to proceed under subparagraph c2 herein. If neither party elects to proceed under c2, then unit prices shall apply.

2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the change order, and the change order shall stipulate the corresponding lump sum adjustment to the contract price.

d. Under Paragraph “b” and Methods "c(2)" above, the allowances for overhead and profit combined shall be as follows: all contractors (the single contracting entity (prime), his subcontractors(1st tier subs), or their sub-subcontractors (2nd tier subs, 3rd tier subs, etc)) shall be allowed a maximum of 10% on work they each self-perform; the prime contractor shall be allowed a maximum of 5% on contracted work of his 1st tier sub; 1st tier, 2nd tier, 3rd tier, etc contractors shall be allowed a maximum of 2.5% on the contracted workof their subs. ; Under Method "c(1)", no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under Method "c(2)" and Paragraph (b) above, the contractor shall include no less than five percent (5%***)*** profit, but no allowances for overhead.

e. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein shall be limited to the following:

1. The actual costs of materials and supplies incorporated or consumed as part of the work;

2. The actual costs of labor expended on the project site; labor expended in coordination, change order negotiation, record document maintenance, shop drawing revision or other tasks necessary to the administration of the project are considered overhead whether they take place in an office or on the project site.

3. The actual costs of labor burden, limited to the costs of social security (FICA) and Medicare/Medicaid taxes; unemployment insurance costs; health/dental/vision insurance premiums; paid employee leave for holidays, vacation, sick leave, and/or petty leave, not to exceed a total of 30 days per year; retirement contributions; worker’s compensation insurance premiums; and the costs of general liability insurance when premiums are computed based on payroll amounts; the total of which shall not exceed thirty percent (30%) of the actual costs of labor;

4. The actual costs of rental for tools, excluding hand tools; equipment; machinery; and temporary facilities required for the work;

5. The actual costs of premiums for bonds, insurance, permit fees, and sales or use taxes related to the work.

Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the owner.

f. Should concealed conditions be encountered in the performance of the work below grade, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the contract documents, the contract sum and time for completion may be equitably adjusted by change order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods. All change orders shall be supported by a unit cost breakdown showing method of arriving at net cost as defined above.

g. In all change orders, the procedure will be for the designer to request proposals for the change order work in writing. The contractor will provide such proposal and supporting data in suitable format. The designer shall verify correctness. Delay in the processing of the change order due to lack of proper submittal by the contractor of all required supporting data shall not constitute grounds for a time extension or basis of a claim. Within fourteen (14) days after receipt of the contractor’s accepted proposal including all supporting documentation required by the designer**,** the designer shall prepare the change order and forward to the contractor for his signature or otherwise respond, in writing, to

the contractor's proposal. Within seven (7) days after receipt of the change order executed by the contractor, the designer shall, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. The owner shall execute the change order and forward to the State Construction Office for final approval**,** within seven (7) days of receipt. The State Construction Office shall act on the change order within seven (7) days. In case of emergency or extenuating circumstances, approval of changes may be obtained verbally by telephone or field orders approved by all parties, then shall be substantiated in writing as outlined under normal procedure.

h. At the time of signing a change order, the contractor shall be required to certify as follows:

"I certify that my bonding company will be notified forthwith that my contract has been changed by the amount of this change order, and that a copy of the approved change order will be mailed upon receipt by me to my surety."

i. A change order, when issued, shall be full compensation, or credit, for the work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the project as a result of the change in the work.

j. If, during the progress of the work, the owner requests a change order and the contractor's terms are unacceptable, the owner**,** with the approval of the State Construction Office, may require the contractor to perform such work on a time and material basis whereupon the contractor shall proceed and keep accurately on such form as specified by the Designer or owner, a correct account of cost together with all proper invoices, payrolls and supporting data. Upon completion of the work a change order will be prepared with allowances for overhead and profit per paragraph d. above and "net cost" and "cost" per paragraph e. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or to have performed that portion of the work requested in the change order.

ARTICLE 20 - CLAIMS FOR EXTRA COST

a. Should the contractor consider that as a result of instructions given by the designer, he is entitled to extra cost above that stated in the contract, he shall give written notice thereof to the designer within seven (7) days without delay. The written notice shall clearly state that a claim for extra cost is being made and shall provide a detailed justification for the extra cost. The contractor shall not proceed with the work affected until further advised, except in emergency involving the safety of life or property, which condition is covered in Article 19(b) and Article 11(h). No claims for extra compensation shall be considered unless the claim is so made. The designer shall render a written decision within seven (7) days of receipt of claim.

b. The contractor shall not act on instructions received by him from persons other than the designer, and any claims for extra compensation or extension of time on account of such instruction will not be honored. The designer shall not be responsible for misunderstandings claimed by the contractor of verbal instructions which have not been confirmed in writing, and in no case shall instructions be interpreted as permitting a departure from the contract documents unless such instruction is confirmed in writing and supported by a properly authorized change order.

c. Should a claim for extra compensation that complies with the requirements of (a) above by the contractor and is denied by the designer or owner, and cannot be resolved by a

representative of the State Construction Office, the contractor may request a mediation in connection with GS 143-128(f1) in the dispute resolution rules adopted by the State Building Commission (1 N.C.A.C. 30H .0101 through .1001). If the contractor is unable to resolve its claim as a result of mediation, the contractor may pursue the claim in accordance with the provisions of G.S. 143-135.3, or G.S. 143-135.6 where Community Colleges are the owner,and the following:

1. A contractor who has not completed a contract with a board for construction or repair work and who has not received the amount he claims is due under the contract may submit a verified written claim to the director of the State Construction Office of the Department of Administration for the amount the contractor claims is due. The director may deny, allow or compromise the claim, in whole or in part. A claim under this subsection is not a contested case under Chapter 150B of the General Statutes.

2. (a) A contractor who has completed a contract with a board for construction or repair work and who has not received the amount he claims is due under the contract may submit a verified written claim to the director of the State Construction Office of the Department of Administration for the amount the contractor claims is due. The claim shall be submitted within sixty (60) days after the contractor receives a final statement of the board's disposition of his claim and shall state the factual basis for the claim.

   (b) The director shall investigate a submitted claim within ninety (90) days of receiving the claim, or within any longer time period upon which the director and the contractor agree. The contractor may appear before the director, either in person or through counsel, to present facts and arguments in support of his claim. The director may allow, deny or compromise the claim, in whole or in part. The director shall give the contractor a written statement of the director's decision on the contractor's claim.

   (c) A contractor who is dissatisfied with the director's decision on a claim submitted under this subsection may commence a contested case on the claim under Chapter 150B of the General Statutes. The contested case shall be commenced within sixty (60) days of receiving the director's written statement of the decision.

   (d) As to any portion of a claim that is denied by the director, the contractor may, in lieu of the procedures set forth in the preceding subsection of this section, within six (6) months of receipt of the director's final decision, institute a civil action for the sum he claims to be entitled to under the contract by filing a verified complaint and the issuance of a summons in the Superior Court of Wake County or in the superior court of any county where the work under the contract was performed. The procedure shall be the same as in all civil actions except that all issues shall be tried by the judge, without a jury.

ARTICLE 21 - MINOR CHANGES IN THE WORK

The designer will have the authority to order minor changes in the work not involving an adjustment in the contract sum or time for completion, and not inconsistent with the intent of the contract documents. Such changes shall be effected by written order, copied to the State Construction Office, and shall be binding on the owner and the contractor.

ARTICLE 22 - UNCORRECTED FAULTY WORK

Should the correction of faulty or damaged work be considered inadvisable or inexpedient by the owner and the designer, the owner shall be reimbursed by the contractor. A change order will be issued to reflect a reduction in the contract sum.

ARTICLE 23 - TIME OF COMPLETION, DELAYS, EXTENSION OF TIME

a. The time of completion is stated in the Supplementary General Conditions and in the Form of Construction Contract. The Project Expediter, upon notice of award of contract, shall prepare a construction schedule to complete the project within the time of completion as required by Article 14.

b. The contractors shall commence work to be performed under this agreement on a date to be specified in a written Notice to Proceed from the designer and shall fully complete all work hereunder within the time of completion stated. Time is of the essence and the contractor acknowledges the Owner will likely suffer financial damage for failure to complete the work within the time of completion. For each day in excess of the above number of days, the contractor(s) shall pay the owner the sum stated as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the owner by reason of failure of said contractor(s) to complete the work within the time specified, such time being in the essence of this contract and a material consideration thereof.

c. In the event of multiple prime contractors, the designer shall be the judge as to the division of responsibility between the contractor(s), based on the construction schedule, weekly reports and job records, and shall apportion the amount of liquidated damages to be paid by each of them, according to delay caused by any or all of them.

d. If the contractor is delayed at any time in the progress of his work solely by any act or negligence of the owner, the designer, or by any employee of either; by any separate contractor employed by the owner; by changes ordered in the work; by labor disputes at the project site; by abnormal weather conditions not reasonably anticipated for the locality where the work is performed; by unavoidable casualties; by any causes beyond the contractor's control; or by any other causes which the designer and owner determine may justify the delay, then the contract time may be extended by change order only for the time which the designer and owner may determine is reasonable.

   Time extensions will not be granted for rain, wind, snow or other natural phenomena of normal intensity for the locality where work is performed. For purpose of determining extent of delay attributable to unusual weather phenomena, a determination shall be made by comparing the weather for the contract period involved with the average of the preceding five (5) year climatic range during the same time interval based on the National Oceanic and Atmospheric Administration National Weather Service statistics for the locality where work is performed and on daily weather logs kept on the job site by the contractor reflecting the effect of the weather on progress of the work and initialed by the designer's representative. No weather delays shall be considered after the building is dried in unless work claimed to be delayed is on the critical path of the baseline schedule or approved updated schedule. Time extensions for weather delays, acts of God, labor disputes, fire, delays in transportation, unavoidable casualties or other delays which are beyond the control of the Owner do not entitle the Contractor to compensable damages for delays. Any contractor claim for compensable damages for delays is limited to delays caused solely by the owner or its agents. Contractor caused delays shall be accounted for before owner or designer caused delays in the case of concurrent delays.

e. Request for extension of time shall be made in writing to the designer, copies to the owner and SCO, within twenty (20) days following cause of delay. In case of continuing cause for delay, the Contractor shall notify the_Designer to the designer, copies to the owner and SCO, of the delay within 20 days of the beginning of the delay and only one claim is necessary.

f. The contractor shall notify his surety in writing of extension of time granted.

g. No claim for time extension shall be allowed on account of failure of the designer to furnish drawings or instructions until twenty (20) days after demand for such drawings and/or instructions. See Article 5c. Demand must be in written form clearly stating the potential for delay unless the drawings or instructions are provided. Any delay granted will begin after the twenty (20) day demand period is concluded.

ARTICLE 24 - PARTIAL UTILIZATION/BENEFICIAL OCCUPANCY

a. The owner may desire to occupy or utilize all or a portion of the project prior to the completion of the project.

b. Should the owner request a utilization of a building or portion thereof, the designer shall perform a designer final inspection of area after being notified by the contractor that the area is ready for such. After the contractor has completed designer final inspection punch list and the designer has verified, then the designer shall schedule a beneficial occupancy inspection at a time and date acceptable to the owner, contractor(s) and State Construction Office. If beneficial occupancy is granted by the State Construction Office, in such areas the following will be established:

1. The beginning of guarantees and warranties period for the equipment necessary to support. in the area.

2. The owner assumes all responsibiliites for utility costs for entire building.

2. Contractor will obtain consent of surety.

3. Contractor will obtain endorsement from insurance company permitting beneficial occupancy.

c. The owner shall have the right to exclude the contractor from any part of the project which the designer has so certified to be substantially complete, but the owner will allow the contractor reasonable access to complete or correct work to bring it into compliance with the contract.

d. Occupancy by the owner under this article will in no way relieve the contractor from his contractual requirement to complete the project within the specified time. The contractor will not be relieved of liquidated damages because of beneficial occupancy. The designer may prorate liquidated damages based on the percentage of project occupied.

ARTICLE 25 - FINAL INSPECTION, ACCEPTANCE, AND PROJECT CLOSEOUT

a. Upon notification from the contractor(s) that the project is complete and ready for inspection, the designer shall make a Designer final inspection to verify that the project is complete and ready for SCO final inspection. Prior to SCO final inspection, the contractor(s) shall complete all items requiring corrective measures noted at the Designer

final inspection**.** The designer shall schedule a SCO final inspection at a time and date acceptable to the owner, contractor(s) and State Construction Office.

b. At the SCO final inspection, the designer and his consultants shall, if job conditions warrant, record a list of items that are found to be incomplete or not in accordance with the contract documents. At the conclusion of the SCO final inspection, the designer and State Construction Office representative shall make one of the following determinations:

   1. That the project is completed and accepted.

   2. That the project will be accepted subject to the correction of the list of discrepancies (punch list). All punch list items must be completed within thirty (30) days of SCO final inspection or the owner may invoke Article 28, Owner's Right to Do Work.

   4. That the project is not complete and another date for a SCO final inspection will be established.

c. Within fourteen (14) days of final acceptance per Paragraph b1 or within fourteen (14) days after completion of punch list per Paragraph b2 above, the designer shall certify the work and issue applicable certificate(s) of compliance.

d. Any discrepancies listed or discovered after the date of SCO final inspection and acceptance under Paragraphs b1 or b2 above shall be handled in accordance with Article 42, Guarantee.

f. The final acceptance date will establish the following:

   1. The beginning of guarantees and warranties period.

   2. The date on which the contractor's insurance coverage for public liability, property damage and builder's risk may be terminated.

   3. That no liquidated damages (if applicable) shall be assessed after this date.

   4. The termination date of utility cost to the contractor.

g. Prior to issuance of final acceptance date, the contractor shall have his authorized representatives visit the project and give full instructions to the designated personnel regarding operating, maintenance, care, and adjustment of all equipment and special construction elements. In addition, the contractor shall provide to the owner a complete instructional video (media format acceptable to the owner) on the operation, maintenance, care and adjustment of all equipment and special construction elements.

ARTICLE 26 - CORRECTION OF WORK BEFORE FINAL PAYMENT

a. Any work, materials, fabricated items or other parts of the work which have been condemned or declared not in accordance with the contract by the designer shall be promptly removed from the work site by the contractor, and shall be immediately replaced by new work in accordance with the contract at no additional cost to the owner. Work or property of other contractors or the owner, damaged or destroyed by virtue of such faulty work, shall be made good at the expense of the contractor whose work is faulty.

b. Correction of condemned work described above shall commence within twenty-four (24) hours after receipt of notice from the designer, and shall make satisfactory progress, as determined by the designer, until completed.

c. Should the contractor fail to proceed with the required corrections, then the owner may complete the work in accordance with the provisions of Article 28.

ARTICLE 27 - CORRECTION OF WORK AFTER FINAL PAYMENT

See Article 35, Performance Bond and Payment Bond, and Article 42, Guarantee**.** Neither the final certificate, final payment, occupancy of the premises by the owner, nor any provision of the contract, nor any other act or instrument of the owner, nor the designer, shall relieve the contractor from responsibility for negligence, or faulty material or workmanship, or failure to comply with the drawings and specifications. Contractor shall correct or make good any defects due thereto and repair any damage resulting there from, which may appear during the guarantee period following final acceptance of the work except as stated otherwise under Article 42, Guarantee. The owner will report any defects as they may appear to the contractor and establish a time limit for completion of corrections by the contractor. The owner will be the judge as to the responsibility for correction of defects.

ARTICLE 28 - OWNER'S RIGHT TO DO WORK

If, during the progress of the work or during the period of guarantee, the contractor fails to prosecute the work properly or to perform any provision of the contract, the owner, after seven (7) days' written notice sent by certified mail, return receipt requested, to the contractor from the designer, may perform or have performed that portion of the work. The cost of the work may be deducted from any amounts due or to become due to the contractor, such action and cost of same having been first approved by the designer. Should the cost of such action of the owner exceed the amount due or to become due the contractor, then the contractor or his surety, or both, shall be liable for and shall pay to the owner the amount of said excess.

ARTICLE 29 - ANNULMENT OF CONTRACT

If the contractor fails to begin the work under the contract within the time specified, or the progress of the work is not maintained on schedule, or the work is not completed within the time above specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to ensure the prompt completion of said work, or shall perform the work unsuitably or shall discontinue the prosecution of the work, or if the contractor shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the work in an acceptable manner, the owner may give notice in writing, sent by certified mail, return receipt requested, to the contractor and his surety of such delay, neglect or default, specifying the same, and if the contractor within a period of seven (7) days after such notice shall not proceed in accordance therewith, then the owner shall, declare this contract in default, and, thereupon, the surety shall promptly take over the work and complete the performance of this contract in the manner and within the time frame specified. In the event the surety shall fail to take over the work to be done under this contract within seven (7) days after being so notified and notify the owner in writing, sent by certified mail, return receipt requested, that he is taking the same over and stating that he will diligently pursue and complete the same, the owner shall have full power and authority, without violating the contract, to take the prosecution of the work out of the hands of said contractor, to appropriate or use any or all contract materials and equipment on the grounds as may be suitable and acceptable and may enter into an agreement, either by public letting or negotiation, for the completion of said contract according to the terms and provisions thereof

or use such other methods as in his opinion shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the owner, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due said contractor and surety. In case the expense so incurred by the owner shall be less than the sum which would have been payable under the contract, if it had been completed by said contractor, then the said contractor and surety shall be entitled to receive the difference, but in case such expense shall exceed the sum which would have been payable under the contract, then the contractor and the surety shall be liable and shall pay to the owner the amount of said excess.

ARTICLE 30 - CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT

a. Should the work be stopped by order of a court having jurisdiction, or by order of any other public authority for a period of three months, due to cause beyond the fault or control of the contractor, or if the owner should fail or refuse to make payment on account of a certificate issued by the designer within forty-five (45) days after receipt of same, then the contractor, after fifteen (15) days' written notice sent by certified mail, return receipt requested, to the owner and the designer, may suspend operations on the work or terminate the contract.

b. The owner shall be liable to the contractor for the cost of all materials delivered and work performed on this contract plus 10 percent overhead and profit and shall make such payment. The designer shall be the judge as to the correctness of such payment.

ARTICLE 31 - REQUEST FOR PAYMENT

a. Not later than the fifth day of the month, the contractor shall submit to the designer a request for payment for work done during the previous month. The request shall be in the form agreed upon between the contractor and the designer, but shall show substantially the value of work done and materials delivered to the site during the period since the last payment, and shall sum up the financial status of the contract with the following information:

    1. Total of contract including change orders.

    2. Value of work completed to date.

    3. Less five percent (5%) retainage, provided however, that after fifty percent (50%) of the contractor’s work has been satisfactorily completed on schedule, with approval of the owner and the State Construction Office and written consent of the surety, further requirements for retainage will be waived only so long as work continues to be completed satisfactorily and on schedule.

    4. Less previous payments.

    5. Current amount due.

b. The contractor, upon request of the designer, shall substantiate the request with invoices of vouchers or payrolls or other evidence.

c. Prior to submitting the first request, the contractor shall prepare for the designer a schedule showing a breakdown of the contract price into values of the various parts of the work, so arranged as to facilitate payments to subcontractors in accordance with Article 17, Contractor and Subcontractor Relationships. The contractor(s) shall list the

value of each subcontractor and supplier, identifying each minority business subcontractor and supplier as listed in Affidavit C, if applicable.

d. When payment is made on account of stored materials and equipment, such materials must be stored on the owner's property, and the requests for payments shall be accompanied by invoices or bills of sale or other evidence to establish the owner's title to such materials and equipment. Such payments will be made only for materials that have been customized or fabricated specifically for this project. Raw materials or commodity products including but not limited to piping, conduit, CMU, metal studs and gypsum board may not be submitted. Responsibility for such stored materials and equipment shall remain with the contractor regardless of ownership title. Such stored materials and equipment shall not be removed from the owner's property. Should the space for storage on-site be limited, the contractor, at his option, shall be permitted to store such materials and/or equipment in a suitable space off-site. Should the contractor desire to include any such materials or equipment in his application for payment, they must be stored in the name of the owner in an independent, licensed, bonded warehouse approved by the designer, owner and the State Construction Office and located as close to the site as possible. The warehouse selected must be approved by the contractor's bonding and insurance companies; the material to be paid for shall be assigned to the owner and shall be inspected by the designer. Upon approval by the designer, owner and SCO of the storage facilities and materials and equipment, payment therefore will be certified. Responsibility for such stored materials and equipment shall remain with the contractor. Such stored materials and equipment shall not be moved except for transportation to the project site. Under certain conditions, the designer may approve storage of materials at the point of manufacture, which conditions shall be approved by the designer, the owner and the State Construction Office prior to approval for the storage and shall include an agreement by the storing party which unconditionally gives the State absolute right to possession of the materials at anytime. Bond, security and insurance protection shall continue to be the responsibility of the contractor(s).

e. In the event of beneficial occupancy, retainage of funds due the contractor(s) may be reduced with the approval of the State Construction Office to an equitable amount to cover the list of items to be completed or corrected. Retainage may not be reduced to less than two and one-half (2 1/2) times the estimated value of the work to be completed or corrected. Reduction of retainage must be with the consent and approval of the contractor's bonding company.

ARTICLE 32 - CERTIFICATES OF PAYMENT AND FINAL PAYMENT

a. Within five (5) days from receipt of request for payment from the contractor, the designer shall issue and forward to the owner a certificate for payment. This certificate shall indicate the amount requested or as approved by the designer. If the certificate is not approved by the designer, he shall state in writing to the contractor and the owner his reasons for withholding payment.

b. No certificate issued or payment made shall constitute an acceptance of the work or any part thereof. The making and acceptance of final payment shall constitute a waiver of all claims by the owner except:

   1. Claims arising from unsettled liens or claims against the contractor.

   2. Faulty work or materials appearing after final payment.

   3. Failure of the contractor to perform the work in accordance with drawings and specifications, such failure appearing after payment.

4. As conditioned in the performance bond and payment bond.

c. The making and acceptance of final payment shall constitute a waiver of all claims by the contractor except those claims previously made and remaining unsettled (Article 20(c)).

d. Prior to submitting request for final payment to the designer for approval, the contractor shall fully comply with all requirements specified in the" project closeout" section of the specifications. These requirements include but not limited to the following:

1. Submittal of Product and Operating Manuals, Warranties and Bonds, Guarantees, Maintenance Agreements, As-Built Drawings, Certificates of Inspection or Approval from agencies having jurisdiction. (The designer must approve the Manuals prior to delivery to the owner).

2. Transfer of Required attic stock material and all keys in an organized manner.

3. Record of Owner's training.

4. Resolution of any final inspection discrepancies.

5. Granting access to Contractor's records, if Owner's internal auditors have made a request for such access pursuant to Article 52.

e. The contractor shall forward to the designer, the final application for payment along with the following documents:

1. List of minority business subcontractors and material suppliers showing breakdown of contract amounts and total actual payments to subs and material suppliers.

2. Affidavit of Release of Liens.

3. Affidavit of contractors of payment to material suppliers and subcontractors. (See Article 36).

4. Consent of Surety to Final Payment**.**

5. Certificates of state agencies required by state law.

f. The designer will not authorize final payment until the work under contract has been certified by designer, certificates of compliance issued, and the contractor has complied with the closeout requirements. The designer shall forward the contractor's final application for payment to the owner along with respective certificate(s) of compliance required by law.

ARTICLE 33 - PAYMENTS WITHHELD

a. The designer with the approval of the State Construction Office may withhold payment for the following reasons:

1. Faulty work not corrected.

2. The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.

3. To provide for sufficient contract balance to cover liquidated damages that will be assessed.

b. The secretary of the Department of Administration may authorize the withholding of payment for the following reasons:

1. Claims filed against the contractor or evidence that a claim will be filed.

2. Evidence that subcontractors have not been paid.

c. The Owner may withhold all or a portion of Contractor's general conditions costs set forth in the approved schedule of values, if Contractor has failed to comply with: (1) a request to access its records by Owner's internal auditors pursuant to Article 52; (2) a request for a plan of action and/or recovery schedule under Article 14.j or provide The Owner; (3) a request to provide an electronic copies of Contractor's baseline schedule, updates with all logic used to create the schedules in the original format of the scheduling software; and (4) Contractor's failure to have its Superintendent on the Project full-time; (

d. When grounds for withholding payments have been removed, payment will be released. Delay of payment due the contractor without cause will make owner liable for payment of interest to the contractor in accordance with G.S. 143-134.1. As provided in G.S.143-134.1(e) the owner shall not be liable for interest on payments withheld by the owner for unsatisfactory job progess, defective construction not remedied, disputed work, or third-party claims filed against the owner or reasonable evidence that a third-party claim will be filed.

ARTICLE 34 - MINIMUM INSURANCE REQUIREMENTS

The work under this contract shall not commence until the contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the owner. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the owner of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. **Worker's Compensation and Employer's Liability**

The contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of $100,000.

b. **Public Liability and Property Damage**

The contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the contractor or by any subcontractor, or by

anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury:	$500,000 per occurrence
Property Damage:	$100,000 per occurrence / $300,000 aggregate

In lieu of limits listed above, a $500,000 combined single limit shall satisfy both conditions.

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the work performed under the contract.

c. **Property Insurance (Builder's Risk/Installation Floater)**

The contractor shall purchase and maintain property insurance until final acceptance, upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the owner, the contractor, the subcontractors and sub-subcontractors in the work and shall insure against the perils of fire, wind, rain, flood, extended coverage, and vandalism and malicious mischief. If the owner is damaged by failure of the contractor to purchase or maintain such insurance, then the contractor shall bear all reasonable costs properly attributable thereto; the contractor shall effect and maintain similar property insurance on portions of the work stored off the site when request for payment per articles so includes such portions.

d. **Deductible**

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the contractor.

e. **Other Insurance**

The contractor shall obtain such additional insurance as may be required by the owner or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

f. **Proof of Carriage**

The contractor shall furnish the owner with satisfactory proof of carriage of the insurance required before written approval is granted by the owner.

ARTICLE 35 - PERFORMANCE BOND AND PAYMENT BOND

a. Each contractor shall furnish a performance bond and payment bond executed by a surety company authorized to do business in North Carolina. The bonds shall be in the full contract amount. Bonds shall be executed in the form bound with these specifications.

b. All bonds shall be countersigned by an authorized agent of the bonding company who is licensed to do business in North Carolina.

ARTICLE 36 - CONTRACTOR'S AFFIDAVIT

The final payment of retained amount due the contractor on account of the contract shall not become due until the contractor has furnished to the owner through the designer an affidavit signed, sworn and notarized to the effect that all payments for materials, services or subcontracted work in connection with his contract have been satisfied, and that no claims or

liens exist against the contractor in connection with this contract. In the event that the contractor cannot obtain similar affidavits from subcontractors to protect the contractor and the owner from possible liens or claims against the subcontractor, the contractor shall state in his affidavit that no claims or liens exist against any subcontractor to the best of his (the contractor's) knowledge, and if any appear afterward, the contractor shall save the owner harmless.

ARTICLE 37 - ASSIGNMENTS

The contractor shall not assign any portion of this contract nor subcontract in its entirety. Except as may be required under terms of the performance bond or payment bond, no funds or sums of money due or become due the contractor under the contract may be assigned.

ARTICLE 38 - USE OF PREMISES

a. The contractor(s) shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the designer and owner and shall not exceed those established limits in his operations.

b. The contractor(s) shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

c. The contractor(s) shall enforce the designer's and owner’s instructions regarding signs, advertisements, fires and smoking.

d. No firearms, any type of alcoholic beverages, or drugs (other than those prescribed by a physician) will be permitted at the job site.

ARTICLE 39 - CUTTING, PATCHING AND DIGGING

a. The contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon or reasonably implied by the drawings and specifications for the completed structure, as the designer may direct.

b. Any cost brought about by defective or ill-timed work shall be borne by the party responsible therefor.

c. No contractor shall endanger any work of another contractor by cutting, digging or other means. No contractor shall cut or alter the work of any other contractor without the consent of the designer and the affected contractor(s).

ARTICLE 40 - UTILITIES, STRUCTURES, SIGNS

a. The contractor shall provide necessary and adequate facilities for water, electricity, gas, oil, sewer and other utility services which maybe necessary and required for completion of the project including all utilities required for testing, cleaning, balancing, and sterilization of designated plumbing, mechanical and electrical systems. Any permanent meters installed shall be listed in the contractor’s name until work has a final acceptance. The contractor will be solely responsible for all utility costs prior to final acceptance. Contractor shall contact all affected utility companies prior to bid to determine their requirements to provide temporary and permanent service and include all costs associated with providing those services in their bid. Coordination of the work of the utility companies during construction is the sole responsibility of the contractor.

b. Meters shall be relisted in the owner's name on the day following final acceptance of the Project Expediter's work, and the owner shall pay for services used after that date.

c. The owner shall be reimbursed for all metered utility charges after the meter is relisted in the owner's name and prior to completion and acceptance of the work of **all** contractors. Reimbursement shall be made by the contractor whose work has not been completed and accepted. If the work of two or more contractors has not been completed and accepted, reimbursement to the owner shall be paid by the contractors involved on the basis of assessments by the designer.

d Prior to the operation of permanent systems, the Project Expediter will provide temporary power, lighting, water, and heat to maintain space temperature above freezing, as required for construction operations.

e. All contractors shall have the permanent building systems in sufficient readiness for furnishing temporary climatic control at the time a building is enclosed and secured. The HVAC systems shall maintain climatic control throughout the enclosed portion of the building sufficient to allow completion of the interior finishes of the building. A building shall be considered enclosed and secured when windows**,** doorways (exterior, mechanical, and electrical equipment rooms), and hardware are installed**;** and other openings have protection which will provide reasonable climatic control. The appropriate time to start the mechanical systems and climatic condition shall be jointly determined by the contractor(s), the designer and owner. Use of the equipment in this manner shall be subject to the approval of the Designer and owner and shall in no way affect the warranty requirements of the contractor(s).

f. The electrical contractor shall have the building's permanent power wiring distribution system in sufficient readiness to provide power as required by the HVAC contractor for temporary climatic control.

g. The electrical contractor shall have the building's permanent lighting system ready at the time the general contractor begins interior painting and shall provide adequate lighting in those areas where interior painting and finishing is being performed.

h. Each prime contractor shall be responsible for his permanently fixed service facilities and systems in use during progress of the work. The following procedures shall be strictly adhered to:

1. Prior to final acceptance of work by the State Construction Office, each contractor shall remove and replace any parts of the permanent building systems damaged through use during construction.

2. Temporary filters as recommended by the equipment manufacturer in order to keep the equipment and ductwork clean and free of dust and debris shall be installed in each of the heating and air conditioning units and at each return grille during construction. New filters shall be installed in each unit prior to the owner's acceptance of the work.

3. Extra effort shall be maintained to keep the building and the site adjacent to the building clean and under no circumstances shall air systems be operated if finishing and site work operations are creating dust in excess of what would be considered normal if the building were occupied.

4. It shall be understood that any warranty on equipment presented to the owner shall extend from the day of final acceptance by the owner. The cost of warranting the

equipment during operation in the finishing stages of construction shall be borne by the contractor whose system is utilized.

5. The electrical contractor shall have all lamps in proper working condition at the time of final project acceptance.

i. The Project Expediter shall provide, if required and where directed, a shed for toilet facilities and shall furnish and install in this shed all water closets required for a complete and adequate sanitary arrangement. These facilities will be available to other contractors on the job and shall be kept in a neat and sanitary condition at all times. Chemical toilets are acceptable.

j. The Project Expediter shall, if required by the Supplementary General Conditions and where directed, erect a temporary field office, complete with lights, telephone, heat and air conditioning. A portion of this office shall be partitioned off, of sufficient size, for the use of a resident inspector, should the designer so direct.

k. On multi-story construction projects, the Project Expediter shall provide temporary elevators, lifts, or other special equipment for the general use of all contractors. The cost for such elevators, lifts or other special equipment and the operation thereof shall be included in the Project Expediter's bid.

l. The Project Expediter will erect one sign on the project if required. The sign shall be of sound construction, and shall be neatly lettered with black letters on white background. The sign shall bear the name of the project, and the names of prime contractors on the project, and the name of the designer and consultants. Directional signs may be erected on the owner's property subject to approval of the owner with respect to size, style and location of such directional signs. Such signs may bear the name of the contractor and a directional symbol. No other signs will be permitted except by permission of the owner.

ARTICLE 41 - CLEANING UP

a. The contractors shall keep the building and surrounding area reasonably free from rubbish at all times, and shall remove debris from the site on a timely basis or when directed to do so by the designer or Project Expediter. The Project Expediter shall provide an on site refuse container(s) for the use of all contractors. Each contractor shall remove their rubbish and debris from the building on a daily basis. The Project Expediter shall broom clean the building as required to minimize dust and dirt accumulation.

b. The Project Expediter shall provide and maintain suitable all-weather access to the building**.**

c. Before final inspection and acceptance of the building, each contractor shall clean his portion of the work, including glass, hardware, fixtures, masonry, tile and marble (using no acid), clean and wax all floors as specified, and completely prepare the building for use by the owner, with no cleaning required by the owner.

ARTICLE 42 - GUARANTEE

a. The contractor shall unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve (12) months following the date of final acceptance of the work or beneficial occupancy and shall replace such defective materials or workmanship without cost to the owner.

b. Where items of equipment or material carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material. The contractor shall replace such defective equipment or materials, without cost to the owner, within the manufacturer's warranty period.

c. Additionally, the owner may bring an action for latent defects caused by the negligence of the contractor which is hidden or not readily apparent to the owner at the time of beneficial occupancy or final acceptance, whichever occurred first, in accordance with applicable law.

d. Guarantees for roof, equipment, materials, and supplies shall be stipulated in the specifications sections governing such roof, equipment, materials, or supplies.

ARTICLE 43 - CODES AND STANDARDS

Wherever reference is given to codes, standard specifications or other data published by regulating agencies including, but not limited to, national electrical codes, North Carolina state building codes, federal specifications, ASTM specifications, various institute specifications, etc., it shall be understood that such reference is to the latest edition including addenda published prior to the date of the contract documents.

ARTICLE 44 - INDEMNIFICATION

To the fullest extent permitted by law, the contractor shall indemnify and hold harmless the owner, the designer and the agents, consultants and employees of the owner and designer, from and against all claims, damages, losses and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from the performance or failure of performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting there from, and (2) is caused in whole or in part by any negligent act or omission of the contractor, the contractor's subcontractor, or the agents of either the contractor or the contractor's subcontractor. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this article.

ARTICLE 45 - TAXES

a. Federal excise taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3442(3)).

b. Federal transportation taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3475(b) as amended).

c. North Carolina sales tax and use tax, as required by law, do apply to materials entering into state work and such costs shall be included in the bid proposal and contract sum.

d. Local option sales and use taxes, as required by law, do apply to materials entering into state work as applicable and such costs shall be included in the bid proposal and contract sum.

e. **Accounting Procedures for Refund of County Sales & Use Tax**

Amount of county sales and use tax paid per contractor's statements:

Contractors performing contracts for state agencies shall give the state agency for whose project the property was purchased a signed statement containing the information listed in G.S. 105-164.14(e).

The Department of Revenue has agreed that in lieu of obtaining copies of sales receipts from contractors, an agency may obtain a certified statement as of April 1, 1991 from the contractor setting forth the date, the type of property and the cost of the property purchased from each vendor, the county in which the vendor made the sale and the amount of local sales and use taxes paid thereon. If the property was purchased out-of-state, the county in which the property was delivered should be listed. The contractor should also be notified that the certified statement may be subject to audit.

In the event the contractors make several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, the counties, and the county sales and use taxes paid thereon.

Name of taxing county: The position of a sale is the retailer's place of business located within a taxing county where the vendor becomes contractually obligated to make the sale. Therefore, it is important that the county tax be reported for the county of sale rather than the county of use.

When property is purchased from out-of-state vendors and the county tax is charged, the county should be identified where delivery is made when reporting the county tax.

Such statement must also include the cost of any tangible personal property withdrawn from the contractor's warehouse stock and the amount of county sales or use tax paid thereon by the contractor.

Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant.
Contractors are not to include any tax paid on supplies, tools and equipment which they use to perform their contracts and should include only those building materials, supplies, fixtures and equipment which actually become a part of or annexed to the building or structure.

ARTICLE 46 - EQUAL OPPORTUNITY CLAUSE

The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations prescribed by the secretary of Labor, are incorporated herein.

ARTICLE 47 - EMPLOYMENT OF INDIVIDUALS WITH DISABILITIES

The contractor(s) agree not to discriminate against any employee or applicant for employment because of physical or mental disabilities in regard to any position for which the employee or applicant is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals with such disabilities without discrimination based upon their physical or mental disability in all employment practices.

ARTICLE 48 - ASBESTOS-CONTAINING MATERIALS (ACM)

The State of North Carolina has attempted to address all asbestos-containing materials that are to be disturbed in the project. However, there may be other asbestos-containing materials in the work areas that are not to be disturbed and do not create an exposure hazard.

Contractors are reminded of the requirements of instructions under Instructions to Bidders and General Conditions of the Contract, titled Examination of Conditions. Statute 130A, Article 19, amended August 3, 1989, established the Asbestos Hazard Management Program that controls asbestos abatement in North Carolina. The latest edition of *Guideline Criteria for Asbestos Abatement* from the State Construction Office is to be incorporated in all asbestos abatement projects for the Capital Improvement Program.

ARTICLE 49 - MINORITY BUSINESS PARTICIPATION

GS 143-128.2 establishes a ten percent (10%) goal for participation by minority businesses in total value of work for each State building project. The document, *Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts* including Affidavits and Appendix E are hereby incorporated into and made a part of this contract.

ARTICLE 50 – CONTRACTOR EVALUATION

The contractor's overall work performance on the project shall be fairly evaluated in accordance with the State Building Commission policy and procedures, for determining qualifications to bid on future State capital improvement projects. In addition to final evaluation, interim evaluation may be prepared during the progress of project. The document, Contractor Evaluation Procedures, is hereby incorporated and made a part of this contract. The owner may request the contractor's comments to evaluate the designer.

ARTICLE 51 – GIFTS

Pursuant to N.C. Gen. Stat. § 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, subcontractor, supplier, vendor, etc.), to make gifts or to give favors to any State employee. This prohibition covers those vendors and contractors who: (1) have a contract with a governmental agency; or (2) have performed under such a contract within the past year; or (3) anticipate bidding on such a contract in the future. For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review G.S. Sec. 133-32.

During the construction of the Project, the Contractor is prohibited from making gifts to any of the Owner's employees, Owner's project representatives (architect, engineers, construction manager and their employees), employees of the State Construction Office and/or any other State employee that may have any involvement, influence, responsibilities, oversight, management and/or duties that pertain to and/or relate to the contract administration, financial administration and/or disposition of claims arising from and/or relating to the Contract and/or Project.

ARTICLE 52 – AUDITING-ACCESS TO PERSONS AND RECORDS

In accordance with N.C. General Statute 147-64.7, the State Auditor shall have access to Contractor's officers, employees, agents and/or other persons in control of and/or responsible for the Contractor's records that relate to this Contracts for purposes of conducting audits under the referenced statute. The Owner's internal auditors shall also have the right to access and copy the Contractor's records relating to the Contract and Project during the term of the Contract and within two years following the completion of the Project/close-out of the Contract to verify accounts, accuracy, information, calculations and/or data affecting and/or

relating to Contractor's requests for payment, requests for change orders, change orders, claims for extra work, requests for time extensions and related claims for delay/extended general conditions costs, claims for lost productivity, claims for loss efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, and/or any other type of claim for payment or damages from Owner and/or its project representatives.

ARTICLE 53 – NORTH CAROLINA FALSE CLAIMS ACT

The North Carolina False Claims Act ("NCFCA"), N.C Gen. Stat. § 1-605 through 1-618, applies to this Contract. The Contractor should familiarize itself with the entire NCFCA and should seek the assistance of an attorney if it has any questions regarding the NCFCA and its applicability to any requests, demands and/or claims for payment its submits to the State through the contracting state agency, institution, university or community college.

The purpose of the NCFCA "is to deter persons from knowingly causing or assisting in causing the State to pay claims that are false or fraudulent and to provide remedies in the form of treble damages and civil penalties when money is obtained from the State by reason of a false or fraudulent claim." (Section 1-605(b).) A contractor's liability under the NCFCA may arise from, but is not limited to: requests for payment, invoices, billing, claims for extra work, requests for change orders, requests for time extensions, claims for delay damages/extended general conditions costs, claims for loss productivity, claims for loss efficiency, claims for idle equipment or labor, claims for price/cost escalation, pass-through claims of subcontractors and/or suppliers, documentation used to support any of the foregoing requests or claims, and/or any other request for payment from the State through the contracting state agency, institution, university or community college. The parts of the NCFCA that are most likely to be enforced with respect to this type of contract are as follows:

- A "claim" is "[a]ny request or demand, whether under a contract or otherwise, for money or property and whether or not the State has title to the money or property that (i) is presented to an officer, employee, or agent of the State or (ii) is made to a contractor … if the money or property is to be spent or used on the State's behalf or to advance a State program or interest and if the State government: (a) provides or has provided any portion of the money or property that is requested or demanded; or (b) will reimburse such contractor … for any portion of the money or property which is requested or demanded." (Section 1-606(2).)

- "Knowing" and "knowingly." – Whenever a person, with respect to information, does any of the following: (a) Has actual knowledge of the information; (b) Acts in deliberate ignorance of the truth or falsity of the information; and/or (c) Acts in reckless disregard of the truth or falsity of the information. (Section 1-606(4).) Proof of specific intent to defraud is not required. (Section 1-606(4).)

- "Material" means having a natural tendency to influence, or be capable of influencing, the payment or receipt of money or property. (Section 1-606(4).)

- Liability. – "Any person who commits any of the following acts shall be liable to the State for three times the amount of damages that the State sustains because of the act of that person[:] … (1) Knowingly presents or causes to be presented a false or fraudulent claim for payment or approval. (2) Knowingly makes, uses, or causes to be made or used, a false record or statement material to a false or fraudulent claim. (3) Conspires to commit a violation of subdivision (1), (2) …" (Section 1-607(a)(1), (2).)

- The NCFCA shall be interpreted and construed so as to be consistent with the federal False Claims Act, 31 U.S.C. § 3729, et seq., and any subsequent amendments to that act. (Section 1-616(c).)

Finally, the contracting state agency, institution, university or community college may refer any suspected violation of the NCFCA by the Contractor to the Attorney General's Office for investigation. Under Section 1-608(a), the Attorney General is responsible for investigating any violation of NCFCA, and may bring a civil action against the Contractor under the NCFCA. The Attorney General's investigation and any civil action relating thereto are independent and not subject to any dispute resolution provision set forth in this Contract. (See Section 1-608(a).)

ARTICLE 54 – TERMINATION FOR CONVENIENCE

Owner may at any time and for any reason terminate Contractor's services and work at Owner's convenience. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.

Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as are permitted by the prime contract and approved by Owner; (3) plus ten percent (10%) of the cost of the work referred to in subparagraph (1) above for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

SUPPLEMENTAL GENERAL CONDITIONS

ARTICLE 23 - TIME OF COMPLETION

The Contractor shall commence work to be performed under this Contract on a Notice to Proceed (NTP) date to be specified in written order from the Designer and Owner. The Notice to Proceed date will be determined following execution of the construction contracts. The Contractor shall fully complete all work hereunder within **120** consecutive calendar days (**180** if Bid Alternate 01 is accepted) from the Notice to Proceed for the contracted work. If the Contractor should fail to complete the Work within the time specified (including approved Change Orders) liquidated damages will be charged to cover the direct costs to NC Department of Health and Human Services and Caswell Developmental Center. Refer to the plans and specifications for additional information.

ARTICLE 34- MINIMUM INSURANCE REQUIREMENTS

Modify the first paragraph to read as follows:

"The work under this contract shall not commence until the contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the owner. These certificates and all endorsements shall contain a statement included in the block labeled "Description of Operation, Vehicles, Exclusions added by endorsements/Special Provisions" and reading as follows: "**Not withstanding the preprinted cancellation provisions of this form, coverages afforded under the policies will not be cancelled reduced in amount or coverages be eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and owner, of such alteration or cancellation." "**

Revise the second sentence of paragraph 'c' to read as follows: **"This insurance shall include the interests of the owner, the contractor, the subcontractors and subsubcontractors in the work and shall insure against risks of direct physical loss - (all perils)."**

Provide endorsements for each policy listed on the certificate of insurance. Endorsements must list the policy number shown on the certificate insurance. Any spaces on endorsements for signatures or countersignatures must be signed, whether or not such signatures are required by the insurance company. Endorsements must each include the required cancellation clause language.

ARTICLE 38- USE OF PREMISES

Add the following to paragraph 38d: "The Contractor shall provide a sign indicating that fire arms are prohibited on the construction site."

SUPPLEMENTAL GENERAL CONDITIONS (con't)

ARTICLE 40- UTILITIES, STRUCTURES, SIGNS

Temporary Water: Water for construction will be furnished and paid for by the Owner from the existing facilities only when readily available from exterior hose bibs. Required connections and extensions for temporary use shall be provided by the Contractor from a point designated by the Owner. Connection to existing water supply must be turned off and disconnected when not in use, or when the Contractor is not on site. If exterior water supply sources are not readily available, the Contractor shall be responsible for providing temporary water as required for construction at his expense. Abuse of temporary water privilege shall be grounds for cancellation of same by Owner.

Temporary Power: The Contractor shall provide and pay for temporary power for construction. Provision of limited temporary power from the existing facilities is only acceptable if agreed upon in advance with the Owner with required connections and extensions for any temporary power provided by the Contractor. If existing facility power is used, the Contractor is responsible for making connection from a point designated by the Owner. The Contractor shall provide required distribution boxes, grounding requirements and breaker protection. Abuse of temporary power privilege shall be grounds for cancellation of same by Owner.

Any other temporary facilities or utilities not specifically listed above, but required for the complete performance of the work shall be provided by and paid for by the Contractor.

ARTICLE 42 - GUARANTEE

The following paragraph is hereby added and shall become a part of the Guarantee of the General Conditions of the Contract;

"The Roofing Contractor shall warrant the materials and workmanship of the roofing system and other installed systems, components, and work scope against water entry and against defects due to faulty materials, workmanship and contract negligence for a period of **two (2) years** following final acceptance of the project by the Owner."

The Roofing System Manufacturers shall each inspect the installations of their systems and warrant the materials and workmanship of the systems manufactured by them against water entry due to faulty materials and workmanship for a minimum period of **twenty (20) years** following final acceptance of the project by the Owner.

Additional requirements for system manufacturer warranties shall be as specified in the specific sections for the work and the substitution of an equal or longer term manufacturer's warranty in lieu of the contractor's warranty requirement will not be accepted."

END OF SUPPLEMENTAL CONDITIONS

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of $300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
   a. Black, that is, a person having origins in any of the black racial groups in Africa;
   b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
   d. American Indian, that is, a person having origins in any of the original peoples of North America; or
   e. Female

2. Minority Business - means a business:
   a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
   b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".

4. Public Entity - means State and all public subdivisions and local governmental units.

5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.

6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.

7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.

9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.

10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

   The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:
   a. Identify those areas of work for which there are minority businesses, as requested.
   b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
   c. Assist in the determination of technical assistance needed by minority business contractors.

   In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:
   (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
   (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
   (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
   (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
   (5) The HUB Office also oversees the minority business program by:
      a. Monitoring compliance with the program requirements.
      b. Assisting in the implementation of training and technical assistance programs.
      c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
      d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. State Construction Office
   The State Construction Office will be responsible for the following:

   a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
      (1) Project description and location;
      (2) Locations where bidding documents may be reviewed;
      (3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
      (4) Date, time and location of the bid opening.
      (5) Date, time and location of prebid conference, if scheduled.

   b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.
d. Reviewing of minority business requirements at Preconstruction conference**.**
e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
f. Provide statistical data and required reports to the HUB Office.
g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

3. Owner
Before awarding a contract, owner shall do the following:

a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
b. Attend the scheduled prebid conference.
c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
    1. A description of the work for which the bid is being solicited.
    2. The date, time, and location where bids are to be submitted.
    3. The name of the individual within the owner's organization who will be available to answer questions about the project.
    4. Where bid documents may be reviewed.
    5. Any special requirements that may exist.
d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment**.**
i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

4. Designer
Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with

corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.

e. During construction phase of the project, review "MBE Documentation for Contract Payment" – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
f. Make documentation showing evidence of implementation of Designer's responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors
Under the single-prime bidding, the separate-prime biding, construction manager at risk and alternative contracting methods, contractor(s) will:

a. Attend the scheduled prebid conference.
b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
   (1) A description of the work for which the subbid is being solicited.
   (2) The date, time and location where subbids are to be submitted.
   (3) The name of the individual within the company who will be available to answer questions about the project.
   (4) Where bid documents may be reviewed.
   (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

   If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.
d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
e. Identify on the bid**,** the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" – (Appendix E), for designer's review.
j. During the construction of a project, at any time**,** if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing**,** of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities
While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION 4: DISPUTE PROCEDURES
It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

SECTION 5: These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: www.nc-sco.com

SECTION 6: In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: http://www.nc-sco.com

MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

OR

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

OR

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

MINIMUM COMPLIANCE REQUIREMENTS:

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

(1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.

(2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.

(3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.

(4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

(5) Attending any prebid meetings scheduled by the public owner.

(6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

(7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

(8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

(9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

(10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

Identification of HUB Certified/ Minority Business Participation

I,_____,
(Name of Bidder)
do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority Category	**HUB Certified (Y/N)

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

The total value of minority business contracting will be ($)_____.

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.
- ❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of_____, County of_____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20___

Notary Public _____

My commission expires _____

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.
This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

SEAL

Signature:_____

Title:_____

State of _____, County of _____
Subscribed and sworn to before me this _____day of _____20____
Notary Public_____
My commission expires_____

State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**** HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public_____

My commission expires _____

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: _____ Approved/Certified By: _____
Name

_____
Title

_____
Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

(Revised on 3/14/2003)

SECTION 010100

SUMMARY OF WORK

PART 1 GENERAL

1.01 GENERAL DESCRIPTION OF WORK INCLUDED

A. Furnish labor, equipment, materials, services and supervision necessary to complete the work outlined in these technical specifications and drawings for Roof Replacement at the Byrum Building at the Caswell Developmental Center in Kinston, North Carolina.

B. The following is a summary of work items included in the project. This summary is not intended to be an all-inclusive scope of work. Refer to individual specification sections and drawings for more specific project requirements.

C. Perform a Pre-Job Damage Survey prior to the start of work. Clean and test any downspouts that connect to underground storm drain leaders in conjunction with performance of a Pre-Job Damage Survey. Notify the Designer and Owner if water testing indicates suspected or confirmed clogged or damaged underground lines.

D. Purlin Bearing Extension (Base Bid/Bid Alternate – refer to drawings):
   1. Within the attic space, install extend the steel roof purlins to increase deck bearing length. This scope of work should be performed on purlins that support deck planks that have cut ends and bear also on valley beams/members. General locations are shown on the existing roof structural plan in the drawings and exact lengths of extension detail to be installed should be field verified.
   2. Install strapping at existing deck wind clips present along the purlin lengths where bearing will be extended as shown on the details.
   3. Purlin bearing extension detail must be completed at each area prior to the start of any associated demolition of the steep-sloped roof system above or installation of retrofit framing installation above.
   4. Work may be performed concurrent with preparation/protection of the attic space work areas.

E. Attic Space Protection, Ventilation, and Abatement/Monitoring (Base Bid/Bid Alternate – refer to drawings):
   1. The seam grout at the ridge/valley joints in the roof deck planks of the main steep-sloped roof area contain asbestos (2% chrysotile). Seam grout will not be removed as a part of the roof replacement project, but there is concern over potential disturbance of the material within the attic space during securement of base clips to existing steel members and other retrofit framing installation.
   2. Refer to the Work Preparation Plan in the drawings and Appendix A of these specifications for a specific summary of work including placement of protective plastic within the attic space, covering of louvers/isolation of work areas, provision of negative air pressure during work, coordination of inspections and air monitoring with the

Owner's asbestos consultant, and provision of cleaning/disposal of materials, as applicable.

F. Installation of the Standing Seam Metal Roof System (Base Bid/Bid Alternate – refer to drawings):

1. The existing steep-sloped roof at the Byrum Building (main building) consists of granular-surfaced three tab asphalt shingles over underlayment and a 2" thick nailable concrete tongue and groove plank deck supported by steel structure over a vented attic space. Minor differences in roof construction are present at the mechanical roof additions on the west ends of the main wings. The roof slope is 6:12 and is provided by the structure. Refer to Paragraph G for description of the existing systems on the Soiled Linen A-D roofs, front entrance roof, and Roofs A-E (connector canopy).

2. Seam grout located within the joints in the concrete plank deck (at ridge and valley joints) contains asbestos. Refer to the design drawings and Appendix A of these specifications for additional information regarding protection of the attic space and associated monitoring and work scope.

3. Existing structural member sizes and layout, roof layout, and constructions must be field verified by the contractor prior to provision of engineer-sealed retrofit standing seam metal roof shop drawings and ordering, fabricating, and installation of the new metal roof system.

4. Remove existing perimeter gutter, downspouts, rake flashings, and other isolated flashings as needed to allow for proper installation of the new retrofit metal framing and the standing seam metal roof system and legally dispose of off-site. Remove isolated components that will not remain a part of the new roof system (ex. Isolated copper louvered dormers, etc.) and legally dispose of off-site.

5. Remove metal downspout boots at all downspouts except those located on the north (main) elevation of the building or if a boot is connecting the downspout to an underground drainage line. The contractor is responsible for providing and installing all necessary temporary protection materials to maintain the building in a watertight condition through all stages of work.

6. Protect components that will remain for reuse, including, but not limited to, roof deck, shingles, underlayment, masonry walls, wood blocking noted to remain, pipe vents, penetrations, and underground drainage connections (where applicable).

7. Inspect wood blocking that will be reused as a part of the new roof system repair/replace damaged or deteriorated materials in accordance with applicable sections of these specifications. Install supplemental fasteners to ensure proper securement of the existing blocking to the structure.

8. Install new substructural retrofit framing secured to the existing steel framing to support the new standing seam metal roof system and flashings. Substructural framing will include base clips, purlins, posts, support angles, supplemental channels, cleats, plates,

strapping/bracing, and other associated bracing and framing components. Locate base clips to allow for securement into the existing structural framing and allow for proper support of the new main purlins. Set base clips in a full bed of sealant to maintain watertightness of the existing system. Size of clips shall allow purlins to be raised slightly off the roof surface to allow for temporary drainage. Locate purlins perpendicular to the slope, secured to base clips at spacings as required to support the new standing seam metal panels. Supplemental channels will be installed to support supplemental purlins where required to reduce roof panel clip spans at perimeter and corner zones. Engineer-sealed shop drawings and calculations for the retrofit framing and associated components must be provided to ensure the new system will adequately resist code-required dead, live, and wind loads without overloading the existing structure.

9. Install new standing seam metal roof panels, flashings, trim, closures, gutter, downspouts, straps, and other required components to allow for proper installation of the warranted roof system in accordance with the drawings and specifications. Shop drawings provided for the retrofit framing should include roof panel clip spacing. Metal roof systems shop drawings must also include all metal roof panel, flashing and trim details and be approved by the warranting manufacturer.

10. Install new vents and new louvered dormers with curb/skirts fabricated specifically for installation with a standing seam metal roof system. Dormers will require custom fabrication. Raise/extend existing pipe vents, mechanical and electrical connections, conduit, ductwork, flues, communication lines, etc. as needed to accommodate the new components installed and to maintain connections. Coordinate and perform any associated necessary temporary shutdown, disconnection, minor modification/extension, and reconnection/recharging as needed to accomplish the required installation.

11. Install a snow guard system assembly secured to the metal roof system with non-penetrating clamps along perimeter eaves where shown on the drawings and above round penetrations located more than 5’ below the ridge/hip line.

12. Clean and paint pipe vent extensions and existing metal downspout boots that will remain. Where an existing downspout boot is significantly deteriorated, remove and replace it with one of the other same size boots removed from another area of the building. Install backer rod and new sealant around three sides of the existing copper gable louver above the front entrance roof where marked on the drawings.

G. Installation of the Single-Ply Thermoplastic Membrane Roof System (Soiled Linen A-D, Front Entrance Roof, and Connector Corridor Roofs A-E) – Base Bid:
   1. The existing low-sloped roofs at the Byrum Building consist of:
      a. Soiled Linen A-D: Single-ply EPDM membrane over approx. ½”-1” thick insulation board on slope concrete deck.
      b. Front Entrance Roof and Roofs A, B, D, and E: Single-ply EPDM membrane over approx. 1” – 3” tapered polyisocyanurate insulation, bituminous vapor barrier, and concrete deck (2” plank deck at Roofs A, B, D, and E).

c. Roof C: Single-ply EPDM membrane over approx. 1" – 3" tapered polyisocyanurate insulation, 3.5" foam glass insulation, bituminous vapor barrier, and pre-cast hollow core concrete deck.
d. Existing roof construction should be field verified by the Contractor for the purpose of bidding and construction.

2. Remove existing membrane, insulation, membrane and sheetmetal flashings, perimeter gutter and downspouts and other existing roof components as needed to allow for proper installation of the low-sloped membrane roof system and legally dispose of off-site. . Do not remove more of the existing roof system than can be returned to a watertight condition prior to the end of the workday. Remove loose vapor barrier material. Vapor barrier that is in good condition and that remains adhered to the deck surface may remain in place.

3. Protect components that will remain for reuse, including, but not limited to, roof deck, masonry walls, wood blocking noted to remain, and existing reglet-mounted counterflashing, underground drainage connections.

4. Clean and inspect the existing exposed concrete deck for areas of damage that would affect installation of the new roof system. Make repairs to the deck as required in accordance with estimated quantities of work and applicable specification sections.

5. Inspect wood blocking that will be reused as a part of the new roof system repair/replace damaged or deteriorated materials in accordance with applicable sections of these specifications. Install supplemental fasteners to ensure proper securement of the existing blocking to the structure. Reuse existing wood blocking only if noted as existing on the design details, otherwise install new.

6. *Soiled Linen A-D:* Install a ½" thick overlayment adhered in low-rise foam adhesive to the deck. *Front Entrance Roof and Roofs A-E:* Install tapered polyisocyanurate insulation, 1/8" per foot slope with a minimum 1.5" thickness adhered in low-rise foam adhesive to the deck. Adhere a ½" coverboard over the insulation with low-rise polyurethane foam adhesive. At Roof C only install a base layer of 1.5" thick adhered polyisocyanurate insulation beneath the tapered layer (total of 3" at the eave). Install new perimeter blocking to match the height of the new insulation installed. Insulation adhesive patterns must provide wind uplift resistance in accordance with these specifications, the North Carolina State Building Code and ASCE-7, latest edition.

7. Install a fully-adhered thermoplastic roof membrane and adhered membrane flashings, and clad-metal components with heat-welded seams. Provide and install other required components to allow for proper installation of the warranted roof system in accordance with the drawings and specifications. New roof system must meet the requirements for UL Class A fire classifications and wind uplift resistance in accordance with these specifications, the North Carolina State Building Code and ASCE-7, latest edition.

8. Provide and install termination bar, counterflashings, sheet metal flashings, gutters, downspouts, and other sheet metal trim and associated sealants as shown on the drawings

for proper installation of the design details. Trim existing reglet-mounted counterflashing to form a receiver for securement of new counterflashing. Replace sealant along the top edge of the existing reglet-mounted counterflashing. Coordinate the work sequence to properly install components to allow for flashing with the membrane and flashings as shown.

9. Provide and install walk tread beneath downspouts where they discharge from adjacent upper roofs onto the single-ply membrane. Where existing downspouts connected to underground drainage lines, connect new downspouts to existing downspouts boots.

10. Clean and paint existing downspout boots. Where downspouts discharge at grade onto grass/dirt areas, ensure that soil grade slopes away from the building and place a min. 4'x2' area of grid-style concrete pavers beneath the downspouts (tops of pavers set level with or ½" above grade).

H. Provide and install other accessory or incidental components, or modify other roof features/items, not specifically listed or shown on drawings, but required for the complete and proper installation of the new roof systems.

I. Roof systems including metal roof system, single-ply membrane system, flashings, and accessory components shall be installed in a watertight condition and with an overall quality of system installation that will allow the membrane and flashings to continue to perform in a watertight condition, with reasonable maintenance, over its manufacturer warranty period.

J. The technical specifications and drawings provided are for communicating design intent. It is the responsibility of the Contractor to examine the technical specifications and drawings, and the site, and become familiar with and verify the existing conditions, specified design intent, and other conditions necessary for an accurate proposal and execution of the work. Any discrepancies discovered should be brought to the attention of the Designer for clarification or correction.

1.02 COORDINATION AND CONTRACTOR USE OF PREMISES

A. The Owner will occupy the premises during the period of construction for the conduct of their normal operations. The building is occupied full-time by patients and staff and is visited by the public. Limit the use of the premises for construction operations, to allow for Owner occupancy to the building and adjacent buildings through the duration of the project. Contractor shall schedule and coordinate work with the designated point of contacts at NC DHHS and Caswell Developmental Center and within the building itself.

B. Building operations may have limits on the hours during which construction noise may occur. To minimize disruption to the operation of the facility and to provide safe conditions for building occupants, the Contractor will be required to coordinate with the Owner's designated Caswell Developmental Center Project Manager and the Building Contact to communicate planned work schedule, roof access, and staging and storage. Some work events such as loading of materials onto the roof, attic work, etc. may be required to be performed during specific windows of time. Standard work hours shall be from 7:00 a.m. to 7:00 p.m.

1. The anticipated work hours are provided for general planning/bidding purposes and do not eliminate the requirement for the Contractor to coordinate with the Owner to avoid special events at the building. There may be events at the building or center during which the contractor is asked not to perform work. The Owner will coordinate building events with the Contractor in advance. Lost time would be added to the overall contract duration, however, additional cost would not be entertained.

2. Due to the anticipated season for construction activities, the definition of inclement weather for this project will be expanded to include loss of time due to extreme temperature (high or low) or humidity/dew point ranges outside of the manufacturer's recommended installation ranges for adhesives, sealants, etc. and high winds, that may prevent safe work.

C. The Contractor must follow all requirements of the NC DHHS and the Caswell Developmental Center including, but not limited to, entrance to the site and building by workers and delivery vehicles, coordination with interior occupants for purpose of safety, storage and protection of equipment and vehicles, and coordination of construction scheduling around the events of the building as applicable.

D. Do not permanently block ingress and egress from the building. Maintain access that does not interfere with the Owner's vehicular or pedestrian traffic, unless indicated on the drawings (such as an approved staging and storage area) or if coordinated with the Owner. Where vehicular or pedestrian traffic will be rerouted or temporarily blocked, provide protective fencing and signage to safely redirect traffic as needed. Provide covered walkways to maintain safe access for pedestrians at sidewalks and at entrance/exits from the building that are adjacent to or below work areas, or at any other locations requested by the Owner for safety of the building occupants.

E. Utilities are to remain undisturbed and in continuous operation, or provide alternate or temporary services acceptable to the Owner. Terminate no utility even for a short period without the prior approval from the Owner. The Contractor is responsible for the location and protection of existing utilities from damage due to construction. Repairs required due to damages to or outage of existing utilities must be immediately coordinated and paid for by the contractor.

F. Parking and access to the site must be coordinated with the Owner's representative. Designated limits for delivery trucks, worker access, staging and storage, and other parking associated with the project will be defined at the pre-construction conference.

G. Contractor shall provide a full time project superintendent. If the work will be installed by a work crew that is not in direct employ of the Prime Contractor (subcontracted crew), a supervisory representative of the Prime Contractor must be on-site during the work. Provide a foreman, or other representative from the Contractor that is in a supervisory position and fluent in English, who will be on the site anytime that work is in progress.

1.03 PERMITS

A. The Contractor shall apply for, secure and pay for all permits, governmental fees, inspections and licenses necessary for the proper execution and completion of the Work, which are applicable at the time that Bids are received. Contractor shall provide evidence of acceptance of work by submitting inspection forms from appropriate agencies indicating acceptance of work. Any

electrical work that may become necessary would require inspection by a SCO electrical inspector coordinated by the contractor's licensed electrician.

B. The Contractor may be required to fill out Hot Work Permits and to follow any requirements of the permit on days when work performed involves heat welding, torching, grinding or cutting of metal, or use of equipment that creates sparks. Permits must be completed daily unless otherwise agreed upon with the Owner.

1.04 CONTRACT TIME AND SCHEDULING

A. The contract time from the Notice to Proceed to Final Completion for Base Bid work is 120 days. The Notice to Proceed date will be scheduled to indicate the start of on-site work with the understanding that the contractor will require some upfront time for submittals and metal shop drawing process. An additional 60 days will be provided if Bid Alternate work is accepted.

B. It is preferred that no more than one half of the steep-sloped roof area under contract have retrofit framing installed prior to the start of metal roof panel installation to reduce the risk of water entry into the building due to excess of "temporary dry-in" conditions.

C. Work that more directly effects interior/below deck spaces (e.g. loading/unloading of material by crane, installation of access/safety for purlin bearing extension and attic protection materials, etc.) must be performed when the specific areas directly beneath are unoccupied by building occupants, unless otherwise coordinated with/approved by the Owner.

1.05 BASE BID

A. The Base Bid includes the scope of work shown on the drawings and specified in the Project Manual for installation of a new retrofit standing seam metal roof system over the ***northern half of the*** main roof of the Byrum Building and the replacement of the existing low-sloped roofs including Soiled Linen (A-D), Front Entrance, and Connector Corridor (Areas A-E) with new roof systems as designated on the Project Drawings. Base Bid scope also includes modification to isolated areas of purlins to extend their bearing surface and protection/ventilation/monitoring/and cleaning of the attic space associated to ACM in the existing roof deck seam grout below the work areas (northern half of the main roof).

B. Estimated quantities are provided for replacement of materials discovered to be deteriorated or damaged, and/or installation of additional work that is not specifically designated in the specifications or drawings, but may become necessary. Unit prices for these work items will be requested on the Project Bid and Contract Form and will be used for the purpose of adding or deducting from the Contract Sum by Change Order in the event that the actual performed amounts of each work item below are more than, or less than, the estimated quantity. Refer to Section 012100 for Base Bid Allowances.

1.06 BID ALTERNATES

A. Bid Alternate 01 includes the scope of work shown on the drawings and specified in the Project Manual for installation of a new retrofit standing seam metal roof system over the ***southern half***

of the main roof of the Byrum Building as designated on the Project Drawings. Bid Alternate 01 work scope also includes modification to isolated areas of purlins to extend their bearing surface and protection/ventilation/monitoring/and cleaning of the attic space associated to ACM in the existing roof deck seam grout below the work areas (southern half of the main roof). Refer to Section 012300 of the Project Manual.

1.07 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with the requirements of the latest standard, except when more rigid requirements are specified or required by applicable codes.

B. Install items necessary to ensure compliance with the most recent adopted edition of the North Carolina Building Code whether or not shown on project drawings or specifically indicated in the technical specifications.

1.08 DESIGNER'S SITE VISITS

A. Designer or site representative will perform periodic visits to the site to observe Contractor activities and note non-conformance with the specifications to the Owner and Contractor. Non-conformance items must be corrected by the Contractor prior to approval of payment unless otherwise agreed upon.

B. Contractor shall cooperate with the representatives and personnel of the Designer to provide safe means and facilities for the Designer to observe all parts of the work for the purpose of determining conformance/non-conformance with the specifications.

C. Contractor must notify the Designer a minimum of 48 hours prior to specific activities for which the Designer wishes to be present. The applicable activities will be defined by the Designer during the Pre-Construction Meeting, but may include first day of removal and replacement on specific roof areas or installation of specific details. If Contractor fails to notify the Designer to allow for observation, Designer may request to observe work, including covered work, to confirm conformance with the contract documents at no additional cost to the Owner.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION 010100

SECTION 012100

BASE BID ALLOWANCES (ESTIMATED QUANTITIES)

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes requirements governing estimated quantities of work to be included within the Base Bid cost and the associated unit prices requested to aid in reconciliation between quantities estimated and actual work performed. Refer to Section 010100 for additional information regarding Base Bid scope of work.

B. Refer to specification sections 024110, 061140, and 075400 for technical requirements regarding base bid allowance (estimated quantity) work.

1.02 SUBMITTALS

A. Provide submittals for products to be repaired, removed, and or installed as a part of the work in accordance with Section 013300 and the technical specification sections in which they are specified.

1.03 ESTIMATED QUANTITY WORK

A. Estimated quantities are provided below for replacement of materials discovered to be deteriorated, damaged, missing, and/or installation of additional work that is not specifically designated in the specifications, but may become necessary. The cost to perform the estimated quantity of each work item listed below shall be included within the Base Bid.

Work Item		*Estimated Quantity*
1.	Wood Blocking Replacement per Section 061140	1000 BD FT
2.	Concrete Deck Repair per Section 024110	100 SQ FT
3.	Additional Tapered Insulation per Section 075400	200 BD FT

1.04 UNIT PRICES FOR ESTIMATED QUANTITY WORK ITEMS

A. A unit price for each of the estimated quantity work items listed above is requested on the Form of Proposal. Unit prices provided by the Contractor will be used for the purpose of adding or deducting from the Contract Sum by Change Order in the event that the actual performed amounts of each estimated quantity work item listed in Paragraph 1.03 are more than, or less than, the estimated quantity included in the Base Bid.

B. The unit prices provided on the Form of Proposal shall include all costs associated with the work including, but not limited to, removal of materials to be replaced, preparation of substrates and adjacent surfaces for associated installation, and material, labor, overhead and profit, insurance, taxes, shipping costs, accessory items/equipment/tools.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

3.01 PREPARATION AND INSTALLATION

A. Prepare, supply, and install products associated with estimated quantity work in accordance with the technical specification sections in which they are specified.

3.02 DOCUMENTATION OF ESTIMATED QUANTITY WORK

A. A representative of the Owner and/or Designer should be made aware when work items performed as a part of the estimated quantity work are anticipated, unless otherwise agreed upon during the pre-construction meeting.

B. Documenting and tracking of actual estimated quantity work performed is the responsibility of the Contractor is important to allow for comparison with estimated quantities during work progress and a proper reconciliation of contract work at project completion. The Designer/Owner may deny payment for work performed by the Contractor if adequate documentation of work performed cannot be provided. At minimum, photographic documentation of the existing condition requiring estimated quantity work, removal of existing materials, and installation of replacement materials will be required if direct observation by the Designer or Owner is not possible.

END OF SECTION 012100

SECTION 012300

BID ALTERNATES

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes requirements governing Bid Alternates for the project. Section 010100 includes a summary of work items for Base Bid scope of work.

B. Refer associated technical specification sections for technical requirements regarding bid alternate work.

1.02 BID ALTERNATES

A. The Contractor shall propose an amount stated on the Form of Proposal for certain work defined in the technical specifications that may be added to or deducted from the Base Bid amount if the Owner decides to accept the corresponding change to the scope of work.

B. The cost or credit for each bid alternate is the net addition or deduction from the Contract Sum of the amount listed on the Form of Proposal. No other adjustments are made to the Contract Sum.

C. Refer to the Special Conditions of the Formal Contract (Supplementary General Conditions) to determine whether the Contract time for the project will be increased, decreased, or will remain the same based on acceptance of Bid Alternates by the Owner.

D. The Owner will notify the Contractor of acceptance, rejection, or deference of each Bid Alternate upon award of the Contract.

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

F. Bid Alternate No. 01: The scope of work for Bid Alternate No. 01 includes the scope of work shown on the drawings and specified in the Project Manual for installation of a new retrofit standing seam metal roof system over the ***southern half of the*** main roof of the Byrum Building as designated on the Project Drawings. Work scope also includes modification to isolated areas of purlins to extend their bearing surface and protection/ventilation/monitoring/and cleaning of the attic space associated to ACM in the existing roof deck seam grout below the work areas (southern half of the main roof).

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 012300

SECTION 012500

PROJECT MEETINGS

PART 1 GENERAL

1.01 PRE-CONSTRUCTION CONFERENCE

A. The Engineer will schedule and administer a Pre-Construction Conference upon award and execution of the contract. Representatives of the Owner, Engineer, Contractor, and representatives of other Governmental or regulatory agencies, as needed shall be in attendance. The Contractor's Project Manager, anticipated Site Superintendent/Foreman, a representative of the roof system manufacturer, and applicable subcontractors shall be present at the Pre-Construction Conference unless otherwise discussed and agreed upon. Engineer shall distribute meeting minutes to all attendees.

B. Suggested Agenda: Confirmation of the execution of Owner-Contractor Agreement, exchange and discussion of preliminary submittals and procedures, designation of key representatives and personnel, discussion of construction schedule and work sequencing, designated storage and parking areas, security and housekeeping procedures, maintenance of record documents, and technical material and installation information.

C. The Pre-Construction Conference will focus on general system requirements and submittals. A separate meeting can be held to more closely discuss technical aspects of the work and review details as needed.

1.02 PROGRESS MEETINGS

A. Engineer will schedule and administer progress meetings throughout progress of the Work at regular and appropriate intervals (typically every other week, more if the project requires).

B. Engineer will make physical arrangements for meetings, preside at meetings, record minutes, and distribute copies of the minutes to the Owner, Contractor, other meeting participants, and those affected by decisions made at meetings.

C. Attendance: Contractor's project manager, Contractor's superintendent and foreman, major subcontractors and suppliers (as applicable), Owner's representative, and Engineer. Additional attendees may be requested as appropriate to agenda topics for each meeting.

D. Suggested Agenda: Review of work progress, status of progress schedule and contract sum and adjustments thereto, delivery schedules, submittals, maintenance of quality standards, pending changes and substitutions, and other items affecting progress of Work.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 012500

SECTION 013300

SUBMITTALS

PART 1 GENERAL

1.01 PROCEDURES

A. Make submittals required by the Contract Documents in a timely manner to allow for sufficient review and approval by the Engineer. Revise and resubmit as necessary to establish compliance with the specified requirements. Submit documents to Engineer with Submittal Form SF-1 attached to document and consecutively numbered. An electronic version of SF-1 will be made available upon request.

1.02 WORK INCLUDED

A. Electronic copies of submittals are requested in lieu of hardcopies for submittals that do not include material samples, color charts/chips, sheets larger than 11”x17”, or documents with original signatures or seals. If hardcopies of submittals are provided, submit a minimum of four copies including shop drawings (as necessary), to the Engineer for review.

B. The Work may not proceed until the complete pre-job submittal package, including shop drawings, has been reviewed and approved by the Engineer. Update submittals to the Engineer during construction to account for new equipment, products, etc. used on the project. Engineer may elect to allow phased submittals to meet work schedule if agreed upon by the Owner.

C. Submit a minimum of four complete sets of "Post-Job Submittals" to the Engineer for review, following the final completion of the Work. These submittals must be provided as hardcopies due to the types of documents involved. Requests for final payment will not be approved until the Post-Job Submittal package has been accepted by the Designer. Organize post-job submittals keyed to a list of items required under Article 1.04 of this Section.

D. Identify individual submittals by product type or name on the submittal form and include a table of contents in each submittal package or transmittal email listing items included.

E. Submittals listed in this Section and required by other Sections to be submitted in accordance with this Section are applicable. If in the opinion of the Contractor, an item listed is not applicable, the Contractor must submit documentation substantiating his position. Likewise, if a submittal is unavailable, the Contractor must submit documentation reconstructing the missing information as best as can be accomplished.

1.03 CONTRACTOR'S PRE-JOB SUBMITTALS

A. The following material and product submittals shall be provided:
   1. Product data for each material and product to be installed to confirm conformance with specified requirements or to provide information on additional products required for

installation. Where multiple products or thicknesses, etc. are shown, identify specific components intended for use. For fasteners, identify the exact fastener type and location(s) intended for use.

2. Product manufacturers' installation instructions for each material and product to be installed.
3. Product SDS for each material to be installed and associated equipment/products to be used during installation.
4. Material samples of roof panels, wall panels, membrane, insulation materials, etc. to be used (only if requested by the Engineer or Owner). Material samples must have manufacturer's product identification on the sample.
5. Color selection materials for pre-finished metal, sealants, or other products as noted in the applicable specification sections. Metal chip samples in addition to a color chart may be requested for pre-finished metal color selections.

B. The following technical submittals shall be provided:

1. Detailed outline of the methods and means to be followed during the installation of the roof system to confirm work sequence. Once accepted, this outline may only be changed with written approval. Include procedures to keep interior areas beneath dry through each stage of the construction process. Emergency contact numbers will be provided with plans for checking the building interior during rain events and maximum response times listed.
2. Shop drawings for details or constructions for the purpose of providing additional information, such as panel securement to the existing building, panel and detail configurations, metal fabrication shapes and sizes, insulation layout and securement, membrane details, etc. Show fastening to meet code-required and specified wind uplift loads. If any details provided on the shop drawings vary from those shown on the project documents, the Contractor must note such variance on the submittal to indicate that a change is requested. The Engineer will review such requested revisions and will approve or reject at their sole discretion. The shop drawings and calculations for the metal roof system must be sealed by a professional engineer registered in the State of North Carolina. If shop drawings are not provided by the metal roof system manufacturer, the Contractor must also gain their written approval of the shop drawings prior to submittal.
3. Certifications that materials to be installed are asbestos-free and are compatible with the substrates to which they will be applied.
4. Letters from the roofing system manufacturer(s) stating that the Contractor (or subcontractor when applicable) is an approved applicator of its system as specified.
5. Letters from the system manufacturer(s) indicating review of the project documents, acceptance of design intent and details as shown, and intent to issue the specified warranty, or noting modifications required to obtain specified warranty. Refer to Section 014000 for additional information. Letter must be project specific and shall include the type and duration of warranty, riders, any manufacturer's additional requirements, and a sample copy of actual 20-year warranty; including materials and weathertightness as applicable. Roofing Manufacturer Acknowledgement Form turned in with the bid can be used as a portion of this submittal.
6. A sample copy of the Contractor's Two-Year Warranty.
7. Pre-Job Damage Survey in accordance with Section 024110 of this Project Manual.
8. Additional submittals as requested in each section.

C. The following administrative submittals shall be provided:

1. Building permits as required by the federal, state or any local entity for the construction or demolition work required during the progress of the Work. If no permits are required, so state.
2. Proposed preliminary progress schedule for the Work. Revise and submit progress schedule as necessary. Review Owner requirements for progress schedules. Progress schedules should include line items for specific work activities at each roof area or group of areas with both schedule dates for the line item and a graphical representation of those dates along with a line to compare actual schedule progress.
3. Schedule of Values for the project. Work Items shall be generally divided by Project Manual Section and into materials and labor cost. Copies of invoices/quotes from supplier for materials may be requested to ensure that material costs listed are not significantly increased.
4. Insurance certificate issued to Owner by Contractor's insurance carrier listing required coverage to meet requirements of the Owner. The Owner shall be listed as "Additional Insured."
5. Written security plan, if required by the Owner.
6. Contractor Safety Program, specifically designed for this project that recognizes and mitigates the specific hazards present in performing the Work.
7. Provide a list of any subcontractors to be utilized in performance of the work. Submit information regarding the subcontractors including contact information, copies of licenses/certifications, and references (if requested).

1.04 CONTRACTOR'S POST-JOB SUBMITTALS

A. Provide all original copies, unless otherwise noted, of each of the following post-job submittals:
   1. Consent of Surety to Final Payment
   2. Contractor's Affidavit of Release of Liens (properly signed, notarized, etc.)
   3. Final Application for Payment
   4. Properly executed release of liens by subcontractors and/or vendors
   5. Certification letter that no asbestos containing materials were used.
   6. Final list of all subcontractors and suppliers with names, addresses, and phone numbers
   7. Specific operating and maintenance manual for the new roof system and components.
   8. Duplicate, notarized copies of the Contractor's 2-year and the Manufacturer's 20-Year warranties.
   9. Two complete sets of as-built drawings- including a copy of both design and shop drawings with changes clearly marked in red. (Red-Lined Drawings)
   10. Any other closeout documents required by the Owner for Project Completion.

PART 2 – PRODUCTS – Not Used

PART 3 - EXECUTION

3.01 IDENTIFICATION OF SUBMITTALS

A. Number consecutively and clearly identify submittals. Submittal Form (SF-1) must accompany each submittal package provided. This form will be provided electronically if requested. Show identification on at least the first page of each submittal, and elsewhere as necessary for positive identification of the submittal.

1. When material is resubmitted, cite the original submittal number for reference or add a suffix such as "-A, -B" (2-A, 2-B, etc.).

B. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals. Make the submittal log available upon request.

C. Keep one approved set of design and shop drawings, specifications, and submittals (including data sheets, instruction sheets, etc.) at the job site.

3.02 TIMING OF SUBMITTALS

A. Make submittals far enough in advance of scheduled dates of Notice to Proceed, and the start of work or installation of specific products to provide time required for review by the Engineer, for securing necessary approvals, for possible revisions and resubmittals, and for placing order and securing delivery of materials.

B. In scheduling, allow a minimum of ten (10) working days from date of Engineer’s receipt of the submittal for his review.

C. Contractor accepts responsibility for delays resulting from incomplete or late submittal packages.

D. Work completed without approved submittals may be subject to rejection.

3.03 DESIGNER'S REVIEW

A. Partial submittals may be rejected for non-compliance with the Contract Documents.

B. Review by Designer does not relieve Contractor from responsibility of conforming to the technical specifications and drawings or for errors which may exist in the submitted data.

C. Revisions:
1. Make revisions when required by Designer and resubmit for review.
2. If the Contractor considers any required revision to be a change, he shall so notify the Designer as provided for in the article for "Changes in the Work" of the General Conditions.
3. Make only those revisions directed or approved by the Designer.

D. The Engineer will provide an initial review and up to two subsequent reviews of each required submittal.

3.04 CLAIMS FOR EXTRA COST: No claim for extra cost shall be based on work shown on shop drawings unless such claim is made on the Contractor's letter of transmittal accompanying the shop drawings and is approved by the Owner in writing.

END OF SECTION 013300

SUBMITTAL TRANSMITTAL FORM

(This Form Must Be Physically Attached To Each Submittal And **Must Be Numbered Consecutively**)

Project Name: Byrum Building Roof Replacement
SCO ID No: 22-25783-01A; 42240, 4T04
Contractor Name:
Specification Section Number:
Subcontractor:
Product Type:
Product Trade Name:
Major Supplier
Applicable Drawing or Detail:
Remarks:

Submittal Identification
(Use Unique I.D. for Attachment)
Submittal Number:
Date of Submittal:

SEAL

Contractor Seal:

I have reviewed the attached submittal and it complies with the requirements of the General Conditions and other applicable sections of the Contract Documents.

Signature of Contractor

FOR DESIGNER'S USE ONLY

DATE RECEIVED:
DATE RETURNED:

ATLAS Job No.: J2740
-Approved without Comment
-Approved with Corrections Noted
-Revise and Resubmit
-Not Approved - See Remarks

Corrections Noted:

Review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents.

Contractor is responsible for compliance with contract documents, confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques, including means, methods, and sequencing of construction, coordinating the work with that of all other trades, and performance of the work in a safe and satisfactory manner.

Remarks:

ATLAS ENGINEERING, INC.

BY:
DATE:

SECTION 014000

QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

1.02 CONTRACTOR WORKMANSHIP

A. The roofing installer must have been in business and have experience installing specific materials on projects of equal or greater size, for a minimum of five (5) years. The installer (and any subcontractors performing installation) of the roofing system must be approved/certified applicator of the manufacturer system/product to be installed. The certification/approval must be provided by the manufacturer and must be based on installation training, contractor experience with the system, and installation performance and technical observation, not solely on sales ranking. Approval/certifications must have been in place prior to the bid date. The prime contractor shall either be approved themselves, or shall use approved subcontractors to perform the work on this project and shall list them in the pre-job submittals. Certification/approval may be requested for the purpose of reviewing and evaluating bids and failure to provide requested documentation may result in disqualification of bid.

B. Roofing systems including metal roof, wall panels, membrane, flashings, and accessory components and shall be installed to form a watertight system and with an overall quality of system installation that will allow the materials to continue to perform in a watertight condition, with reasonable maintenance, over the system manufacturer warranty periods. Work must be performed by persons qualified to produce workmanship of the above quality. The Project Manager and Project Superintendent for each designated Installer must have specific experience with the system(s) to be installed and on projects of similar size and complexity over the past three (3) years minimum.

C. Contractor must maintain the same Project Manager, Superintendent, and Foreman throughout the project duration unless a change is reviewed by and agreed upon by the Owner. The Contractor must replace these personnel if specifically requested by the Owner due to concerns with quality of workmanship or inattentiveness to the requirements of the project. If work is being completed by a subcontractor, the prime contractor must have a representative present on site full time while subcontracted work is underway.

D. Comply with the manufacturer's installation instructions, including each step in proper sequence. Should manufacturer's instructions or detail requirements be less stringent that the Contract Documents, use the more stringent requirements. If the manufacturer's instructions or detail requirements conflict with the Contract Documents, request clarification from the Engineer before proceeding.

E. Contractor shall have a minimum of one bilingual person on site at all times if any crew member to be present on-site does not speak fluent English. Designated translators must have identification of this role clearly visible while on site.

1.03 MANUFACTURER'S SERVICES AND INVOLVEMENT

A. Roof products used in the work included in this Project Manual shall be produced by manufacturers regularly engaged in the manufacture of specified items and with a history of successful production for a minimum of 10 years in the United States without change in the basic product design or blend (ex. No significant changes to composition, pre-finish, panel profile, polymer specification, asphalt or filler formulation, etc.) in the last five years.

B. The Contractor shall be responsible for providing the design documents to the manufacturer to allow for review and approval regarding design intent and to confirm ability of their system to meet specified requirements and specified system warranty prior to provision of a bid for the project. During the pre-job submittal process if it determined that a particular roof system fails to meet the requirements of the specifications, or the manufacturer will not agree to provide a warranty for the project, the Contractor must utilize another conforming roof system manufacturer's products at no additional cost to the Owner. This requirement applies for all manufacturers/system, even those listed within the specifications.

C. The roofing system manufacturer must perform inspections of the system installation (minimum 6 visits for the metal roofing and 2 visits for the single-ply membrane roofing), unless otherwise agreed upon with the Designer and Owner. The first inspection should be made within the first three days of start of roofing (membrane) or start of metal panel and clip installation (metal). The inspections must be performed by manufacturer's technical representatives (sales personnel will not be acceptable for these inspections). Manufacturer inspection reports must be submitted within one week of the inspection to allow for approval of payment applications. Notify Roofing Consultant of manufacturer site visits in advance. Schedule the final manufacturer inspection with the Roofing Consultant.

1.04 ENGINEER'S CONSTRUCTION OBSERVATIONS

A. Contractor shall notify Engineer weekly of significant project activities. Contractor must notify Engineer a minimum of 48 hours prior to specific activities for which the Engineer wishes to be present. The applicable activities will be defined by the Engineer during the Pre-Construction Meeting, but may include first day of tear-off and replacement of systems on specific areas or installation of specific details, and independent inspections or testing by the manufacturer or other parties. If Contractor fails to notify Engineer to allow for observation, Engineer may request to observe work, including covered work, to confirm conformance with contract documents at no additional cost to the Owner.

B. Contractor shall provide reasonable safe access, personnel, and equipment required by Engineer to observe the Work.

1.05 WARRANTY AND GUARANTEE

A. Provide a Contractor's Two-Year Warranty for all of the work included in this project. The Contractor shall warrant workmanship, materials, and weathertightness of the roof system against defects due to faulty materials, poor workmanship, or work not installed in conformance with project technical requirements or level of quality as required by the general and supplemental conditions. The warranty will extend for a period of twenty-four (24) months from the date of Final Completion. The provided warranty shall be in addition to and independent from the roof system manufacturer's warranty. The Contractor shall include language in the warranty setting the maximum response time to a warranty complaint by the Owner to 24 hours for emergency conditions and five (5) working days for non-emergency conditions, unless otherwise agreed upon by the Owner. Refer to specific sections of this specification for any additional warranty requirements.

B. Install roofing systems to allow for issuance of manufacturer's warranties as required by specific sections of these specifications.

C. Provide a roofing manufacturer's warranty meeting the requirements listed in the applicable roofing system sections of this Project Manual. Provide other warranties (Ex. Pre-finished metal, etc.) in accordance with the sections in which they are specified.

D. Should workmanship samples or specific system testing be required by the manufacturer issuing a warranty, contractor shall provide such testing or sampling. If, for any reason, deficiencies are found within the system during sampling or testing, the Contractor shall, at his expense, make repairs and replacements as necessary, to correct deficiencies and satisfy the requirements of the manufacturer issuing the warranty.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 014000

SECTION 015000

CONSTRUCTION FACILITES

PART 1 GENERAL

1.01 SITE CONDITIONS AND PRE-JOB DAMAGE SURVEY

A. The Contractor is to accept the building "as is" and shall exercise care to protect existing utilities, site, and building components. Verify existing conditions and notify Owner and Designer should the conditions vary significantly from those described in the technical specifications and drawings. Should minor conditions be encountered which are not exactly as indicated, modification to accommodate new work shall be made as required at no additional cost to the Owner.

B. The Contractor shall perform and submit a Pre-Job Damage Survey to document existing conditions and specific damages/defects to existing building or building components. Pre-Job Damage Survey shall be provided in accordance with Section 024110 of these specifications and must be completed prior to the start of staging, storage, or material delivery to the site.

1.02 TEMPORARY FACILITES

A. Temporary Water: Water for construction will be furnished by the Owner from existing facilities *if* exterior connections are available, functioning, and adequate for use. Required connections and extensions for temporary use, as well as back flow protection, shall be provided by the Contractor from a point designated by the Owner. Temporary connection to existing water must be turned off and disconnected when not in use or when Contractor is not on site. Abuse of water privilege shall be grounds for cancellation of same by Owner. Contractor will be responsible for providing water if existing facility connections are not functioning or adequate for the needs of the Contractor during the project. If provision of temporary water is critical to installation or proper equipment function, the Contractor is responsible for confirming existing availability prior to bidding and should provide, as a part of his work and within his Base Bid, any supplemental water required for proper installation of the work.

B. Temporary Power: Power for construction will be furnished by the Contractor as necessary to perform the work.

C. Toilet Facilities: Provide temporary toilet facilities meeting the requirements of the Health Department with authority. Contractor's personnel shall not use Owner's toilet facilities. Coordinate with the Owner in locating temporary toilet facilities within the staging and storage area.

D. Sanitary Facilities: Provide temporary containers to dispense drinking water and general washing facilities for construction personnel meeting the requirements of the Health Department with authority. Contractor's personnel shall not use Owner's restroom facilities.

E. Existing Utilities: On-site underground utilities shall be located and marked by an independent locating service at the Contractor's expense. . Location and marking is necessary if excavation work will be performed or if heavy equipment, vehicle, or other construction traffic will occur over portions of the site not typically intended for vehicle/equipment traffic (grass, landscaping, walkways, pedestrian plazas, etc.). Contractor shall pay for damage to interruption of any utility service due to construction activities.

1.03 ACCESS TO THE SITE

A. Access to the site and parking should be restricted to storage and staging areas as designated on the design drawings or as otherwise required by the Owner. Provide all Contractor employees with visible identification (badges, shirts, hardhats) bearing the name of the Contractor and employee. Employees not displaying identification may be required to leave the site.

B. Contractor's personnel shall coordinate with the Owner designated point of contact prior to performing work on the building interior. Contractor's personnel shall only communicate with designated personnel at the site. Conduct by the Contractor's personnel that causes any complaint will result in the permanent removal of the offending individual(s) or crew from the site.

1.04 PROTECTION AND RESTORATION

A. Perform a Pre-Job Damage Survey prior to the start of construction in accordance with Section 024110 of this Project Manual. Protect existing building, adjacent buildings, walkways, grass areas, landscaping, paved and concrete parking lots, brick pavers, HVAC units, masonry, windows, and other site/building features and equipment from damage as a result of construction operations. Any damaged items or conditions not documented in the Pre-Job Damage Survey to have been existing prior to the start of construction, shall be considered to have been damaged by construction activities and shall be restored to their original condition, or replaced, at no cost to the Owner. Whenever demolition, patching or restoration is required for completion of the work, provide protection of site and building features regardless of being shown or not shown on the drawings. Repair of grass areas, walkways, landscaping and other site features damaged by construction activities shall be performed to the satisfaction of the Owner to meet the condition of the feature prior to construction activities. It is recommended that the Contractor confirm expectations for landscaping and grass repair, and/or sodding with the Owner during bidding, and prior to the start of work.

B. Protect interior finishes and contents of the building as necessary. Contractor shall be responsible for damages resulting from construction activities including damages to interior finishes and property within the building.

C. Provide temporary weather and debris protection at all locations where existing building materials are removed. Contractor shall be responsible for damages resulting from inadequate protection and entry of water, debris or other items into the interior spaces.

D. Provide barriers around trees, plants and ground-mounted equipment within or adjacent to staging and storage areas to prevent accidental contact/damage. Protect trees, landscaping, grass areas

and other site vegetation against vehicular traffic, stored materials, chemically injurious materials, and puddling or continuous running water.

E. Comply with OSHA and other applicable safety regulations. Contractor shall be solely responsible for the safety and health of its employees.

F. Provide temporary protection against damage of both stored and installed products. Damaged materials or products shall be removed from the site and replaced at no cost to the Owner.

G. Roofing must be sequenced to limit foot and equipment traffic over areas of new metal roof panels, membrane, and other new installations. Where foot and equipment traffic over the existing or new roof system is unavoidable, provide adequate protection to prevent damage. The Contractor is responsible for leaks in the existing roof system exacerbated by construction traffic.

1.05 CLEANING

A. Clean debris from construction activities daily, at minimum, and directly following the end of work shift. Place debris in closed containers for removal from the site.

B. Clean up shall include, but not be limited to:
1. Removal of mud, oil, sand, dirt, trash, scrap, debris, and excess materials from any areas outside of designated and barricaded staging and storage areas or where debris has caused staining or marking of the building exterior glazing or walls adjacent to the work areas.
2. Cleaning of site and removal of debris shall be to the satisfaction of the Owner. Windy conditions that cause blowing of materials or debris may require the Contractor to put in place more restrictive cleaning and protection requirements.

C. Any damages caused to the site or building caused by failure of the contractor to clean adequately or in a timely fashion and not documented within the Pre-Job Damage Survey prior to the start of work, will require repair by the Contractor at no cost to the Owner.

1.06 STORAGE AREA

A. Storage and staging areas will be provided on site as shown on the drawings and coordinated with the Owner. It is the Contractor's responsibility to adequately secure stored materials and equipment. Install separate fencing surrounding the perimeter of the storage area(s). Fencing installed shall have movable bases and shall not be installed such that existing concrete or asphalt surfaces are damaged. Remove evidence of use and leave area and entire limits of site clean upon completion of the project. Restore areas damaged by stored materials to original condition. Place 3/4" plywood over asphalt and concrete surfaces prior to placement of dumpsters or use of heavy equipment.

B. Contractor shall load materials onto the roof when areas directly below loading area are unoccupied by building occupants unless otherwise coordinated with the Owner. It is the responsibility of the Contractor to space materials stored on roof such that they do not overload the existing deck and structure. Storage of materials on the roof surface shall be limited to those

expected to be installed within 5 work days unless discussed with and agreed upon by the Owner and Designer.

C. Contractor shall not stockpile removed materials on site.

D. The Contractor is responsible for scheduling delivery of materials to the site to allow for continued work and taking into consideration the size and location of storage area. Contractor shall obtain and pay for use of additional storage or work areas if needed for operations under this Contract.

E. No Contractor sign or advertisement shall be allowed to be displayed without the Owner and Designer's approval.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION 015000

SECTION 016000

MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 TRANSPORTATION AND HANDLING

A. Provide equipment and personnel to handle products by methods to avoid product damage. Deliver products in undamaged condition in the manufacturer's unopened and marked containers or packing.

B. Promptly inspect shipments to assure that products comply with specified requirements, quantities are correct, and products are undamaged.

1.02 STORAGE AND PROTECTION

A. Store products in accordance with the manufacturer's instructions, with seals and labels intact and legible. Products requiring fire resistance classification shall be delivered and stored with labels attached and packaged as required by labeling.

B. For exterior storage of products, place on sloped supports above the ground. Cover products with impervious sheet covering and provide ventilation to avoid condensation. Maintain temperature and humidity ranges required by the manufacturer for each product.

C. Handle rolled goods so as to prevent damage to edges or ends. Store rolled goods in accordance with the product manufacturer's recommendations.

D. Arrange storage to provide access for inspection. Periodically inspect materials to assure products are undamaged and are maintained under required conditions.

E. Select and operate material handling equipment so as not to damage existing construction and/or materials. Protect materials against construction traffic.

F. Materials that are damaged or that become saturated shall not be used and shall be removed from the project site. The Designer reserves the right to mark damaged or wet materials and require immediate disposal/removal of material.

G. Materials loaded on the roof shall be distributed and not stacked. It is the Contractor's responsibility to ensure that the existing roof structure is not overloaded by stored materials. Gasoline storage containers, open cleaners, or other flammable or volatile materials shall be removed from the roof daily.

H. Payment by the Owner for any materials, equipment or labor incorporated in the work shall not be deemed to be an acceptance by the Owner. The risk of loss of such materials, equipment or cost of labor spent to install such, shall remain with the Contractor. Stolen, damaged, vandalized, missing, or weather-damaged equipment, material, and work shall be considered the property of the Contractor until final acceptance of the project by the Owner.

I. No payment by the Owner will be made for any material not physically located on the site unless the storage of such material can be verified by the Designer, is in an insured/bonded storage facility, and is marked specifically for the project use and scheduled for installation within 30 days of payment request.

1.03 SUBSTITUTIONS AND PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Provide a product meeting those standards. The Owner and Engineer reserve the right to require confirmation by the roofing or waterproofing manufacturer that their system/products intended for use meet the requirements of the specifications prior to award of the contract. Failure of the contractor to provide requested confirmation may result in disqualification of their bid.

B. Products Specified by Naming Several Manufacturers: Provide a product of named manufacturers meeting specifications: Requests for product substitutions must be made in writing for any manufacturer not specifically named in accordance with the following requirements in paragraphs 1.03C, D, E, F, and G. **When a minimum of three approved manufacturers/products are listed, the Engineer reserves the right to not accept requests for manufacturer/system substitutions.** The Contractor is responsible for confirming ability of the system/manufacturer to meet specified requirements and specified system manufacturer warranty prior to provision of a bid for the project. During the pre-job submittal process if it is determined that a manufacturer will not agree to provide the specified warranty for the project as designed, the Contractor must utilize another conforming roof system manufacturer's products at no additional cost to the Owner.

C. Requests for a substitution of the roofing membrane/system manufacturer from those listed in the applicable section of these specifications, must be submitted no less than ten (10) days prior to the bid date unless otherwise indicated by the Designer and Owner. Requests must be made by the Bidder/Contractor, requests directly from suppliers or manufacturers will not be reviewed.

D. Each written request for a substitution shall be submitted with complete data substantiating compliance of proposed substitution with the technical specifications and drawings.

E. The request shall constitute that the Contractor:

1. Has investigated the proposed product and determined that it meets or exceeds, in all respects, specified product.
2. Will provide the same warranty as the specified product.
3. Will coordinate installation and make any other change that may be required for work to be complete with substituted item.
4. Waives claims for additional costs that may subsequently become apparent due to use of substituted item.

F. Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals without separate written request, or when acceptance will require substantial revision of technical specifications and details.

G. The Designer will determine acceptability of proposed substitution, and will notify the Contractor of acceptance or rejection in writing within a reasonable time.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION 016000

SECTION 017700

PROJECT CLOSE-OUT

PART 1 GENERAL

1.01 SUMMARY

A. When Contractor considers Work to have reached substantial completion, submit written certification that Contract Documents have been reviewed, the Contractor has inspected Work, and that Work is substantially complete in accordance with Contract Documents and ready for Engineer's inspection. For the purpose of requesting a Substantial Completion Inspection, “completion” is defined as the performance of all of the work items listed in the Project Manual and as required for proper installation of the roofing system(s), including all metal flashings, detailing, and manufacturer inspections with the exception of only punchlist level distresses.

B. Designer shall perform a Substantial Completion Inspection during which a list of incomplete items, or items requiring repair (punchlist) will be compiled. Upon completion of punchlist items, the Contractor shall submit in writing that completion of the punchlist items has been confirmed by the Contractor and is ready for the Designer’s Final Inspection. The Designer will perform the Final Inspection to confirm completion of outstanding punchlist items.

C. If the Contractor fails to complete contract on time, the Owner reserves the right to assess liquidated damages in accordance with the Conditions of the Contract.

D. If the Contractor fails to complete contract on time, additional restrictions from the Owner to work schedule, noise, storage, staging, and other site and building restrictions may apply.

E. In addition to post-job submittals required by Section 013300, provide any submittals required by governing authorities, and submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

F. Designer will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

G. For projects that incorporate more than one site, the Designer and Owner will allow for performance of separate Substantial and Final Completion inspections at each site/building. The Substantial Completion and Final Completion dates provided within the contract will apply to completion of the work at all sites/building included in the work scope and liquidated damages will apply at those times.

1.02 FINAL CLEANING

A. Execute cleaning of the roof membrane surface, drains, and all other visible components prior to performance of the Substantial Completion Inspection. Execute final cleaning of the site and punchlist repair areas prior to requesting the Final inspection.

B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances.

C. Clean site; sweep paved areas, rake clean other surfaces affected by the work, storage or access. Contractor may be required to re-sod areas of grass that are killed/damaged as a result of construction activity if required by the Owner to return site conditions to their original condition.

D. Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the site.

1.03 PROJECT RECORD DOCUMENTS

A. Keep a record document set on site stored for protection from construction activity.

B. Keep record documents current; do not permanently conceal any changed work until required information has been recorded.

C. At Contract close-out, submit record documents (as-built drawings) as indicated in Section 013300 with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor. Record drawings with handwritten red-line mark-ups are acceptable for submittal to fulfill this requirement.

1.04 OPERATION AND MAINTENANCE DATA

A. Provide data for roof systems and other installed equipment in accordance with Section 013300.

1.05 WARRANTIES AND BONDS

A. Provide required contractor and manufacturer’s warranties in accordance with applicable sections of the Project Manual.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 017700

SECTION 024110

SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Perform a Pre-Job Damage Survey prior to the start of work on-site including mobilization of equipment, material delivery, and set-up of storage and staging areas.

B. Water test downspouts that connect underground drainage lines prior to the start of demolition to confirm that they appear to be in working order (not clogged or damaged in a way that causes the back-up or slow flow of draining water or leaking at the connection to underground drain leaders). Notify the Owner and Designer immediately if damages/clogging of underground lines are suspected.

C. Provide labor, materials, equipment, and supervision necessary to perform selective demolition, which includes, but is not limited to the following:

3. Prior to the start of any roof demolition, complete scope of purlin bearing extension work and have attic work space protection and ventilation materials and equipment in place for the work area beneath.
4. For the main building: Remove existing perimeter gutter, downspouts, rake flashings, and other isolated flashings as needed to allow for proper installation of the new retrofit metal framing and the standing seam metal roof system and legally dispose of off-site. Remove isolated components that will not remain a part of the new roof system (ex. Isolated copper louvered dormers, etc.) and legally dispose of off-site. The contractor is responsible for providing and installing all necessary temporary protection materials to maintain the building in a watertight condition through all stages of work.
5. Inspect the existing wood blocking to remain in place within the steep-sloped roof system and replace damaged or deteriorated materials in accordance with Section 061140. Provide supplemental securement to the building structure for all wood to remain.
6. Remove/modify existing curbs, vents, dormer curbs, etc. if required to allow for installation of new metal curbs/louvered dormers. Coordinate and perform any associated necessary temporary shutdown, disconnection, minor modification/extension, and reconnection/recharging as needed to accomplish the required removals and installations.
7. For the low-sloped entrance, soiled linen, and canopy roofs, remove and dispose of the existing roof membrane, insulation, membrane and sheetmetal flashings, gutter, downspouts, expansion joint components, loose vapor barrier, and other system accessories as needed to install the new roof system. Trim existing reglet-mounted counterflashing to turn it into a receiver for support of the new counterflashing. Do not remove more of the existing roof system than you can return to a watertight condition by the end of the workday.
8. Carefully inspect the exposed surface of the concrete deck and perimeter wood blocking to remain for reuse in the low-sloped roof system and make repairs to damaged or

deteriorated materials in accordance with this specification section for concrete deck and Section 061140 for wood blocking.

9. Provide other demolition whether or not indicated on the drawings or in the specifications as required to perform the specified work.
10. Protect components that will remain for reuse, including, but not limited to, roof deck, steel structure, masonry walls, shingles, existing counterflashing, wood blocking noted to remain, pipe vents, penetrations, curbed equipment, and underground drainage connections.

PART 2 PRODUCTS

2.01 REPAIR/REPLACEMENT OF EXISTING DETERIORATED/DAMAGED MATERIALS

A. Concrete Deck Repair: Where surface damage to the existing deck is discovered (3/4" depth or less, or opening <6" in dimension), repair by covering with 20 gauge G90 galvanized sheet metal, sized to cover the damaged area a minimum of 2" on each side. Metal shall be secured @ 6" o.c. around the perimeter of the repair metal.

B. If damage to the deck extends deeper than ¾", repair will involve placement of quick-dry cementitious repair material. If damage extends through the thickness of the plank or more severe damage is discovered, notify the Designer for additional direction.

C. Wood Blocking: Provide repair materials in accordance with Section 061140.

PART 3 EXECUTION

3.01 PRE-JOB DAMAGE SURVEY

A. Contractor shall perform a pre-job damage survey of the existing rooftop and site components including roof, building exteriors, walkways, pavers, pavements, site features, landscaping, grass, and building interior finishes to document existing damaged conditions prior to beginning work. It is recommended that the Contractor coordinate with the Owner's representative to have the current working condition of any roof-mounted equipment/fans to remain confirmed as a part of the Pre-Damage Survey. Contractor may need to be escorted within specific areas/rooms to complete the interior portion of the survey. Close coordination and advance notice will be required.

B. Contractor shall submit required documentation, including either videotape footage of the survey and/or photographs and sketches, as necessary to adequately describe existing conditions and to allow for the location of noted defects. If no time stamp is provided on documents, it is critical that the Contractor submit the Pre-Job Damage Survey to the Engineer prior to the start of work. Video of the existing conditions is acceptable as long as the footage is narrated to describe conditions observed and footage is taken at the proper distance and focus to make described conditions visible.

C. It shall not be the responsibility of the Owner and/or Engineer to review or approve the contents of the Contractor's Pre-Job Damage Survey. The contractor may request that the Engineer or Owner accompany them to observe a specific condition(s) if there are questions or adequate documentation by video or photographs may not be feasible.

D. The Contractor shall be responsible for repair or replacement of materials that are damaged during construction activities and were not documented within the Pre-Job Damage Survey to have been damaged prior to beginning the work. Items/materials that are damaged shall be returned to the condition they were in prior to construction activities. If return to pre-construction condition is not possible/practical, Contractor shall replace item/material with new to the satisfaction of the Engineer and Owner.

3.02 TESTING OF DOWNSPOUTS/LEADERS

A. Water test downspouts that connect into underground drain leaders in conjunction with the Pre-Job Damage Survey. The purpose of the test is to confirm that water flows freely into the underground drainage lines without evidence of clogging, backup, or leaking at connection to downspout. Testing may be performed with a standard garden hose utilizing readily available water pressure/flow rates. Water test duration should last for not less than 10 minutes per downspout and/or underground drain leader connection but may extend longer if determined by the contractor to be necessary to properly confirm working order.

B. Notify the Engineer and Owner of suspected or observed damage/clogging of drainage lines.

3.03 DEMOLITION

A. Demolish roof materials and components in an orderly and careful manner. Limit the size of work sections to safeguard adjacent materials and building structures and to minimize potential dust, noise, and debris sources.

B. Do not remove more existing system materials than can be replaced with new permanent or temporary materials to a watertight condition by the end of the same work day. Contractor shall have ready necessary temporary protection from weather at all areas of demolition to protect interior of building from elements in the event of unexpected inclement weather.

C. Cease operations and notify the Owner immediately if adjacent buildings, finishes, or structures appear to be endangered. Do not resume operations until corrective measures have been taken.

D. Clean all dust and debris from the exposed substrate. Debris will not be allowed to accumulate on the roof surface and must be removed to the ground level daily. Material and debris shall be transported to and from the roof by crane, hoist, boom truck, chute, or lull/forklift unless otherwise approved by the Engineer or Owner. If a crane or boom truck is used, it shall be operated by a certified operator. Provide a layout confirming crane location, swing radius, etc. for prior approval by the Designer and Owner.

E. Provide wind screens or other protection as necessary to prevent windblown debris from the roof surface or from dumpsters.

F. Debris must be removed from the site daily unless enclosed by a dumpster, trailer, or other sided container that can be covered if necessary to prevent blowing debris. Do not stockpile materials on the site unless agreed upon with the Owner's representative. Do not burn or bury materials on site.

G. Inspect existing substrates including, but not limited to, existing wood blocking, and existing concrete deck. Notify the Engineer upon discovery of materials requiring repair or replacement. Contractor shall have required repair materials on site prior to the start of demolition to avoid delay in repairs.

H. Estimated quantities of work are included in the Base Bid per Section 012100 for existing components that may require repair/replacement. At project completion, or completion of particular project milestones, the actual quantities work performed will be compared with the estimated quantities to determine if changes to the contract sum (addition or deduct) may be required. To ensure that accurate quantities of work performed are included in this comparison, the Contractor must provide specific documentation of work type, quantities, and confirmation that work was warranted. Documentation can include review of existing conditions or work performed (prior to covering) by the Contractor and Engineer (or Owner's representative) with agreed upon quantities photographed and documented in the Engineer's site visit report. If the Engineer is not available, the Contractor is responsible for photographing the damaged/deteriorated materials/conditions, and photographing the repaired/replaced materials (with scale to allow for confirmation of measurements) of the material and submitting these to the Engineer at the next site visit or progress meeting. If approved by the Engineer, it may be acceptable to stockpile removed deterioration component/material (when applicable) until confirmation by the Engineer can be made. Payment for work performed (or consideration of work performed toward the estimated quantities) may not be provided without proper documentation.

END OF SECTION 024110

SECTION 061140

ROUGH CARPENTRY

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide labor, materials, equipment and supervision necessary to complete the following work:

1. Install new wood nailers/blocking at locations shown on project drawings and where required by the roof system manufacturer for proper installation of details.

2. Replace existing wood blocking that is discovered to be missing, deteriorated, or damaged, if it was marked as existing on the design drawings and was intended for reuse within the new roof system. Estimated quantities for material replacement are included in Section 012100.

3. Inspect the existing securement of wood blocking to top of deck/structure, etc. to ensure adequate connection of blocking to the building in accordance with the specifications. Install supplemental fasteners to ensure adequate securement of existing wood blocking to the building structure.

1.02 QUALITY ASSURANCE

A. Contractor shall provide sufficient qualified workmen and supervisors who shall be present at all times during execution of this portion of the work and who shall be familiar with the type of construction involved and the materials and techniques specified.

B. No allowance in the project requirements shall be made for lack of skill of the workmen.

1.03 SUBMITTALS

A. Submit product data and SDS for each product listed in this specification section. For treated wood, confirm preservation treatment type, equivalent retention, and moisture content.

B. Submit product data for each fastener type to be used in the securement of the blocking to the deck and other blocking, along with a physical sample of each fastener type if requested. Clearly mark product data sheets to confirm fastener type, length, and location of intended use. The Contractor may re-submit additional fastener types and data if any change to the fasteners to be used occurs. Conduct fastener pull-testing as applicable and submit test results to the Designer.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver blocking, fasteners, and other required accessories in manufacturer's original protective containers/wrapping/bundles with labels intact and legible. Comply with manufacturer's published instructions for storage and handling.

B. Store materials in dry protected areas, on clean, raised platforms with securely anchored weather protective coverings in accordance with Section 016000. Store flammable products away from sparks or open flames.

PART 2 PRODUCTS

2.01 MATERIALS

A. Wood Blocking (Treated): Shall be No. 2 or better southern yellow pine, kiln-dried prior to and to a moisture content of not more than 19 percent. Shall be sound, thoroughly seasoned, dressed to nominal finish dimension, and free of warpage, cupping, and bowing. All nailers and other blocking associated with the roofing installation shall be pressure treated with 0.40 pcf retention of alkaline copper quaternary (ACQ) and shall conform to AWPA Standard U1, to the requirements of use category for ground contact. Asphaltic or creosote preservatives shall not be used. The presence of AWPA mark confirming preservative type and retention (use category) on each piece is required. Where full penetration of ACQ is not evident, field cuts shall be coated in accordance with AWPA standard U1. Dimensions shall be determined by job conditions. Site-sawn ends shall be treated with one coat of preservative treatment.

B. Alternate Preservative Treatments: If an alternate preservative treatment is proposed during the submittal process, the retention of the preservative must be clearly shown to be acceptable for use category ground contact/freshwater.

2.02 FASTENERS

A. General: Fasteners specified shall be the minimum required product. If a condition exists that does not match a fastener condition or type listed below, the Contractor may submit a separate type and profile of fastener for review. All fasteners to be used to secure treated wood products must be stainless steel. If alternate wood preservative treatments are provided that do not contain copper, the Designer will review possible use of other corrosion coated fasteners, but may still elect to require stainless steel fasteners based on substrate materials or other project specific conditions.

B. Wood to masonry/concrete: Minimum ¼” diameter stainless steel masonry/concrete anchors. Where additional wood blocking, roof membrane, or sheetmetal flashing will cover the secured wood component, anchor heads must be either countersunk or otherwise finish flush with the surface of the wood. Minimum embedment into the substrate shall be 2”, unless otherwise required by the manufacturer to meet required pull-out resistance. Pre-drill for fasteners if required/recommended by the manufacturer, or necessary to prevent spalling of the substrate material. Do not use expansion/drive-pin anchors within approval in advance from the Designer.

C. Wood to metal (general): Minimum self-tapping, stainless steel no. 12 screws. Where additional wood blocking, roof membrane, or sheetmetal flashing will cover the wood component, anchor heads must be either countersunk or otherwise finish flush with the surface of the wood. Minimum fastener penetration shall be 1”, unless otherwise required by the manufacturer to meet required pull-out resistance. Provide larger fasteners or those with modified threads for securement into thicker steel structural members.

D. Wood to wood: Minimum No. 10 stainless steel wood screws. Where additional wood blocking, roof membrane, or sheetmetal flashing will cover the wood component, fastener heads must be either countersunk or otherwise finish flush with the surface of the wood. Minimum fastener penetration into the wood blocking substrate below shall be 1-1/4".

E. Fastener spacing is generally indicated on the design details, but if fasteners are not specifically shown or spacing not noted, provide a maximum 12" on center (24" o.c. in both directions for plywood), unless otherwise required by the roof system manufacturer. Increase the number of fasteners as necessary for short lengths of blocking and place two fasteners at each blocking end.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install new wood blocking as shown on the drawings or as required by the system manufacturer for proper installation of the details. Cut blocking to size and angle corners or edges if shown on the drawings or required for proper installation of the work.

B. Install new wood materials true to line, level, plumb, and securely fastened to the approved substrate with fastener type and fastening requirements as specified.

C. Fasten existing wood nailers, at spacing to comply with the fastening requirements provided in the detail drawing or this specification section, whichever is more stringent. Wood blocking and nailers shall be securely anchored to the roof deck/structure and to each other, to resist a minimum uplift force of 300 pounds per linear foot. Based on this requirement, a maximum spacing of 12" on center for wood blocking to wood blocking along the perimeter shall not be exceeded (this maximum spacing shall only be used if a more stringent spacing requirement is not listed on the details or within the specifications). If fastener pull-out values performed by the Contractor prior to start of work indicate that specified fastening spacing will not meet this requirement or if more restrictive spacing is noted on a detail, increase the number of fasteners as necessary to meet requirement.

D. Wood nailer pieces shall be no less than 12" in length (plywood no less than 24" in a single direction) and shall be secured with a minimum of two fasteners per piece. Where length is adequate, fasteners shall be positioned 6" from each end and a maximum of 12" o.c. and staggered 1/3 of the nailer width. Two fasteners shall be installed at the ends of each nailer.

E. New wood blocking shall have a 1/8" gap between each length unless otherwise restricted by the roof system manufacturer's requirements.

F. Where wood curbs are to be installed or extended, corners shall be formed by lapping side members alternately.

G. Where existing blocking will remain, inspect the existing securement to ensure that they are present at a spacing of no more than 24" o.c. (bolts) or 12" o.c. (screws) and are in good condition. Notify the Engineer to allow for additional review. Installation of supplemental wood to concrete fasteners may be necessary at isolated areas where existing fasteners may not be adequate.

3.02 REPLACEMENT OF DETERIORATED/DAMAGED MATERIALS

A. If existing wood blocking is marked on design details to remain for reuse in the new roof system and it is discovered to be missing, deteriorated, or otherwise damaged, remove portions of the damaged existing wood blocking and install new blocking or to match sizes of pieces to be replaced unless otherwise approved. Minimum length of blocking for replacement is 12".

B. Install new wood materials true to line, level, plumb, and securely fastened to the approved substrate with fastener type and fastening requirements as specified. Cut blocking to size and angle/miter corners or edges where required to provide a clean fit at angle transition, or as otherwise needed for proper installation of the work. Secure replacement materials in accordance with requirements for new materials.

C. Notify Engineer upon discovery of materials requiring repair or replacement in accordance with Section 024110.

END OF SECTION 061140

SECTION 074100

STANDING SEAM METAL ROOF SYSTEM

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide labor, materials, equipment and supervision necessary to install a new standing seam metal roof system on new substructural retrofit framing over the existing shingled roof system, including associated flashings and accessories at Byrum Building at the Caswell Developmental Center.

1. Complete installation of steel components on isolated interior purlins (locations shown on the drawings) to extend the bearing surface for the roof deck. This work must be completed prior to the start of demolition and retrofit framing installation.

2. Complete the preparation of the attic work space beneath the areas where the new roof system will be installed. Preparation includes placement of protective materials, creation of sealed work areas and placement of ventilation equipment to provide negative air pressure during work activities in accordance with Appendix A of these specifications. This work must be completed prior to the start of demolition and retrofit framing installation.

3. After removal of existing perimeter gutter, downspouts, and other features necessary, install new substructural retrofit framing secured to the existing steel framing to support the new standing seam metal roof system and flashings. Substructural framing will include base clips, purlins, support angles, supplemental channels, clips, posts, cleats, and other associated straping/bracing and framing components. Locate base clips to allow for securement into the existing structural framing and allow for proper support of the new main purlins. Set base clips in a full bed of sealant to maintain watertightness of the existing system. Size of clips shall allow purlins to be raised slightly off the roof surface to allow for temporary drainage. Locate purlins perpendicular to the slope, secured to base clips at spacings as required to support the new standing seam metal panels. Supplemental channels will be installed to support supplemental purlins where required to reduce roof panel clip spans at perimeter and corner zones. Engineer-sealed shop drawings and calculations for the retrofit framing and associated components must be provided to ensure the new system will adequately resist code-required dead, live, and wind loads without overloading the existing structure.

4. Install new standing seam metal roof panels, flashings, trim, closures, gutter, downspouts, straps, and other required components to allow for proper installation of the warranted roof system in accordance with the drawings and specifications. Shop drawings provided for the retrofit framing should include roof panel clip spacing. Metal roof systems shop

drawings must also include all metal roof panel, flashing and trim details and be approved by the warranting manufacturer.

5. Install new vents and new louvered dormers with curb/skirts fabricated specifically for installation with a standing seam metal roof system. Dormers will require custom fabrication. Raise/extend existing pipe vents, mechanical and electrical connections, conduit, ductwork, flues, communication lines, etc. as needed to accommodate the new components installed and to maintain connections. Coordinate and perform any associated necessary temporary shutdown, disconnection, minor modification/extension, and reconnection/recharging as needed to accomplish the required installation.

6. Install a snow guard system assembly secured to the metal roof system with non-penetrating clamps along perimeter eaves where shown on the drawings and above round penetrations located more than 5' below the ridge/hip line.

7. Provide and install other accessory or incidental components, or modify other roof features/items, not specifically listed or shown on drawings, but required for the complete and proper installation of the new roof system.

1.02 PERFORMANCE REQUIREMENTS

A. The new roof system including flashing and trim components shall be watertight, must meet the requirements for UL Class A fire classifications, and shall be secured to meet the requirements for wind uplift as specified herein and in accordance with the 2018 North Carolina State Building Code and code-referenced version of ASCE 7. The overall quality of roof system installation shall be sufficient to obtain the manufacturer's specified warranty, meet recognized industry standards, and shall not include distresses or damages that may prevent the roof panels and flashings to continue to perform in a watertight condition, with reasonable maintenance, over the 20-year manufacturer's warranty period.

B. The installed roof panels and flashing system must be capable of withstanding code-applied wind uplift pressures, thermally induced movement, and exposure to weather over the life of the system without failure due to defective manufacture, fabrication, installation, or other defects in the system or building construction. Failure is defined as failure to remain watertight, or accelerated weathering or aging of system components that reduce the anticipated service life or void the warranty of the roof system. If a requirement of a referenced code or industry standard differs from the specifications, follow the more stringent requirement. If a conflict is discovered, notify the Designer to allow for review and clarification.

C. The roofing materials provided must be compatible with one another under the conditions of service and applications required and as indicated by the metal roofing manufacturer to be acceptable based on testing and field evidence.

D. The roof panels will be fabricated to match the slope of the roof deck and will drain to perimeter gutters at the eaves. Panels shall be fabricated to prevent significant crowning, or isolated/point specific oil canning due to stresses induced by improper fit with panel clips.

E. Completed roof system shall have resistance to air infiltration of 0.059 cfm per lineal foot of joint when tested in accordance with ASTM E-1680-95 at static test pressure differential of 6.24 psf. Roof system shall have no water leakage through joints when tested in accordance with ASTM E-1646-95 at static test pressure differential of 12.0 psf.

F. Finish of all roofing panels, trim and pre-finished accessory elements shall conform to tests for adhesion, flexibility, fading, chalking, peel resistance and longevity in accordance with ASTM D 659-80 (chalk rating of 8 or less) and ASTM D 2244-79 (5 NBS units or less).

G. Panels must be fabricated at the manufacturer's indoor, controlled factory/plant. No on site roll forming. Panels must be a continuous length from ridge/hip to eave/valley and panel end laps will not be accepted.

1.03 QUALITY ASSURANCE

N. Qualifications of Manufacturer: Products used in the work of this section shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Owner. The manufacturer must be listed as an acceptable manufacturer in accordance with Paragraph 2.02F of this specification section and meet the following requirements:

1. Metal roof panels, panel clips and other system components used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacturer of specified items and with a history of successful production for a minimum of 10 years in the United States without change in the basic product design in the last five (5) years.
2. The manufacturer must have a technical/erection manual showing construction details and installation sequencing, a permanent indoor production facility for the fabrication of metal roof system panels and components.
3. Products and systems must be capable of obtaining the roof system manufacturer's full system warranty.
4. The Roof System Manufacturer must certify during submittals that they have reviewed the design drawings and specifications and have found them capable of obtaining the specified full system warranty, or have notified the Designer of variances.
5. Attend a Pre-Installation Roofing Conference at the project site, if requested, prior to the start of roofing installation.
6. The system manufacturer must perform a minimum of 6 inspections of the system installation. An inspection of the roof panels should be made within the first three days of start of roofing panel installation. The inspections must be performed by manufacturer's technical representatives (sales personnel will not be acceptable for these inspections).
7. The manufacturer must have a professional engineer licensed in the state of North Carolina on staff or be able and willing to readily procure the services of a licensed engineer who is familiar with retrofit standing seam metal roofing systems and able to provide required sealed calculations and shop drawings.

O. Qualifications of Installer:

1. The installing contractor must have experience installing specified materials on projects of equal to greater size, for a minimum of five (5) years
2. The ***installing contractor*** must be approved/certified by the roof manufacturer to install the warranted roof system. Products installed shall be approved by the roof system manufacturer in advance.
3. The roof system installer must have adequate number of skilled workmen, thoroughly trained and experience in the necessary craft. Workers performing installation must be led by a job foreman with a minimum of three (3) years experience in the type of installation specified whenever work installed will become part of a warranted roof system (including related flashing work).
4. If non-English speaking workmen are employed as a part of the on-site crew, the foreman or superintendent, or a designated translator must be fluent in both the other language(s) and in English.
5. Attend a Pre-Installation Roofing Conference at the project site prior to the start of roofing installation. The contractor's foreman who will be installing the roofing work is required to be in attendance at this meeting.

P. Aesthetic Considerations: An aesthetically pleasing overall appearance of the finished roof and perimeter flashings is required. Make necessary preparations, utilize recommended application techniques, apply the specified materials, and exercise care in ensuring that the finished application is acceptable to the Engineer and Owner.

1.04 SUBMITTALS/SHOP DRAWINGS

A. Submit written confirmation of contractor's approved applicator's status from the roof membrane system manufacturer.

B. Submit product data and SDS for each product listed in this specification section, for roof accessories, and for other products required by the roof membrane manufacturer for a complete installation of the work. Include test data to confirm ability of panel to resist the specified code wind loads noted on the Cover Sheet and associated spans/clip spacings required.

C. Submit a sample of the roof panel material/finish, and other components as requested by the Engineer. Provide a pre-finished color chart and metal color samples as requested (Color is expected to be selected to best match the standing seam metal roof panel color on the nearby Parrott Building).

D. Submit the most current version of the Standing Seam Metal Membrane Manufacturer's material specifications and installation instructions (technical/erection manuals) for the system to be installed.

E. Submit shop drawings that provide the planned substructural framing member and roof system flashing layout, dimensions and profiles, securement of framing to the existing roof structure, securement of the framing system, and detailing of the standing seam metal roof system including, flashing profiles, sealants, and locations and type of fasteners to be used. If non-standard conditions are present provide specific confirmation of acceptability by the warranting

manufacturer. For cold-formed steel shop drawings, drawings, calculations, and test data must be sealed by a professional engineer currently licensed in the State of North Carolina. The loads being transferred by the new retrofit framing system to the existing roof framing must be provided for review.

F. Submit test reports prepared by UL or FM indicating wind uplift rating of proposed system or submit calculations verifying wind uplift capacity. Calculations shall be signed and sealed by a registered Professional Engineer in the State of North Carolina.

G. Submit a sample copy of the manufacturer's warranty and contractor's warranty. Although the warranty may be a sample copy it should bear the project name and have any warranty lengths and applicable riders marked in to confirm it meets the specified requirements.

H. Requested Mock-Ups: Provide up to a 10' long section of new roof panels installed along an eave condition with gutter to allow for review by the Designer and Owner as applicable prior to full fabrication and installation. If acceptable the installation can remain in place as part of the finished system.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials and accessories in the manufacturer's original protective containers and wrapping with labels intact and legible. Comply with the manufacturer's published instructions for storage and handling. Materials should be ordered and delivered in amounts required to allow for continuity of application.

B. Store materials dry and in such manner to prevent condensation or presence of standing water on the material. Raise materials stored on site above ground level and prevent wetting by precipitation or condensation, damage by wind, or exposure to UV. The manufacturer's wrapping alone will not be considered adequate protection against damage by inclement weather and UV exposure and should be removed or cut. Tarps to cover materials completely should be utilized.

C. Stack material to prevent twisting, bending, or abrasion. During storage, prevent material contact with any substance that would discolor or stain, including soil and water.

D. Handle materials to prevent damage and contamination with dirt, debris, moisture, or other foreign matter. Materials damaged by twisting, bending, kinking, or dropping due to inadequate handling or support may not be allowed for installation within the roof system.

E. The Designer retains the right to mark materials observed to be damaged due to improper storage and mishandling and request their immediate removal from the roof and/or site.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Material installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation is imminent.

B. Materials installed during adverse weather conditions shall be subject to rejection, removal and replacement. The Designer reserves the right to mark damaged or wet materials for removal and disposal.

1.06 WARRANTY

A. Provide a Contractor's Two-Year Warranty for work included in this project. This warranty shall include workmanship, materials and weathertightness and will be provided in addition to the roof system manufacturer's warranty. The warranty will extend for a period of twenty-four (24) months from the date of Final Completion. The contractor shall outline the procedure for service under the warranty, including base of operation for crews proposed to perform warranty service, response times, and contact procedures. Refer to Section 014000.

B. Provide roof system manufacturer's twenty-year non-prorated, no dollar limit, full system weathertightness warranty covering labor and materials for replacement or repair due to material failure, water entry (leaks), or faulty workmanship. The warranty shall cover all roof system components supplied by the roof system manufacturer and the insulation and underlayment materials approved by the roof system manufacturer. The warranty shall cover damage due to wind up to and including the design wind speed as defined by the North Carolina Building Code. The warranty will extend for a period of twenty (20) years from the date of Final Completion or other date if agreed upon by the Owner.

1. No portion of the warranty may be subrogated to others, including the installing Contractor.
2. The warranty shall not require signature and return by the Owner for it to be valid.
3. Warranty language for the Manufacturer warranty shall not prevent the Owner from making emergency repairs during the warranty period for the purpose of stopping or limiting damages to interior finishes and components until permanent repairs can be made. Emergency repairs shall not void the warranty as long as they are performed in general accordance with accepted industry standards for materials and methods and do not result in permanent damage to the roof system. The Owner will be responsible for expenses associated with emergency repairs.
3. If emergency repairs will not be allowed, the warranting party must incorporate language in the warranty to provide emergency leak repair response to the Owner within 24 hours from time of their notification to the warranting party by phone.
4. The warranty may not include language excluding coverage for failure of Owner to maintain records of material procurement such as purchase orders, order numbers, manufacturer invoices or shipment dates.
5. The warranty may not include language excluding coverage for failure of their approved roofing contractor to correct deficiencies identified by the manufacturer.

C. Provide roof system manufacturer's twenty-year pre-finish warranty. The pre-finish warranty shall state that the pre-finish will be free of fading or color change in excess of 5 NBS units in accordance with ASTM D-2244; will not chalk in excess of numerical rating of 8 in accordance with ASTM D 659; and will not peel, crack, chip or delaminate. The warranty shall cover material and labor cost for repairs and replacements made under the warranty. No portion of the warranty period shall be subrogated to others, including the installing Contractor. The warranties

will begin on the date of Final Completion and acceptance by the Owner unless otherwise agreed upon and shall not require signature and return by the Owner for it to be valid.

E. All warranty start dates shall be on the date of Final Completion and Project Acceptance.

PART 2 PRODUCTS

2.01 RETROFIT SUBSTRUCTURE

A. General: The cold-formed light gauge metal framing shall be designed in accordance with the latest editions of American Institute of Steel Construction (AISC), Allowable Stress Design Specification for Structural Steel Buildings, and American Iron and Steel Institute (AISI), Specification for the Design of Cold Formed Steel Structural Members. Metal framing shapes, sizes, and layout shown on construction details and specified herein are to be used only as a guideline ("intent") by the steel framing fabricator. Required shop drawings and calculations, sealed by an engineer registered in the State of North Carolina, shall be developed for light gauge metal framing and submitted for review by the Designer to ensure that all new load-bearing or load-transferring members are adequate to resist code-required loading and are anchored to existing secondary or primary load bearing support members in a manner that does not overload the existing structure.

B. Framing system shall be braced laterally and longitudinally as needed using steel strapping designed to satisfy design loads and the roof system used. Framing design shall include bracing as required to resist the following: Applicable horizontal loads, a minimum of 2% of the vertical load applied laterally, and forces developed in the plane of the roof as a result of vertical roof loads and wind loads. Strapping and bracing may not be shown in the Project Drawings.

C. Framing System Components: Provide cold formed steel framing system members of minimum gages indicated herein with a protective shop primer coating conforming to FS TT-P-646. Sheet steel for forming members shall conform to ASTM A1011 with a minimum yield strength of 55 ksi.

a. Base Clips: shall be minimum 14 gauge steel, exact size as required by the roof system manufacturer based on project specific calculations (coordinate with purlin size). Members must have a red shop primer coat.
b. Purlins, Purlin Clips, Rake Angles, Eave Angles, Support Angles and Plates, Supplemental Channels: shall be minimum 16 gauge steel, exact size as required by the roof system manufacturer based on project specific calculations and formed from channels, zee-shapes, or steel angles. Members must have a red shop primer coat.
c. Transverse and Longitudinal Angle Bracing: Minimum 18 gauge formed steel, size as required by the system manufacturer.
d. Purlin Stabilization: Minimum 2" wide, 0.023" thick 50 KSI steel strapping.
e. Provide other framing components as required by the manufacturer and noted in the sealed shop drawings for the retrofit framing.

D. Fasteners: Fasteners between framing members shall be self-tapping and self-drilling with a size, head type, washers, spacing and number of fasteners etc. as required by the system manufacturer.

Fasteners securing base clips to the existing structure will need to be selected by the Contractor based on pull-out testing performed and comparison to manufacturer positive and negative load on each purlin/post. Final approval of fasteners will be provided by the Designer based on review of fastener pull test results and manufacturer calculations.

2.02 SHEET METAL ROOF SYSTEM MATERIALS

A. Metal Roof Panels: Shall be 22 gauge galvalume steel, 33 ksi yield strength, conforming to ASTM A-792; shall be pre-finished with a two-coat, coil-applied, baked-on fluoropolymer coating system based on Kynar 500 resin, with a top side total dry film thickness of 0.80 mil (minimum); bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Color shall be as indicated on the drawings, or as selected by the Owner from the manufacturer's standard colors.
   1. Roof panels shall be fabricated with standing seams spaced 16 inches on center. Finished height of standing seams shall be a minimum of 1.5" and maximum of 2" in height.
   2. Roof panels will have striations on the panel surface.
   3. Roof panels must be fabricated in continuous lengths without panel end laps.
   4. Panels shall have factory applied sealant within the standing seams and be mechanically seamed with field operated electric seaming machine provided by the manufacturer.

B. Panel Clips: Shall be 18 gauge galvanized steel and clip leg shall be 22 gauge galvanized steel, 33 ksi yield strength, length as required to provide an integral lock with finished standing seam. Clips shall be two piece and designed to allow for expansion and contraction of the roof. Clips shall come with pre-drilled holes for two fasteners and shall be fabricated with embossments that raise underside of the panels above the substrate. Clips shall be fabricated with structurally embossed outstanding legs to prevent distortion due to wind uplift forces. Provide bearing plates, thermal spacers, or other accessories if necessary.

C. Panel Clip Fasteners: Shall be cadmium or zinc plated carbon steel, size head profile and length, ¼"-20 Tek 5, or as required/recommended by the roof system manufacturer. Length of fasteners shall be sufficient for fastener to penetrate clip and substrate as required (steel penetration, min. 3/4"). Provide 2 fasteners per clip.

D. Acceptable Manufacturers:
   1. Acceptable manufacturers of the specified standing seam metal roof systems (including retrofit metal, roof panels, and trim/flashings) include:
      a. McElroy Metal
      b. MBCI
      c. Architectural Metal Systems

   2. The cited examples are used to denote the quality standard of product desired. Requests for substitutions must be submitted by qualified project bidders and will not be accepted directly from manufacturers. Submitted requests must include sufficient documentation to indicate that manufacturer and/or product submitted meet the requirements of these specifications and are equivalent to the quality of those listed. The acceptance of any substitutions is at the sole discretion of the Designer.

E. Sheet Metal Flashings: Metal roof system flashings including gutters, downspouts, rake and eave trims, ridge flashing, offset cleats, etc. shall be fabricated from the same general substrate material as the metal roof panel and shall be pre-finished to match the metal roof panels unless otherwise noted. Sheetmetal components shall be fabricated from 24 gauge metal with the exception of the eave flashing, and lower fascia at the eave and rake which must be fabricated from 22 gauge metal. Refer to Section 076200 - Sheet Metal Roof Flashings for additional information. Flashings shall generally follow the profiles shown on the design drawings but the Contractor may suggest slight modifications as a part of the submittal process.

F. Supplemental Supports (angle/hat channel), Ridge Support/Backing Plate: Cold-formed steel, minimum 18 gauge, G90 galvanized structural steel shapes, minimum yield strength of 33 ksi, in accordance with ASTM C955. Profiles must match as generally shown in the design details or as required by the manufacturer for proper support of the new roof system panels and flashings.

G. Fasteners: Provide fastener size and length that meet the manufacturer's requirements:

1. Exposed Panel/Flashing to Framing/Support: Unless otherwise required by the manufacturer, provide #12-14 by 1-1/4" or larger stainless steel, 3/8" hex-head fasteners with ¾" OD aluminum-backed EPDM washers. If required by the manufacturer an alternate long-life or ZAC fastener can be used in lieu of stainless steel.
2. Panel to Panel/Flashing: Unless otherwise required by the manufacturer, provide #14-14 by 7/8" (min.) stainless steel, 3/8" hex-head fasteners with 5/8" OD aluminum-backed EPDM washers. If required by the manufacturer an alternate long-life or ZAC fastener can be used in lieu of stainless steel.
3. All concealed fasteners must have head profiles that are countersunk or flush with the material being fastened and do not need to match color.
4. Exposed fasteners may have head profiles as recommended by the manufacturer with aluminum-backed EPDM washers. The fastener heads ***must be pre-finished to match the flashing being secured.***
5. Perform pull-testing to confirm capacity of fasteners to be used to secure new roof system components to existing materials.
6. Make minor adjustments to required fastener types, sizes, and lengths to meet manufacturer shop drawing requirements and provide adequate penetration into/through substrates.

H. Tape Sealant: Non-curing butyl tape sealant, per AAMA 809.2. Minimum 1" wide and 1/8" thick unless otherwise shown on the Project Drawings or required by the roof system manufacturer.

I. Gunnable Sealants: For concealed sealants provide non-curing butyl per AAMA 809.2. For exposed sealants or sealant between roof panel ribs, provide single component, non-sag polyurethane sealants per ASTM C920.

J. Panel Closures: Provide sheetmetal closures/supports along cut edges of panels.

K. Vented Ridge: Provide pre-fabricated perforated vented ridge component flashing or ridge ventilation media as provided by the roof system manufacturer for use with their ridge flashing.

Perforated flashing must be 22 gauge stainless steel or 0.040" aluminum with 1/8" diameter holes at 33 per square inch and 40% open area. Vented ridge detail must be acceptable to the manufacturer for inclusion in the roof system warranty.

L. Ventilation Unit with Flat Pan Curb/Flange: Pre-fabricated spun aluminum vent with one piece throat and 0.063" aluminum flange/skirt with welded seams to allow for installation with a standing seam metal roof system as shown on the details. Side flange shall extend to next natural seam in the roof panels and conform to seam configurations. Construction shall conform to commercial quality specifications, with fully mitered and welded corners. All welds shall be continuous. Throat diameter may vary based on the size of the existing low-profile vent that is being replaced. For the purpose of bidding, assume throat diameter of 12" for the vent. The vent must be approved/recommended by the roof system manufacturer and use must not void the roof system warranty. Example of approved vent: Penn Vent. Unless otherwise requested, vents shall be pre-finished or powder-coated to match the roof color.

M. Half-Round Dormer with Louver and Flat Pan Curb/Flange: Pre-fabricated dormer of 0.080" aluminum with a skirt to allow for installation with a standing seam metal roof system as shown on the details. The dormer shall be a half round dormer, general size/profile to match the existing metal dormers. The front face of the dormer shall contain a louver manufactured with the same material at the dormer. The louver shall include a stainless steel bird/insect screening. Side flange of dormer shall extend to next natural seam in the roof panels and conform to seam configurations. Construction shall conform to commercial quality specifications, with fully welded seams and mitered corners. All welds shall be continuous. The louver must include an integral diverter to prevent entry of blowing rain. The dormer curb must be approved/recommended by the roof system manufacturer and use must not void the roof system warranty. It is expected that the dormer curbs with louvers will need to be custom fabricated. Unless otherwise requested, dormers/louvers shall be pre-finished or powder-coated to match the roof color. Profile is desired to match dormers at nearby Parrott Building.

N. Snow Guard System: Snow guard system shall be a snow retention "fence/bar" style system designed for installation on the seams of metal roof panels without penetrating the metal roof panel, and shall come complete with drilled holes, clamps, or hooks for anchoring. Snow guard system shall come complete all accessories including ice/snow flags, couplings, end caps, and end collars. Cross bars/members must be capable of having a pre-finished piece of sheetmetal, matching the color of the roof system, inserted at the face. Snow guard system shall be fabricated from extruded aluminum, 6061-T6 for block; 6005-T5 for flag. Utilize 300 series stainless steel set screws and attachment bolts. Snow guard system must be designed to resist code required snow loads at the eave. If one row of snow guards is insufficient due to roof slope, snow load, or length of panels, provide additional rows as recommended by the manufacturer. Basis of design is ColorGard manufactured by S-5! Metal Roof Innovations, or approved equal as manufactured by Alpine Snow Guards or TRA Snow Brackets.

O. Pre-fabricated Flashing Boot: Pre-fabricated EPDM or silicone boot able to be trimmed to accommodate round penetrations from ½" diameter to 12" diameter and have a service temperature range of -65 degrees F to 250 degrees F. Boot must be proven resistant to deterioration from UV light and ozone and be specifically designed for use with standing seam

metal roof systems. Roof manufacturer must accept use of the flashing boot as a part of the warranted roof system. Manufacturer must have available a light or dark grey colored boot.

P. Vent Pipe Extensions: Shall be schedule 40 PVC connected to the existing vents with rubber connectors and stainless steel clamps.

Q. Stainless steel band clamp (at penetrations): Provide a min. ½" wide stainless steel plumbers clamp.

R. Pop Rivets: Where concealed pop rivets shall be stainless steel. Where exposed, rivets shall be corrosion-resistant galvanized steel and be pre-finished to exactly match the color of pre-finished flashings they are securing.

S. Provide other perimeter flashings, cleats, sheetmetal trim, and system components not specifically noted but required for proper installation of the new roof system.

T. Coating for Downspout Boots and Vent Pipe Extensions: 2 coats, 2 mils dry film thickness per coat or more if recommended by the paint manufacturer. Provide primers as recommended by the manufacturer. Colors to match the new pre-finished metal roof panels. Acceptable products and manufacturers include, but are not limited to: 9100 High Performance Epoxy, by Rust-Oleum Corporation; Super Spec HP D.T.M.. Acrylic Low Lustre P25, by Benjamin Moore and Co.

U. Backer Rod and Sealant: Provide closed cell backer rod, width to provide a friction fit in the joint between the existing gable louver and masonry. Provide single component, non-sag polyurethane sealant per ASTM C920 and associated primer.

V. Purlin Bearing Extension Components: Provide steel purlin bearing extension components, bolts, and strapping as specified on the detail drawings.

W. Roof system products and accessories used for installation of the standing seam metal roof system shall be manufactured by or supplied by the roof system manufacturer. Materials not manufactured or supplied by the roof system manufacturer must be approved by them in writing to confirm approval and inclusion in roof system warranty.

PART 3 EXECUTION

3.01 FRAMING SYSTEM INSTALLATION

A. Ensure that the existing roof system preparation is complete, that purlin bearing extension and attic protection work has been installed, components requiring removal have been removed, perimeter blocking has been inspected and supplemental fastening installed.

B. Framing installation shall be as specified and in strict accordance with the retrofit system manufacturer's approved installation documents and sealed shop drawings (erection drawings).

C. Contractor must field verify the existing structure locations prior to base clip layout and installation. Perform fastener pull-out testing at a minimum of six steel structure locations to confirm adequacy of fasteners to be used to connect the retrofit system to the existing structure.

D. Install the retrofit framing system with base clips installed directly over the top of the existing shingled roof to allow for securement of purlins perpendicular to the slope and secure them through the existing shingles and deck into the top flanges of the existing steel member. Base clips should be secured through a full bed of sealant to ensure that a watertight condition will be maintained.

E. Secure purlins to the base clips at spacings required by the manufacturer. Install supplemental channels and purlins at perimeter and corner zones to reduce distance between purlins for panel securement as required to resist wind uplift loads. Install required eave and rake support angles, bracing and strapping, and other required framing components. Purlins and channels should have consistent installation without waves, warping, buckles, fastening stresses or other distortion. Take care in the retrofit framing process to prevent or minimize oil canning in the metal roof panel system.

F. Field cutting of members should be performed safely and to prevent damage to the existing roof system or the adjacent pre-finished metal roof system materials.

G. Erection tolerances are 1/8" maximum over the length of member for variations from plumb, level, true place, member from place; and 1/4" maximum over the length of the member for true position.

3.02 STANDING SEAM METAL ROOF SYSTEM INSTALLATION

A. Install weathertight standing seam metal panel system in accordance with the manufacturer's written instructions, approved submittals, and project drawings. Install the metal panels in orientation, sizes, and location as required to provide a weathertight system. Panel should be installed free of waves, warps, buckles, fastening stresses, and distortions. Set panels true to line. Panels should be fabricated to extend the full length from ridge to eave without swege laps. Panels with kinks, dents or other damages to the panel ribs may potentially be rejected. If damage occurs to a panel rib during installation either replace the panel or contact the Designer to allow for review of the damage to determine if other repair actions may be possible.

B. Secure roof panels to the retrofit framing members using panel clips and a minimum of two fasteners per clip as shown on the design details and the approved shop drawings as recommended by the manufacturer. Install system vented ridge, rake, and eave flashings, etc. with cleats, sealant, tape sealants, and fasteners as shown on the details and as recommended by the manufacturer.

C. Install the new vent and dormer curbs/skirts and supplemental framing where shown on the drawings. Curb should be sized to extend to adjacent panel ribs to allow for installation of rib transition details as shown on the drawings. Curb should be installed to extend up beneath the roof panels on the upslope side of the curb and to overlap the panels and ribs (with rib caps) on

the downslope side. Extend ductwork to equipment/vents, etc. at new roof height. Extend pipe vents and flash with pre-fabricated flashing boots.

D. Roof panels shall be carefully aligned and fit onto panel clips so that seams may be joined and seamed. Panel clip locations are critical to avoid crowning, excess pressure to fit clips, or induced stresses on the panels that could result in significant oil canning or other visible condition.

E. Mechanically seam the panel ribs to form the standing seam.

F. Install flashing, trim, and accessories around building perimeter. Install new eave trim and gutter, and downspouts. Sequence installation to allow for proper order of work with installation of the new roof system panels and flashing. Flashings and trim must be installed without crowning, or poor fit causing oil canning or stresses. Damaged/dented flashings will not be accepted and should be replaced immediately if damaged during installation.

G. Install all other roof system components, flashings, and accessories as shown on the drawings or required by the manufacturer in accordance with the manufacturer's instructions for proper and complete system installation.

H. Install butyl tape sealant at eaves and rakes, etc. to prevent the entry of moisture into the roof system as required by the manufacturer and shown on the details.

I. Exposed edges of flashings shall be hemmed unless otherwise noted; hems shall be concealed from view.

J. Dissimilar metals shall be kept separated to prevent galvanic action. Preventive measures shall include separation by suitable bituminous paint, or non-conductive separation sheet.

K. No unnecessary foot traffic shall be allowed over the new metal roofing system. Materials, tools, and equipment shall not be stored on metal roof areas. Contractor shall plan sequence of work, worker equipment and footwear, and material storage and handling to prevent damages to the panels and pre-finish. Protect pre-finished metal panels from exposure to mortar, concrete, and other cementitious materials.

L. Abrasions, scratches, scrapes, etc. shall be touched up with paint furnished by the sheet metal manufacturer. Physical damage to standing seams or panel edges may result in rejection by the Designer, and require removal and replacement of the panel. Minor damage that is accepted by the Designer must be touched-up to prevent potential corrosion at damaged pre-finish coat. Touch-up paint activities must be coordinated with the Designer to allow for direction by Designer and Owner prior to proceeding.

M. Snow Guard System: Snow guards shall be installed in one row approximately 12" upslope from the eave or at a manufacturer recommended location. Snow guard blocks shall be secured to the seams of the roof with non-penetrating clamps specifically designed to not penetrate the roof panel seam. Set screws should be tightened as required by the manufacturer of the snow guard with a calibrated torque wrench. The spacing of the snow guard blocks/clamps shall be a maximum of 32" unless otherwise recommended by the manufacturer or approved by the

Designer. Install pre-finished metal strip into the cross member prior to installation on the clamps. Do not cantilever the cross bar more than 4" past a clamp. Install couplings, end caps and end collars to result in continuous rod and to prevent entry of moisture into the rod. Install snow flags, minimum of one between each roof panel seam, equally spaced.

N. Coating for Non-galvanized steel or PVC: Apply primer and minimum 2 coats of specified paint. Prepare surfaces to be painted in strict accordance with the paint manufacturer product data and instructions. Evenly apply each coat avoiding holidays, drips, and voids. Take care not to allow painted materials to come into contact before paint is dry.

O. Purlin Bearing Extension Components: Install steel purlin bearing extension components, bolts, and strapping as specified on the detail drawings. Welds shown to secure the plate to the angle must be made during fabrication.

P. Install other roof system products and accessories not specifically listed herein in strict accordance with the metal roof system and/or product manufacturer's recommendations and installation instructions.

3.03 FIELD QUALITY CONTROL

A. A set of roof plans, details, and specification sections shall be in the possession of the roofing foreman at all times during roof system installation. On-site roofing personnel must be familiar with the requirements of the design documents for the specific project.

B. The Contractor is responsible for initiating and maintaining daily execution of a quality control program that will include, but is not limited to supervision by the job foreman or supervisor during substrate preparation, installation of panels, flashings, and other system components.

C. Correct defects and irregularities as directed by Engineer or Owner's representative. If inconsistency in the overall quality of the installation is observed or suspected by the Engineer, Owner, or roof system manufacturer, work shall stop until proper corrective actions are taken to ensure continuity of the workmanship.

D. Require representative of manufacturer to make inspections as necessary, (minimum of 6 visits) to qualify roofing system for manufacturer's warranty specified in this section. Refer to Section 014000 for additional requirements.

E. Inform Engineer of all manufacturer inspections a minimum of 48 hours before inspection is to take place. Provide a copy of manufacturer's inspection reports to the Engineer.

3.04 JOB AND WEATHER CONDITIONS

A. Suspend all application and installation activities during inclement weather and confirm proper temperature and humidity ranges prior to application of sealants and other products reliant upon temperature/humidity for proper installation.

B. Protect the building interior from water entry by providing a weathertight tie-in at the end of each day's work or when the weather is threatening. Failure to protect the building interior may result in replacement or repair of damaged interior finishes and property.

C. Limit foot traffic and material storage on completed roof surfaces. Roof replacement must be sequenced to limit foot and equipment traffic over areas of new roof panels. Where foot and equipment traffic over the newly installed roof system cannot be avoided provide protective walkway material.

3.05 TEMPORARY WATER CUT OFFS AND WATERTIGHNESS DURING CONSTRUCTION

A. Protect the building interior from water entry by providing a weathertight tie-in at the end of each day's work or when the weather is threatening. Failure to protect the building interior may result in replacement or repair of damaged interior finishes and property. The Contractor may visually check the interior conditions of the building at times when inclement weather occurs (strong thunderstorms, hurricanes, tropical depressions, extended rain events) and the work crew is not on-site, including after work hours, weekends, and holidays. Discovery of water entry into the building during inclement weather must be immediately followed by action by the Contractor or representative to prevent or limit damage or affect on interior finishes and materials. Immediate preventative actions shall be followed promptly by temporary repair activities to reduce or stop water entry into the roof system.

B. The Owner may make temporary repairs or take temporary action to prevent water from entering the building. Performance of these repairs/actions by the Owner does not indicate acceptance of the condition and does not absolve the Contractor from the responsibility of prompt permanent repairs and replacement, repair, or reimbursement for damaged interior finishes/features. The contractor will make permanent repairs with no cost to the Owner.

C. If water entry into the building occurs, the Contractor must promptly review and agree upon the damages with the Owner's representative. Repairs to the interior finishes must be completed promptly within a scheduled time frame agreed upon by the Owner. Replacement, repair, or reimbursement for damaged interior materials (equipment, books, furniture, etc.) must be completed promptly within a scheduled time frame agreed upon by the Owner. If the timeline provided by the Contractor is not satisfactory to the Owner, and an agreement cannot be promptly reached, the Owner reserves the right to perform such repairs or replacements and shall deduct the cost of repairs from the Contract Sum.

D. The Contractor may, at his option, provide additional protection of interior materials at areas of specific concern or liability. Installation of protection such as plastic sheets, etc. shall be performed by the Contractor's personnel with the advance approval of the Owner. Installations shall not damage permanent materials or finishes. Contractor shall be responsible for removal of the temporary protection for normal use of the interior contents upon the Owner's request.

3.06 JOB COMPLETION

A. Inspect completed roofing and correct defects to meet the specification requirements.

B. Roof system manufacturer's representative shall inspect the completed roofing system and notify the Contractor of any defects in the application.

C. Clean up debris, excess materials and equipment, and remove from site.

D. Provide an overall surface cleaning of the roof panels and remove excess sealant and remaining plastic films. Remove all debris from gutters.

END OF SECTION 074100

SECTION 075400

THERMOPLASTIC SINGLE-PLY ROOF SYSTEM

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide labor, materials, equipment and supervision necessary to install a new thermoplastic single-ply roof membrane system, flashings, and accessories following removal and disposal of the existing roofing materials at the Soiled Linen A-D Roofs, Front Entrance Roof, and Roofs A-E (connector corridor roofs).

B. Remove the existing single-ply roof system materials down to the roof deck, dispose of removed materials off-site, inspect the existing deck and wood blocking to remain, and repair/replace as necessary to provide an adequate substrate for the new roof system in accordance with Sections 024110 and 061140. Install new blocking and make other required modifications in accordance with these specifications and the design details prior to installation of the new roof system.

C. Install a new fully-adhered, heat-welded thermoplastic roof system with insulation, high density cover board, membrane, membrane flashings, membrane-clad metal, and other associated components as required for proper installation of the overall system in accordance with these specifications and the roof system manufacturer's installation instructions. Refer to additional material and installation requirements of this section.

D. Provide and install sheetmetal flashings, gutters, downspouts, counterflashings, and other metal flashing accessories in accordance with Section 076200.

E. Provide and install other accessory or incidental components, or modify other roof features/items, not specifically listed or shown on drawings, but required for the complete and proper installation of the new roof system.

F. The new roof system shall be watertight, must meet the requirements for UL Class A fire classifications, and shall meet the requirements for wind uplift as specified herein and in accordance with the North Carolina State Building Code and ASCE-7. The overall quality of roof system installation shall be sufficient to obtain the manufacturer's specified warranty, meet recognized industry standards, and shall not include distresses or damages that may prevent the membrane and flashings to continue to perform in a watertight condition, with reasonable maintenance, over the 20-year manufacturer's warranty period.

1.03 PERFORMANCE REQUIREMENTS

A. The building is not FM insured. However, fastening/adhesive patterns and insulation securement methods comparable with the wind uplift resistance provided by a FM 1-90 classification will be acceptable. Field, corner, and perimeter zones for wind uplift and associated minimum uplift loads will be provided as shown on the drawings. Provide additional enhancements (i.e. peel stops) if required by the manufacturer to meet wind uplift requirements.

B. The installed membrane and flashing system must be capable of withstanding code-applied wind uplift pressures, thermally induced movement, and exposure to weather over the life of the system without failure due to defective manufacture, fabrication, installation, or other defects in the system or building construction. Failure is defined as failure to remain watertight, or accelerated weathering or aging of system components that reduce the anticipated service life or void the warranty of the roof system.

C. The roofing materials provided must be compatible with one another under the conditions of service and applications required and as indicated by the membrane roofing manufacturer to be acceptable based on testing and field evidence.

D. The system will provide positive drainage to perimeter gutters and there will no evidence of standing or ponding water on the roof surface within 48 hours after a rainfall event.

1.03 QUALITY ASSURANCE

A. Standards: Comply with standards specified in this section as they apply to the provision and installation of components specified herein.

B. Qualifications of Manufacturer:

1. Membrane and flashing products used in the work included in this section shall be produced by a single manufacturer regularly engaged in the manufacturer of specified items and with a history of successful production for a minimum of 10 years in the United States without change in the basic product design or blend or location of manufacture (ex. no significant changes to composition, polymer specification, or filler formulation, etc.). Provide other system components such as primers, insulation, adhesives, fasteners, mastics, sealants, and metal flashings, only as approved by manufacturer of primary membrane materials.
2. Products and systems must be capable of obtaining the roof system manufacturer's full system, no dollar limit, non-prorated warranty.
3. The Roof System Manufacturer must certify that they have reviewed the design drawings and specifications and have found them capable of obtaining the specified full system warranty, or have notified the Designer of variances. This certification/acknowledgement must be submitted with the bid and included as part of the Pre-Job Submittal process. This form has been provided with the Form of Proposal in the front of the Project Manual.
4. The manufacturer must attend a Pre-Installation Roofing Conference at the project site prior to the start of roofing installation.
5. The manufacturer must have available technical assistance and written material application guidelines for the contractor during the project as necessary to complete the installation in accordance with the membrane system manufacturer’s warranty requirements and these specifications.

C. Manufacturer Inspection: The roofing system manufacturer must perform a minimum of two on-site inspections of the system during membrane installation. The first inspection should be made within the first three days of start of roofing. The inspections must be performed by manufacturer's technical representatives (sales personnel will not be acceptable for these

inspections). Manufacturer inspection reports must be submitted within one week of the inspection to allow for approval of payment applications.

1. Roofing Consultant must be made aware of manufacturer site visits.
2. The manufacturer's final inspection must be performed with the Roof Consultant present. A minimum of five working days written notice is required. Failure to have the Roofing Consultant present at the inspection may result in repetition of the inspection at no additional cost to the Owner.

D. Qualifications of Installer:

1. The roofing installer must have experience installing specified materials on projects of equal to greater size, for a minimum of five (5) years
2. The roofing installer (and any subcontractors if applicable) must be approved/certified by the roof manufacturer to install the warranted roof system as of the bid date and must be able to provide written proof of certification. Products installed shall be approved by the roof system manufacturer.
3. The roof system installer must have adequate number of skilled workmen, thoroughly trained and experience in the necessary craft. Workers performing installation must be led by a job foreman with a minimum of three (3) years experience in the type of installation specified whenever work installed will become part of a warranted roof system (including related flashing work).
4. The roofing foreman must be capable of communicating fluently in English or a full-time translator must be provided and identified by the roofing installer. The translator must be on site at all times that the crew and foreman are present.
5. Attend a Pre-Installation Roofing Conference at the project site prior to the start of roofing installation.
6. Comply with pertinent codes and regulations including recommendations contained in the most recent edition of the Manual of Low-Sloped Roofing and single-ply thermoplastic details published by the NRCA and the manufacturer’s written installation instructions. Where manufacturer or NRCA recommendations differ from the design specifications and drawings, the more stringent requirement will take precedence unless otherwise agreed upon with the Engineer.
7. Unless waived by the Designer, provide an on-site refresher course/training session by the manufacturer’s technical personnel to ensure the crew is capable of proper heat-welding of the manufacturer’s membrane. The Contractor may hold this training at their office in lieu of on-site only if approved with the Designer in advance. This requirement may be waived if the Contractor can provide confirmation from the manufacturer that the specific workers that will perform installation have undergone manufacturer-provided heat-welding training on the manufacturer’s membrane within 6 months of the start date of the project.

1.04 SUBMITTALS/SHOP DRAWINGS

A. Submit written confirmation of contractor’s approved applicator’s status from the roof membrane system manufacturer and manufacturer’s certification that the submitted system will meet the requirements of this project and warranty.

B. Provide a complete list of materials proposed for use including product data sheets and SDS for each product including accessory materials (fasteners, primers, sealants, etc.).

1. When multiple products, thicknesses, etc. are shown on a single product data sheet, identify specific components intended for use.
2. For fasteners identify exact fastener type, material, and locations intended for use.
3. Product data provided must be sufficient to confirm that materials meet these specifications.

C. Submit membrane manufacturer's application manuals, which describe completely the preparation of surfaces and application of specified materials.

D. Provide a sample copy of the Roof System Manufacturer's warranty and the Contractor's warranty meeting the requirement specified in this section. Although the warranty may be a sample copy it should bear the project name and have any warranty lengths and riders/additional statements marked in to confirm it meets the specified requirements.

E. Provide Shop Drawings: For the roof system include roof plans, sections, tapered insulation layout, and details to clearly indicate profiles and attachments of roof components. Provide adhesive patterns and layout corner, perimeter, and field locations for insulation and insulation adhesive patterns for coverboard. Drawings should include flashing and membrane terminations and should incorporate tie-in to sheetmetal components. Details may not be altered from the design drawings unless changes are specifically noted on the shop drawings and approved by the Designer prior to installation. Submittal of the manufacturer's generic details is not acceptable unless it is covering a standard condition not specifically shown on a design detail. Due to site-specific conditions, some design details may have non-standard conditions or low flashing heights and confirmation of acceptability by the warranting manufacturer is required.

F. Submit a 12-inch by 12-inch sample of roofing membrane, insulation board, coverboard, and other accessories, with manufacturer's identification labels attached (only if specifically requested by the Engineer).

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials and accessories in the manufacturer's original protective containers and wrapping with labels intact and legible. Comply with the manufacturer's published instructions for storage and handling in accordance with Section 016000. Materials should be ordered and delivered in amounts required to allow for continuity of application.

B. Raise materials stored on site above ground level and prevent wetting by precipitation or condensation, damage by wind, or exposure to UV. The manufacturer's wrapping alone will not be considered adequate protection against damage by inclement weather and UV exposure and should be removed or cut. Tarps to cover materials completely should be utilized. Maintain temperature and humidity ranges required by the manufacturer for each product.

C. Store rolled goods on end on clean, flat surfaces raised above the ground. Store flammable products on the ground away from sparks or open flames. Gasoline and open flammable materials shall be removed from the roof daily.

D. Store roofing materials within temperature and humidity ranges recommended by the prior to use as recommended by the roof membrane system manufacturer. Protect material from freezing.

E. Handle materials to prevent damage and contamination with dirt, debris, moisture, or other foreign matter. Materials damaged by rolling, dropping, or bending of materials due to inadequate handling or support may not be allowed for installation within the roof system.

F. The Designer retains the right to mark materials observed to be wetted or damaged due to improper storage and mishandling and request their immediate removal from the roof and/or site.

1.06 JOB CONDITIONS

A. Proceed with roofing work only when weather conditions comply with roof membrane system manufacturer's recommendations. Do not violate temperature limitations recommended by the manufacturer.

B. Do not install roofing products that cannot be exposed to moisture if inclement weather is imminent based on reliable weather forecasts and Doppler radar.

C. Do not install materials with odors or fumes (i.e. adhesives, coatings, sealants, etc.) in proximity to mechanical equipment, air intakes, windows, or other locations without coordinating in advance with the Owner and taking steps to prevent entry of odors and fumes into the building. Shutting off air intakes and equipment, covering air intakes/windows and equipment with plastic, and ensuring good ventilation on sunken/inset roof areas will be required to ensure the safety and comfort of building occupants.

1.07 WARRANTIES

A. Provide a Contractor's Two-Year Warranty in accordance with Section 014000.

B. Provide roof membrane system manufacturer's twenty-year non-prorated, no dollar limit, full system warranty covering labor, materials and workmanship of the roofing system against water entry (leaks), faulty workmanship, and material defects. The manufacturer shall replace insulation and other roof system materials which have been damaged by leakage when that insulation or material contains detrimental amounts of moisture. The warranty will extend for a period of twenty (20) years from the date of Substantial Completion or other date if agreed upon by the Owner.

1. If the warranty includes exclusionary language for wind events such as "gale" or "hurricane", the warranty shall clarify, or shall have an attached letter from the manufacturer to clarify, the maximum wind speed covered by the warranty. Warranty shall cover, at minimum, wind speeds up to 72 miles per hour.
2. The manufacturer shall replace insulation and other roof system materials which have been damaged by leakage when that insulation or material contains detrimental amounts of moisture.
3. The manufacturer's warranty shall not require the signature of the Owner's representative to be valid.
4. The Contractor must coordinate the number of site visits required by the manufacturer to issue the warranty.

5. A minimum of two visits to the site by a technical representative of the roof system manufacturer are required. The roofing contractor is solely responsible for scheduling site visits by the roof system manufacturer as necessary for the specific purpose of issuing the specified warranty. A copy of the manufacturer's inspection report and list of items requiring repair/completion shall be provided to the Engineer for review.
6. Warranty language for the Manufacturer warranty shall not prevent the Owner from making emergency repairs during the warranty period for the purpose of stopping or limiting damages to interior finishes and components until permanent repairs can be made. Emergency repairs shall not void the warranty as long as they are performed in general accordance with accepted industry standards for materials and methods or in accordance with operations and maintenance documentation for the roof system.
7. If emergency repairs will not be allowed, the warranting party must incorporate language in the warranty to provide emergency leak repair response to the Owner within 12 hours from time of their notification to the warranting party by phone.

C. The roofing contractor is solely responsible for scheduling site visits by the roof system manufacturer as necessary for the specific purpose of issuing the above specified warranty. A copy of the manufacturer's inspection report(s) and list of items requiring repair/completion shall be provided to the Engineer for review.

PART 2 PRODUCTS

2.01 ROOF INSULATION AND COVERBOARD

A. General: Provide preformed, roofing insulation boards that comply with requirements, selected from manufacturer's standard sizes and of thicknesses indicated. Insulation and coverboard must be supplied by, or approved in writing by, the warranting manufacturer of the roof membrane system.

B. Tapered and Flat Board Insulation: Shall be comprised of closed-cell polyisocyanurate foam core with factory laminated fiberglass reinforced facers (ASTM C1289, Type II, Class 1). Foam core shall have a flame spread of 25 or less and shall have a minimum density of 2 pcf. Compressive strength shall be a minimum of 20 psi nominal in accordance with ASTM D1621. Tapered board insulation shall be 1/8" per foot slope with a minimum 1.5" thickness at the eaves. Flat board (Roof C only) shall be 1.5" thick. The rigid insulation shall be acceptable to the roof membrane manufacturer for use with their products and for inclusion in the specified warranty for adhered applications. Maximum board size: 4'x4' for mechanically-adhered

C. Coverboard/Overlayment Board: Shall be a non-structural, fire-rated, fiberglass-faced gypsum product with a silicone-treated, water-resistant gypsum core. Shall have factory-laminated fiberglass surface mats, front and back. Size of gypsum board shall be of maximum dimension possible to minimize number of joints. Thickness of thermal barrier shall be 1/2". Board shall meet or exceed the requirements of ASTM C1177 and ASTM D3273. Board shall have a flame spread of 0 and smoke developed rating of 0 in accordance with ASTM E84. Board shall be specifically designed for use in roof assemblies and shall be approved by the roof membrane manufacturer. Maximum board size of 4'x4' for adhered applications.

D. Adhesive for Insulation and Overlayment Board Attachment: Provide a low-rise polyurethane adhesive specifically designed for bonding specified insulation and coverboard. Adhesive shall be pre-approved by the roof system manufacturer for use with the proposed system, coverboard, rigid insulation, and nailed base sheet). Adhesive shall be listed and approved to meet wind uplift requirements from the North Carolina State Building Code and ASCE-7. Adhesion tests will be required prior to installation.

2.02 ROOF MEMBRANE AND ACCESSORIES

A. Roof membrane shall be a thermoplastic polymeric single-ply polyvinyl chloride (PVC) or ketone ethylene ester (KEE) membrane with fiberglass or polyester reinforcement, meeting ASTM D4434 (PVC) or D6754 (KEE) and the technical membrane properties specified. The membrane shall be acceptable for fully adhered applications. Membrane color will be confirmed during the pre-job submittal process; however, for the purpose of bidding, it is anticipated that the color selected will be selected from the manufacturer's standard color selection and the manufacturer must have a minimum of 3 colors available as standard (including availability of flashing membrane and clad-metal of the same color). The roof membrane system shall be watertight and shall meet Underwriters Laboratories (UL) requirements for a Class A roof system. The system will be installed over new insulation and coverboard. The membrane must be capable of being installed and warranted to meet the specified requirements over substrate with an 1/8" per foot slope and restricted flashing heights as determined by on-site conditions with variances from the manufacturer's standard requirements approved in writing by the manufacturer.

1. Acceptable manufacturers and products include:
   a. Sarnafil (G357), 60 MIL minimum
   b. Fibertite (SM), 45 MIL
   c. IB Roof Systems, 60 MIL minimum
   d. Versico (VersiFlex), 60 MIL minimum

2. Requests for substitutions must be in accordance with Section 016000. A minimum membrane thickness of 80-mils is required for all membrane systems requested as substitutions. The remaining membrane properties shall meet or exceed the minimum values of the acceptable membranes listed in 202A.3. Acceptance or rejection of requested substitutions will be solely at the discretion of the Designer.

3. The membrane properties shall meet or exceed the following minimum values:

PVC

a.	Thickness over Scrim		0.025"
b.	Breaking Strength	ASTM D751(Grab Method)	438x390
	Tensile Strength	ASTM D638	1600 psi
c.	Elongation at break	ASTM D751(Grab Method)	31%
		ASTM D638	150%
d.	Linear Dimensional Stability	ASTM D1204	.2%
e.	Tear Strength	ASTM D751	132x163 lbf

f.	Tear Resistance	ASTM D 1004	14 lbf
g.	Weight Change after immersion in water, % per ASTM D570		2.6
h.	Static Puncture Resistance	ASTM D5602	33 lbf
i.	Dynamic Puncture Resistance, 7.3 ft-lbf per D5635		Pass

KEE

a.	Thickness over Scrim		0.37 mm
b.	Breaking Strength	ASTM D751 Proc. B	350 lbf
c.	Elongation at Break	ASTM D751	18%
d.	Tearing Strength	ASTM D751 Proc. B	100 lbf
e.	Static Puncture Resistance	ASTM D5602	Correcte99 lbf

B. Membrane and Flashing Adhesives: Shall be solvent based, low VOC adhesives as provided by the manufacturer unless otherwise requested and approved by the Designer. Membrane installation with adhesive shall be listed and approved to meet wind uplift requirements from the North Carolina State Building Code and ASCE-7. (Coordinate with the Owner to shut down and cover air intakes and equipment near installation areas to prevent the entry of odors and fumes from adhesives into the building during application. Water-based adhesives will not be accepted.

C. Use membrane sheet flashing materials (reinforced and non-reinforced where required, same thickness at the membrane unless otherwise approved), solvent-based flashing adhesives, asphalt-resistant flashings, aluminum or stainless steel termination bars and/or compression bars, manufacturer recommended membrane fasteners/plates, manufacturer's pre-molded pipe vent flashings, manufacturer pre-fabricated inside and outside corners, sealants, mastics, solvents, hot-air welding equipment, separation sheets, aluminum tape, and other materials specifically recommended/required by the membrane manufacturer for specific use with the membrane, existing conditions, and application methods specified. Products shall be manufactured or sold by the manufacturer, or otherwise approved for inclusion in the specified membrane manufacturer's warranty. If a conflict exists between the manufacturer's recommended product and the specifications, notify the Engineer immediately to allow for resolution. ***Exposed flashings, sealants, and other products provided must match the color of the adjacent roof membrane on which they will be installed.***

2.03 ADDITIONAL ROOF ACCESSORIES

A. Walkway Pads/Tread: Use manufacturer-provided slip-resistant walkway pads or tread, adhered to the membrane surface with the perimeter hot-air welded to the roof membrane. Color shall be gray. Minimum width of 30". Walkway material must be capable of being cut to size to accommodate existing roof conditions. (For use beneath discharge of downspouts from upper roof areas.)

B. Sealants (Concealed): For concealed sealants required for details, and not specifically provided by or recommended by the roof system manufacturer, use butyl sealant (if tape sealant, minimum 1" wide and 1/8" thick unless otherwise shown).

C. Primer: Primers for concrete, plywood, wood blocking, metal, and other substrates shall be provided by, or approved by, the roof system manufacturer. Primers must be provided and installed unless recommended against by the manufacturer and accepted by the Engineer.

D. Tape Sealant: Butyl tape sealant, minimum 1" wide and 1/8" thick unless otherwise shown on the Project Drawings or required by the roof system manufacturer.

E. Membrane clad-metal: Refer to Section 076200 for clad-metal requirements. Product shall be manufactured by the same single-ply thermoplastic membrane manufacturer for the roof system membrane and flashing materials. Clad-metal must be available for each of the membrane standard colors.

F. Provide sheetmetal flashings, trim, gutters, downspouts, and counterflashings in accordance with Section 076200.

G. Foam Rod, Insulation and Sleeve (at Expansion Joints): Provide closed cell foam rod, size to be slightly larger than expansion joint width, preformed unfaced glass fiber batt insulation conforming to the requirements of ASTM C-665 and ASTM E-136, or mineral wool, thickness to allow for a snug friction fit, placed in a polyethylene sleeve, min. 6 mil thickness.

H. Coating for Downspout Boots: 2 coats, 2 mils dry film thickness per coat or more if recommended by the paint manufacturer. Provide primers as recommended by the manufacturer. Colors to match the new pre-finished metal roof panels. Acceptable products and manufacturers include, but are not limited to: 9100 High Performance Epoxy, by Rust-Oleum Corporation; Super Spec HP D.T.M.. Acrylic Low Lustre P25, by Benjamin Moore and Co.

I. Provide other roof system accessories not specifically listed, but required for the proper and complete installation of the roof system.

PART 3 EXECUTION

3.01 INSPECTION AND SURFACE PREPARATION

A. Perform adhesion tests to confirm the suitability of the planned adhesion patterns on the existing roof decks. Perform a minimum of 1 test total on each deck type (pre-cast hollow plank, concrete plank, and concrete). Tests must be performed in the presence of Designer, Owner's Representative, or by an independent adhesive manufacturer's representative. Test results shall be provided to the Designer prior to beginning installation of the insulation system.

B. Remove the existing roof system membrane and insulation, flashings, loose vapor barrier, sheetmetal flashings, and other items necessary for installation of new roof system and dispose of off-site in accordance with Section 024110 of these specifications. Remove only portions of the existing roofing system that can be covered with the new roofing materials and made watertight during the same work day. Inspect the deck topping and wood blocking and make necessary repairs to areas that are damaged or loose and will not provide an adequate substrate for new roof installation. Install supplemental fasteners into existing wood perimeter blocking.

C. Prepare vertical surfaces and other components that must be in place prior to insulation installation.

D. Do not apply roofing materials to deck surfaces which are damp, frozen, dirty, dusty, or otherwise unacceptable to roof system manufacturer or Engineer. Beginning installation means acceptance of existing conditions.

E. Application of materials shall constitute acceptance of the surface by the contractor. Should the Contractor find the substrate unacceptable and outside the preparation requirements contracted for, the Owner's representative shall be immediately notified in writing to allow appropriate actions to be taken.

3.02 INSULATION, AND COVERBOARD INSTALLATION

A. Install flat and tapered insulation boards, and coverboard in accordance with roof membrane manufacturer's installation instructions, approved adhesive patterns, the approved tapered insulation layout, and this specification section. Install no more insulation than can be covered with roof membrane and completed before the end of the day's work, or before the onset of inclement weather.

B. At the Soiled Linen A-D roof areas, install coverboard adhered to the existing concrete roof deck. At Front and Rear Entrance Roofs and Roofs A, B, D, and E, install tapered insulation with minimum 1.5" thickness adhered to the existing concrete plank roof deck and coverboard adhered to the insulation. At Roof C, install 1.5" thick flat insulation adhered to the existing pre-cast concrete plank roof deck, tapered insulation with minimum 1.5" thickness adhered to the base layer, and coverboard adhered to the tapered insulation.

C. Adhered insulation and coverboard:
   1. The long dimension of board shall be installed perpendicular to the planned layout of the membrane seams. Stagger end joints of adjacent boards a minimum of 24".
   2. Set board into a continuous minimum 3/4" wide bead of adhesive at a minimum rate of one linear foot of adhesive for every one square foot of insulation board (12" bead maximum spacing) located in the field of the roof. The insulation adhesive shall be installed at a maximum of 6" from the perimeter of the insulation board. Increase adhesive rates to a maximum 6" bead spacing at the roof perimeter and a maximum 4" bead spacing at the roof corner areas unless adhesion test data or the system manufacturer's design recommendations require more stringent (closer) spacing. Size of perimeter and corner zones shall be a minimum of 4' along the perimeter and 4'x4' at corners unless otherwise noted on the Building Code Summary.
   3. Do not apply the adhesive unless the temperature is 40 degrees Fahrenheit and rising.
   4. Place, do not slide, boards onto the adhesive and walk on the boards to spread the adhesive for maximum contact. Evenly weight the boards to hold them in contact with the insulation below until the second walking is performed (10 minutes after initial walk-in).

D. When handling rigid insulation boards and coverboard, take care not to rupture/damage the facers of the boards. Butt edges of boards without forcing joints. Cut boards to fit neatly to perimeter

blocking and penetrations through roof. Miter board edges if necessary for proper fit at transitions in deck slope. Fill in gaps between boards greater than 1/4" with insulation. Avoid the use of insulation pieces with dimensions less than 18".

E. Stagger board joints a minimum of 24" throughout each layer and between layers.

F. Insulation and coverboard shall be installed to promote positive drainage to the perimeter drip edge (Soiled Linen A-D) and gutter. Check insulation surfaces as each layer is installed to ensure that no unanticipated deflections, cambers, gaps, or other conditions exist that may impede proper drainage. Install additional tapered insulation at isolated locations if required to correct or improve drainage conditions in accordance with the estimated quantity of work.

3.03 MEMBRANE SYSTEM INSTALLATION

A. Strictly adhere to the applicable manufacturer's specifications for installation unless otherwise specified. Instructions and procedures described herein shall be considered minimum requirements for application of materials.

B. Organize work such that only limited foot traffic will occur on completed roof areas. Foot traffic over newly installed membrane shall be limited to protected pathways to prevent damage and staining of new membrane.

C. Fill any voids between coverboard with polyurethane foam adhesive and score smooth with the board surface.

D. Any existing rooftop ventilating equipment, exhaust fans, etc. in the vicinity of the work, or at lower adjacent levels, shall be turned off and covered to prevent the entry of fumes into the facility. Coordinate with Owner regarding covering and operation of equipment during roof work.

E. Position single-ply membrane over roof area without stretching. Allow membrane to relax for a minimum of one-half hour prior to any fastening, adhering, or seaming. Shingle all laps in the direction of water flow starting at the lowest point and working upslope. Stagger the factory seams to prevent adjacent welds from falling on top of one another.

F. Fully-Adhered Installation: Position the membrane to allow for exposure of the underside of the sheet. Apply a continuous coverage of membrane adhesive to the underside of the membrane and a mirrored area of the prepared substrate/surface. Adhesive coverage shall be a minimum of 100 sq. ft. per gallon net coverage for the membrane and mirrored substrate combined, or as recommended by the roof system manufacturer. Do not allow the adhesive within a minimum of 3-inches from the edge of the membrane. Avoid holidays, globs, and puddles. Follow the manufacturer's instructions for determining sufficient adhesive tack/dryness for mating membrane with substrate. Place membrane onto the substrate surface avoiding wrinkles and air pockets. Broom the adhered portion of the membrane to insure full contact with the substrate and complete process by firmly pressing the adhered membrane into place with a weighted roller in accordance with the manufacturer's instructions.

1. Adhesive is to be applied using rollers in accordance with the roof system manufacturer's instructions and recommendations. Do not pour adhesive out of buckets to roll in. The amount of membrane and substrate that can be covered with adhesive at one time must be determined by the method of application, the ambient temperature, humidity and number of workers available. Only apply adhesives to areas which can be completely covered with membrane within the same work day.
2. For adjacent membrane rolls, provide a minimum 3-inch lap, maximum 6" lap, at subsequent, adjacent rolls of membrane. Do not apply adhesive to the lap "seam" areas of the membrane that will be hot-air welded.
3. Track and record the amount of pails of adhesive used per square foot area by saving and dating the tops of the adhesive pails. Note in daily logs the area of membrane installed each day. Keep the dated lids from each day of membrane installation until the Designer and/or Owner can verify conformance to the specified adhesive rate.

G. Remove dirt, oil, debris, etc. from the two membrane sheets to be seamed with a damp rag or manufacturer approved cleaner. Use clean white cotton cloths for cleaning. Allow cleaning solvents to dissipate and the seams to dry prior to initiating any field welding.

H. Hot-air weld membrane seams using an automatic hot air welder to provide a continuous, homogeneous weld, a minimum of 1.5-inches in width. Use hand held welders for small areas and repairs only. Welding equipment used must be acceptable to the warranting manufacturer. Provide a dedicated generator for seaming equipment. Obtain a hot work permit if required and follow the hot work permit requirements. Patch areas of heat weld with excessive bleed out, cold welds, burned areas/marks, fishmouths, etc. **Mark and patch areas where robot is stopped/started.**

I. Once seam area has cured, probe the entire length of lap edge with an approved seam probing tool for voids or seam deficiencies. Perform destructive testing at initial seams welded for quality control of the welds and a check of the calibration of the robot welder as required by the membrane manufacturer and Designer.

J. The Contractor is responsible for coordinating with the roof system manufacturer warranting the system during bidding to confirm their understanding of this requirement and to incorporate any supplemental work items they may be required and shall include these work items within their bid.

3.04 MEMBRANE PATCHES

A. Install "T" patches at all intersections. Patches shall not be less than 6" by 6". Patches shall be centered over damaged area and extend a minimum of 6" beyond the perimeter of damaged area. Round corners of patches and fully seal.

B. Other than the patches required by the membrane manufacturer at critical locations such as "T" intersections of seams or corners of curbed equipment, or at weld test cuts, the number of allowable patches shall be limited to 10 per 1,000 square feet. If the number of patches exceeds this amount, the Designer will review the quality of the installation, membrane protection, and causes for patches, and may require that the affected roof section be replaced in its entirety.

3.05 FLASHINGS, GENERAL

A. Install flashing membrane where shown on the drawing to provide watertight transitions at perimeter details, transitions, and at items penetrating the membrane in accordance with project specifications and drawings and the manufacturer's installation instructions. Confirm use of proper flashing color to match the adjacent membrane.

B. Flashing membrane shall be fully adhered and fastened to penetration substrates, and heat-welded to the adjacent membrane, as shown on the project drawings. Where adhered, flashing should be installed in adhesive as shown on the drawings or required by the manufacturer, in sufficient quantity to insure total adhesion. Use substrate primers as recommended by the roof manufacturer.

C. Flash perimeters, edge metal, etc. according to detail drawings. Where flashing terminates on a vertical surface, fasten base flashing sheet to vertical surface 1" below top edge approximately every 8" o.c. Install sealant behind the flashing where termination bar or counterflashing is to be secured. Do not secure termination bar or continuous counterflashing across wall expansion joints.

D. Turn the membrane up the wall and secure to the base of walls and curbs with a termination bar secured at 8" on center, unless otherwise noted on the detail drawings or specified by the membrane manufacturer.

E. Clean all walls and other existing substrates to remove debris and previous materials prior to installation of new flashings.

F. Use pre-formed corners on all inside and outside corner flashings.

G. Vertical flashing shall be terminated a minimum of 8" above the roof surface. For flashing heights lower than 8" the contractor shall obtain written approval from the manufacturer that detail will be warranted without full flashing height. Contractor is responsible for bringing these details to the manufacturer's attention during bidding to ensure that the manufacturer will warrant the intended conditions.

H. Probe and repair all seams between the flashing and the membrane *the day of installation*. Use probing methods and tools recommended by the roof system manufacturer. Obtain test cuts across the heat welded seams to test for proper welding at locations/frequencies required by the roof system manufacturer.

3.06 CLAD-METAL

A. Where clad-metal will be installed along perimeter edges, provide proper placement, spacing, and flashing of the material joints in accordance with the manufacturer's requirements.

B. Provide a gap (typically 1/4") between sections of material with required separation tape and backing plate (gutter) beneath. Install membrane flashing over the joint, heat welded to both pieces of clad-metal and following the metal profile.

3.07 ROOF ACCESSORY INSTALLATION

A. Walk Pad/Tread: Determine location and size(s) of walk tread in advance. Layout walk tread to avoid installation of the tread over membrane and flashing seams. Clean membrane in accordance with the manufacturer's recommendations. Adhere field of walk tread to the deck and hot-air weld around entire perimeter of walk tread. Locate walktread beneath downspout discharge locations.

B. Sealants, Primers: Install sealants, primers, surface conditioners and other accessory items in accordance with the recommendations of the warranting manufacturer.

C. Metal Flashings: Install metal flashings in accordance with Section 076200 of these specifications.

D. Coating for Non-galvanized steel: Apply primer and minimum 2 coats of specified paint. Prepare surfaces to be painted in strict accordance with the paint manufacturer product data and instructions. Evenly apply each coat avoiding holidays, drips, and voids. Take care not to allow painted materials to come into contact before paint is dry.

E. Install other roof system accessories as shown on the drawings or required by the membrane manufacturer in accordance with the manufacturer's instructions.

3.08 FIELD QUALITY CONTROL

A. The Contractor is responsible for initiating and maintaining daily execution of a quality control program that will include, but is not limited to supervision by the job foreman or supervisor during substrate preparation, installation of insulation and coverboard, installation of fasteners and adhesives, calibration of heat-welding equipment, and probing of heat-welded seams.

B. Correct defects and irregularities as directed by Engineer or Owner's representative. If inconsistency in the overall quality of the installation is observed or suspected by the Engineer, Owner, or roof system manufacturer, work shall stop until proper corrective actions are taken to ensure continuity of the workmanship.

C. Require representative of membrane manufacturer to make inspections as necessary, (minimum of three visits) to qualify roofing system for manufacturer's warranty specified in this section. Refer to Section 014000 for additional requirements.

D. Inform Engineer of all manufacturer inspections a minimum of 24 hours before inspection is to take place. Provide a copy of manufacturer's inspection reports to the Engineer.

3.09 JOB AND WEATHER CONDITIONS

A. Suspend all application and installation activities during inclement weather and confirm proper temperature and humidity ranges prior to application of sealants, adhesives, and other products reliant upon temperature/humidity for proper curing.

B. Protect the roof deck and insulation from moisture by providing water cut-offs at the end of each day's work or when the weather is threatening. Failure to protect the deck and roofing from moisture will result in the removal of damaged materials containing excessive moisture. Remove water cut-offs prior to start of new work.

C. Strictly limit foot traffic and material storage on completed roof surfaces. Roof replacement must be sequenced to limit foot and equipment traffic over areas of new roof system/membrane installation. Where foot and equipment traffic over the newly installed roof system cannot be avoided and where sheetmetal installations are occurring above or adjacent to new membrane installations, provide minimum 1" thick rigid insulation board and ¾" thick plywood walkways to protect the new roof system.

3.10 TEMPORARY WATER CUT OFFS AND WATERTIGHNESS DURING CONSTRUCTION

A. Install a temporary watertight seal between the section of the new roof completed and the adjacent existing roof system at the end of each workday. The new roof system shall be sealed so that water will not be allowed to travel under the new or existing roof system. When work resumes, contaminated materials from the water cut off including membrane and insulation shall be removed from the work area and disposed of off-site. None of these materials shall remain or be reused in the new system installation. The insulation at the temporary cut off shall be modified to provide a staggered installation of new insulation to prevent an in-line vertical gap in the insulation at cut-off locations.

B. Until satisfactory dry in of the roof areas is completed, the Contractor shall provide the on-site labor necessary to visually monitor the interior conditions of the building at times when inclement weather is anticipated and the work crew is not scheduled to be on-site, including after work hours, weekends, and holidays. Discovery of water entry into the building during inclement weather must be immediately followed by action by the Contractor or representative to prevent or limit damage or affect on interior finishes and materials. Immediate preventative actions shall be followed promptly by temporary repair activities to reduce or stop water entry into the roof system.

C. If water entry into the roof system occurs, the affected materials shall be removed back to dry/sound materials and replaced with new materials at the Contractor's expense.

D. If water entry into the building occurs, the Contractor must promptly review and agree upon the damages with the Owner's representative. Repairs to the interior finishes must be completed promptly within a scheduled time frame agreed upon by the Owner. Replacement, repair, or reimbursement for damaged interior materials (equipment, books, furniture, etc.) must be completed promptly within a scheduled time frame agreed upon by the Owner. If the timeline provided by the Contractor is not satisfactory to the Owner, and agreed cannot be promptly

reached, the Owner reserves the right to perform such repairs or replacements and shall deduct the cost of repairs from the Contract Sum.

E. The Contractor may, at his option, provide after hours protection of interior materials at areas of specific concern or liability. Installation of protection such as plastic sheets, etc. shall be performed by the Contractor's personnel with the advance approval and oversight of the building's facilities personnel. Installations shall not damage permanent materials or finishes. Contractor shall be responsible for removal of the temporary protection for normal use of the interior contents during standard building hours.

3.11 JOB COMPLETION

A. Inspect completed roofing and correct defects to meet the specification requirements.

B. Roof system manufacturer's representative shall inspect the completed roofing system and notify the Contractor of any defects in the application.

C. Clean up debris, excess materials and equipment, and remove from site.

D. Clean drips or spills of adhesive or primers. Provide an overall surface cleaning of the roof membrane and flashings using detergents or cleaners as approved/recommended by the roof system manufacturer.

END OF SECTION 075400

SECTION 076200

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide all labor, materials, equipment and supervision necessary for fabrication and installation of metal flashings, gutters, downspouts/straps, cleats, counterflashings, trim, and accessories, as specified herein and as required by detail drawings.

B. Coordinate work of this section with work of Sections 024110, 061140, 074100, and 075400.

1.02 QUALITY ASSURANCE

A. Standards: Comply with standards specified in this section as they apply to the provision and installation of components specified herein.

B. Qualifications of Manufacturer/Fabricator:
1. Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacturer of specified items and with a history of successful production for a minimum of 10 years in the United States.
2. Sheet metal flashings and trim must be fabricated in accordance with the requirements of SMACNA and the NRCA with adequate fabrication equipment to provide required profiles and prevent damage to pre-finish.
3. Shop-fabricated perimeter metal flashing configurations must be tested and meet the requirements of ANSI/SPRI ES-1

C. Qualifications of Installer:
1. The roofing installer must have experience installing sheetmetal on projects of equal to greater size, for a minimum of five (5) years
2. The roof system installer must have adequate number of skilled workmen, thoroughly trained and experience in the necessary craft. Workers performing installation must be led by a job foreman with a minimum of three (3) years experience in the type of installation specified whenever work installed will become part of a warranted roof system (including related flashing work). In determination of acceptance or rejection of work, no allowance will be made for lack of skill on the part of the workmen.
3. The roofing foreman must be capable of communicating fluently in English or a full-time translator must be provided and identified by the roofing installer. The translator must be on site at all times that the crew and foreman are present.
4. Attend a Pre-Installation Roofing Conference at the project site prior to the start of roofing installation.

1.03 SUBMITTALS

A. Provide a complete list of materials proposed for use including product data sheets and SDS for each product including accessory materials (fasteners, sealants, etc.).
   1. When multiple products, thicknesses, etc. are shown on a single product data sheet, identify specific components intended for use.
   2. For fasteners identify exact fastener type, material, and locations intended for use.
   3. Product data provided must be sufficient to confirm that materials meet these specifications.

B. Provide color chart(s) for selection of pre-finished metal colors. Provide sample color chips upon request by the Designer. For sheetmetal provided by a manufacturer different from the metal roof system manufacturer, the color must be able to be obtained that matches the color of the roof panels/flashing closely if not exactly. The Owner may elect to choose a different pre-finished color for sheetmetal at some of the low-sloped roof areas, especially at the canopy roofs (Roofs A-E).

C. Provide Shop Drawings indicating material types, gauges, profiles, jointing patterns and details, fasteners and fastening methods, terminations, locations of field-applied sealants, colors, to clearly indicate interaction between sheetmetal flashings and roof components. Shop drawings for sheetmetal components on the standing seam metal roof would be included on the shop drawings for the standing seam metal system.

D. Provide confirmation that perimeter detailing submitted in the shop drawings meets the requirements of ANSI/SPRI ES-1.

E. Provide a sample copy of the manufacturer's standard pre-finish warranty.

F. Mock-Ups: The Contractor may be requested to perform in-place mock-up installations of representative counterflashing, gutter, rake, downspout, and other flashing installations to ensure that detailing is understood and level of workmanship is acceptable prior to the start of full sheetmetal fabrication/installation. If accepted, mock-up installations may remain in place as part of the new installation.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver sheet metal materials and accessories with original protective wrap or boxing with labels intact and legible. Comply with manufacturer's published instructions for storage and handling to prevent staining, denting, scratches, or other surface damage.

B. Store materials in dry protected areas, on clean, raised platforms with securely anchored weather protective coverings and in such manner as to prevent condensation or staining. Stack material to prevent twisting, bending, or abrasion.

C. During storage prevent material contact with any substance that would discolor or stain, including soil and water.

D. Handle pre-finished sheetmetal and products in a manner to reduce damage and scratching. Pad or tape equipment and breaks and use gloves to minimize fingerprinting.

1.05 SCHEDULING

A. The Contractor shall field verify existing conditions prior to fabrication of sheetmetal components. Minor dimensional detail changes may be required to fit existing conditions. Field verification must be performed with enough time to make revisions to shop drawings and to allow for proper fabrication of components without project delay.

B. Sheet metal work shall be closely coordinated with the installation of new system materials. Proper sequence of work will be critical to proper installation of the sheetmetal flashings and trim.

C. Sheet metal installations shall be scheduled such that system terminations will not be left unprotected.

1.06 WARRANTIES

A. Provide a Contractor's Two-Year Warranty for work included in this project in accordance with Section 014000 of these specifications.

B. Pre-Finish Warranty: Pre-finished sheet metal shall have a 20-year finish warranty stating that the pre-finish will be free of fading or color change in excess of 5 NBS units in accordance with ASTM D-2244; will not chalk in excess of numerical rating of 7 in accordance with ASTM D 659; and will not peel, crack, chip or delaminate.

PART 2 PRODUCTS

2.01 SHEETMETAL MATERIALS

A. Pre-Finished Coating: Shall be pre-finished with a two-coat, coil-applied, baked-on fluoropolymer coating system based on Kynar 500 Fluorocarbon coating with a top side total dry film thickness of 1.0 mils (minimum); bottom side shall be coated with a primer/wash with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, fading, chalking, peel resistance and longevity in accordance with ASTM D 659-80 (chalk rating of 8 or less) and ASTM D 2244-79 (5 NBS units or less). Colors for pre-finished metal shall be selected by the Owner Provide color chip samples for review and approval. The Owner may elect to choose more than one sheetmetal color dependent upon location.

B. Pre-Finished Metal Associated with Metal Roof System (Metal Roof System Gutter and Downspouts, Rake Trim, Ridge and Valley Flashing, misc flashings, etc.): Roof system flashing and miscellaneous trim installed as a part of the **standing seam metal roof system** shall be 24 gauge, galvalume steel substrate to match the roof panel substrate material unless otherwise specifically noted in the design details. Flashings shall be pre-finished in accordance with the roof panels materials in Section 074100-Sheet Metal Roofing, color(s) to be selected by the Owner. Provide pre-finished color sample chips to confirm color selections.

C. Pre-Finished Metal Associated with Metal Roof System (Eave Flashing and Lower Fascia Flashings at Eave and Rake): Fascia flashing installed as a part of the **standing seam metal roof**

system shall be 22 gauge, galvalume steel substrate to match the roof panel substrate material unless otherwise specifically noted in the design details. Flashings shall be pre-finished in accordance with the roof panels materials in Section 074100-Sheet Metal Roofing, color(s) to be selected by the Owner.

D. Gutters (Standing Seam Metal): Shall be fabricated from minimum 24-gauge galvalume and shall meet the pre-finished coating requirements of 2.01A. Gutter sizes and profiles shall be approximately as shown on the design details. Gutter hangers shall be formed from minimum 0.063" aluminum and shall be secured to the panel ribs as noted on the drawings. Provide expansion joints in the gutters to limit the maximum length to 50'.

E. Downspouts (Standing Seam Metal): Shall be fabricated from minimum 24-gauge galvalume and shall meet the material and prefinish requirements specified for the roof panel substrate in Section 074100. Minimum downspout size shall be as shown on the design documents, unless otherwise limited by existing downspout boots connecting to underground drainage lines. Downspout seams should run along the elevation or corner closest to the building. Downspout outlet flashings to match downspout materials and be a minimum 4" in length with a min. 3/8" flange at top for securement to the downspout opening. Outlet dimensions may not be more than 1/8" less than those of the inside of the downspout. Downspout straps shall be formed from material to match the downspout, prefinished to match downspout, and formed from two pieces where the back piece is secured to the wall with masonry fasteners with washers and the front piece wraps the downspout and covers and secures to the back piece on the sides. Fasteners should be pre-finished to match the color of the straps. When a new downspout is located to replace one removed, any fastener holes, etc. left from the existing downspout removal should be repaired with sealant or mortar generally matching the mortar or brick color being repaired.

E. Gutters (Single-Ply Roof): Shall be fabricated from 0.050" thick aluminum and shall meet the pre-finished coating requirements of 2.01A. Gutter sizes and profiles shall be approximately as shown on the design details. Provide 1"x1/16" pre-finished gutter straps and 3/16" x 1" aluminum or stainless steel gutter brackets wrapped in pre-finished metal. The joint in the bracket wrap must be located so it is not visible. Provide expansion joints in the gutters to limit the maximum length to 50'.

F. Downspouts (Single-Ply Roof): Shall be fabricated from 0.050" pre-finished aluminum meeting the prefinish requirements from 2.01A. Minimum downspout size shall be as shown on the design documents, unless otherwise limited by existing downspout boots connecting to underground drainage lines. Downspout seams should run along the elevation or corner closest to the building. Downspout outlet flashings to match downspout materials and be a minimum 4" in length with a min. 3/8" flange at top for securement to the downspout opening. Outlet dimensions may not be more than 1/8" less than those of the inside of the downspout. Downspout hangers shall be formed from material to match the downspout, prefinished to match downspout and be secured to the wall with masonry fasteners with washers. Fasteners should be pre-finished to match the color of the straps. When a new downspout is located to replace one removed, the new downspout/straps must be located to cover any fastener holes, etc. left from the existing downspout removal.

G. Flashings and Counterflashings Used with Membrane System: Shall be 0.040" thick aluminum and shall meet the pre-finished coating requirements of 2.01A, color to match the

gutters/downspouts used with the single-ply membrane roof. Provide pre-finished color sample chips to confirm color matches.

H. Cleats: Continuous cleats, offset cleats: Cleat materials shall match the type of the flashing material that will be attached to them and shall be one gauge heavier than the material they are securing unless otherwise noted herein or on the design details. Where cleats may be visible, match the pre-finished color of the metal they are securing.

I. Polymer Coated Metal (Clad-metal for drip edges – single-ply membrane): aluminum substrate, coated/laminated with the membrane manufacturer's approved membrane material, 20 mil minimum thickness. Color to match the membrane/flashings. Product shall be manufactured by the low-sloped single-ply thermoplastic membrane manufacturer and compatible for hot-air welding to roof system membrane and flashing materials.

J. Birdscreening: Stainless steel, type 304 wire mesh or wire cloth suitable for small animal and bird exclusion. Square opening, wire diameter 0.063", with ½" width of opening.

K. Perforated Metal: Shall be 0.040" aluminum with 1/8" diameter holes at 33 per square inch and 40% open area unless otherwise agreed upon with the Designer.

2.02 FASTENERS AND ACCESSORY MATERIALS

A. Fasteners: Shall be type and size as required by construction. Specific fastener types and sizes should be noted on roofing shop drawings for approval by the Designer. When fasteners will be covered by membrane flashings or sheet metal, head profiles should be selected to minimize pressure on the backside of covering materials or fasteners should be countersunk slightly.

1. For metal to metal fasteners, use self-tapping, self-drilling, no. 12 stainless steel sheet metal screws. When exposed use fasteners with integral EPDM washers.
2. For concealed fastening into wood, use No. 10, stainless steel, self-drilling wood screws. Minimum embedment shall be 1-1/2".
3. For exposed fastening into wood, use stainless steel self-drilling screws with integral EPDM washers.
4. For fastening into concrete, use ¼" diameter, masonry/concrete anchors with neoprene washers. Use all metal stainless steel anchors only, no plastic or nylon anchors allowed. Minimum embedment shall be 1". Do not use drive pins without advance approval, provide pre-drilled fasteners to prevent damage/spalling to the substrate.
5. For fasteners with the standing seam metal roof system, ZAC fasteners, pre-finished to match the flashings being secured will be allowed when recommended by the roof system manufacturer.

B. Pop Rivets: Shall be 1/8 inch to 3/16 inch diameter with stainless steel mandrels and washers, color clad to match pre-finished metal.

C. Tape Sealant: Shall be a 7/8" x 3/16" butyl tape sealant with a double bead. Tape sealant shall be non-curing, non-skinning, non-staining, non-corrosive, non-shrinking, non-oxidizing, non-toxic and non-volatile. Composition shall be 99% minimum solids with a butyl base meeting performance

standards in Federal Specification TT-C-1796A; Type II, Class B. Service temperature shall be -60 degrees F to +212 degrees F. Tape sealant will not be used at exposed locations. Utilize triple bead tape sealant if required by the roof system manufacturer.

D. Gunnable Sealant: Elastomeric sealant shall be low modulus, non-staining, non-sag, one-part urethane-based sealant of gun-grade consistency. Sealant shall be easily workable and shall be capable of producing a smooth attractive finish. For joints in vertical surfaces, provide ASTM C 920, Type S or M, Grade NS, Class 25, Use NT. For joints in horizontal surfaces, provide ASTM C 920, Type S or M, Grade P, Class 25, Use T. Sealant shall be Dynatrol I, by Pecora Corporation; Sikaflex 15LM, by Sika Corporation, or approved equal.

E. Clamps: Shall be stainless steel pipe band clamps with a minimum ¼" width.

F. Termination bar: Use only membrane manufacturer-supplied aluminum or stainless steel termination accessories, 1/8" x 1". Bar shall have pre-drilled slotted holes at 8" o.c. No plastic or polymer termination bars will be accepted.

G. Concrete Pavers: Where downspouts discharge directly onto grass/dirt areas, provide concrete "grid/waffle-style" pavers to form a min. 4'x2' area beneath the downspout.

H. Other Accessories: Provide other components not specifically listed herein but required for complete and proper installation of the sheetmetal flashings.

2.03 FABRICATION

A. In addition to complying with all pertinent codes and regulations, comply with pertinent recommendations as noted in "Architectural Sheet Metal Manual", as published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA). When recommendations conflict with the requirements of the specifications, follow the more stringent requirement or contact the Designer to request clarification.

B. Fabricate and install sheet metal sections in 10-foot lengths except where shorter lengths are required by construction.

C. Form sections square, true, and accurate to size, free from distortion, sharp edges, and other defects detrimental to appearance or performance. Shop fabricate sheet metal sections to the maximum extent possible.

D. Junctures, intersections, corners and unions of sheet metal shall be held to 18-inch legs or less.

E. At all locations where new sheet metal sections abut walls or terminate, the sheet metal flashings shall turn up the wall and be terminated in a watertight condition. Top edge and sides shall be covered with a counterflashing with a reglet mount into masonry, or extending behind new wall panel. Seams shall be soldered or welded unless otherwise indicated to have rivets and sealant. Sealant installation at such transitions is acceptable, but shall not constitute the sole/main waterproofing component of the component.

F. Sheet metal flashing shall be fabricated and installed to allow for expansion and contraction of the component materials without buckling, hole elongation, fastener failure, or excess stress loading situations developing at any time during the temperature cycle. Cleats, brackets, and clips shall be designed and installed to resist rotation and to avoid shear stress when roofing materials expand and contract.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS AND PREPARATION

A. Inspect wood blocking to verify that it is clean, smooth, free of depressions, waves, or projections and solidly supported over joints.

B. Verify that roof openings, pipes, sleeves or vents through roof are solidly set.

C. Verify installation of all appropriate base and cap flashings have been completed prior to installation of sheet metal.

3.02 INSTALLATION - GENERAL

A. Form and install roof system flashings in accordance with the detail drawings.

B. Dissimilar metals shall be kept separated to prevent galvanic action. Preventive measures shall include separation by suitable bituminous paint, underlayment, or other non-conductive separation membrane acceptable to the Designer.

C. Exposed edges of sheet metal shall be folded back, or "hemmed" ½”, on concealed surfaces.

D. Finish sheet metal watertight and weathertight. Lock seams and end joints. Fit flashings tight in-place. Make corners square, surfaces true, and plane surfaces free from warps and buckles. Do not bend flashing around corners or cut/split hemmed edge at outside corners. Corners must be tightly mitered.

E. Make seams and joints lap in the direction of water flow. Where end laps/seams do not have a separate joint cover, lap a minimum of 4 inches.

3.03 GUTTER AND DOWNSPOUTS

A. Gutter and downspouts shall be the sizes and general profiles as shown on the design drawings.

B. Gutter shall be fabricated in sections not less than 10 feet in length and shall be complete with end pieces, outlet tubes, and special pieces that may be required. Gutter sections shall be lapped a minimum of 2”, joined with rivets at 1” o.c., and sealed between lapped pieces with sealant. Unless otherwise indicated provide expansion joints with cover plates where indicated on the roof plans. Maximum gutter length shall be 50-feet between expansion joints. Gutter expansion joints shall be fabricated with space between gutter ends of 1", with gutter end caps riveted through sealant and forming a 5/8” lip along the top to allow for attachment of a cover plate. Joint cover

plate shall extend up back leg of gutter and under roof panel. Install a separate cover plate (8" minimum width) over the joint on the outer face, bottom and back of the gutter. Gutters shall be mitered at the corners to fit cleanly. Gutter straps for gutters on the standing seam metal roof that are required to be installed at panel ribs must align with the panel ribs. Extension of straps beneath the pans of the panels not at panel ribs will be cause for rejection.

C. Gutter outlet tubes shall be formed with locked longitudinal seam. Upper end of tube shall be riveted to the gutter minimum 4 rivets. Flange shall be sealed against water leakage. Tube shall extend into downspout a minimum of 4" and shall not reduce the gutter size by more than 1/8".

D. Downspouts shall be formed with any special pieces that may be required. Downspouts shall be rectangular in shape and shall be secured to walls with matching metal straps. Downspout seams shall be concealed along the back surface of or behind the downspout to reduce visibility.

3.04 COUNTERFLASHINGS

A. Trim existing copper counterflashings to form a new receiver for the new counterflashing. Form and install new counterflashings along wall transitions, and at other locations shown on the design details. Exact counterflashing length and profile will vary based on configuration of roofing detail. Adjacent counterflashing pieces shall overlap each other a minimum of 4" in the direction of slope (when applicable).

B. Counterflashings shall be secured to adjacent flashings at 6" o.c. unless otherwise noted on the design details. Place a piece of membrane between the new counterflashing and existing receiver if there are dissimilar metal.

C. Miter counterflashing corners so they nest together without gaps, sharp edges, or open/split corners. Do not cut/split and bend counterflashing around corners.

3.05 CLAD-METAL INSTALLATION

A. Install clad-metal components in accordance with these specifications and the installation requirements of the membrane manufacturer.

B. Secure flanges of clad-metal edge flashings with appropriate fasteners at a maximum spacing of 4" o.c. staggered in two rows positioned one inch from the leading edge of the flange and one inch from the first row, respectively.

C. Leave a ¼" gap between pieces of clad edge metal. Place required separation tape and cover gap with a 6" wide strip of thermoplastic membrane flashing, heat welded to each piece of metal and conforming with the metal profile. Strip-in the clad-metal to the membrane with thermoplastic heat-welded flashing.

3.06 CLEAN-UP

A. Clean and neutralize all sealant and other materials from the flashing and roof surfaces. Remove loose fasteners from the roof and site on a daily basis.

B. Remove any protective plastic materials from the surfaces of the pre-finished metals promptly upon installation.

C. Handprints, smudges and other superficial stains that were placed on the sheet metal during fabrication and installation shall be removed.

D. Abrasions, scratches, scrapes, etc. shall be touched up with paint furnished by the sheet metal manufacturer.

3.07 FIELD QUALITY CONTROL

A. A set of roof plans, details, and specification sections shall be in the possession of the roofing foreman at all times during roof system installation. On-site roofing personnel must be familiar with the requirements of the design documents for the specific project.

B. Correct defects and irregularities documented by the Designer or Owner's representative promptly upon notification.

C. Contractor may be requested to install in-place mock-ups of standard sheetmetal installations (gutters, counterflashing, etc.) to allow for Designer review and to ensure acceptable installation prior to continuing with full installation.

END OF SECTION 076200

SECTION 230800

GENERAL MECHANICAL AND ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide labor, materials, equipment, coordination and supervision necessary for disconnection, relocation, reinstallation, reconnection, extension, and minor modification of existing rooftop ventilators/dormers, and the utilities/components serving the equipment, including, but not limited to: conduit, duct work, electrical wiring, communications, controls, pneumatic lines, and/or mechanical components/services ***associated with raisin, lifting, or otherwise disturbing the placement of existing equipment and associated utilities*** during roof replacement work. Coordinate work with the Owner's Representative.

B. Provide materials, equipment and supervision necessary for other miscellaneous electrical and/or mechanical work not specifically listed but required for complete and proper installation of the work as specified herein or shown on the drawings.

C. Coordinate any inspections required for mechanical, electrical, or plumbing work performed with public agency providing the building permit for the work or the State Construction Office. Inspections must be scheduled to be timely and not delay the project progress.

1.02 QUALITY ASSURANCE

A. Perform mechanical and electrical work in accordance with the latest adopted editions of the North Carolina State Building Code, The North Carolina Department of Administration Electrical Guidelines and Policies the National Mechanical Code, the National Electrical Code, EPA, NFPA, and other applicable Owner-permitted regulations.

B. In addition to compliance with laws and regulations stated in Paragraph 1.02A, work shall conform to applicable standards of UL, ASME, ANSI, and other authorities or agencies to which specific reference is made by specifications and/or by the manufacturer's installation instructions.

C. Work must be performed by licensed electrical or mechanical contractors that are currently approved by the Owner to perform work at their facilities. Contact information regarding approved contractors can be obtained from the Owner's Representative.

D. The Contractor shall secure and pay for all necessary permits, fees and inspections and prepare all drawings required by applicable state and local codes.

E. Check all equipment to ensure it is in proper working order prior to construction. Notify the Designer/Owner of any equipment that is damaged or is not is working properly. Any equipment

found to be damaged or not in working order after the beginning of construction will be repaired/replaced by the Contractor at no cost to the Owner.

1.03 SUBMITTALS

A. Submit a pre-job mechanical/electrical survey, as a part of the Pre-Job Damage Survey (required by Section 024110) that includes documentation of existing fixture and equipment locations and documentation of the condition of units/services including interior components and exterior housing of equipment/systems prior to performing any disconnection or modifications to them.

B. Upon completion of work reconfirm equipment remains in working condition. If modifications were required, provide copies of all applicable inspections and certification from the licensed Contractor or Sub-contractor confirming that the work is in conformance with the applicable standards.

1.04 WARRANTY

A. If replacement of an existing mechanical unit(s) or electrical component(s) is necessary, due to damage during construction activities, replacement will be performed at no cost to the Owner and the equipment or component manufacturer's standard product warranty shall be provided in addition to the Contractor's two year warranty against defects of materials and workmanship.

PART 2 PRODUCTS

2.01 MATERIALS

A Provide materials and accessories (such as ductwork, wood blocking, electrical wiring, control wiring, etc.) required for a complete and proper installation of the work as specified herein and on the project drawings in accordance with applicable local, state, and federal codes and regulations.

B. Materials and equipment shall bear certification of UL, ASME where such labels are customary, required, or specified.

PART 3 EXECUTION

3.01 DOCUMENTATION OF EXISTING CONDITIONS

A. Document locations of units, fixtures, piping/conduit and other services.

B. Inspect and test each unit, service, fixture, and component that may require modification, disconnection and/or relocation to confirm working order. Coordinate with the Owner to allow for them to be present during inspection.

3.02 DISCONNECTION/RECONNECTION OF MECHANICAL AND ELECTRICAL SERVICES

A. Disconnect mechanical piping, electrical/control wiring, conduit, or other components to allow for safe temporary movement from their existing locations as necessary to accommodate proper

installation of the new roof system, flashing of utility penetrations, and associated components shown on the drawings.

B. Work shall be performed in accordance with specified codes and regulations. It is the responsibility of the contractor to make all necessary investigations of the existing electrical and mechanical units/components to determine which items may require modification, disconnection, raising or removal of the cover or other components to accommodate flashing installation, prior to the bid. Necessary costs for disconnection and reconnection of existing mechanical and electrical systems as required for proper installation of the new roof systems shall be included in the base bid.

C. Once services have been reconnected, test equipment and components to ensure that they are in working condition and meet or exceed the condition as documented in the pre-job mechanical condition survey. Obtain Owner approval/agreement that components are in acceptable working order.

D. If physical damage to units and/or systems is observed, or units and/or systems are not in working condition and the damages were not previously listed on the pre-job mechanical condition survey, the equipment or service shall be repaired by the Contractor at no cost to the Owner. If testing indicates that units are not performing as documented in the pre-job condition survey, provide necessary services, at no cost to the Owner, to assure the proper operation of the unit and/or system.

END OF SECTION 230800

APPENDIX A

TECHNICAL SPECIFICATIONS
FOR ASBESTOS ABATEMENT PROJECT

CASWELL DEVELOPMENT CENTER
BYRUM BUILDING ROOF REPLACEMENT PROJECT
2415 W. VERNON AVENUE
KINSTON, NORTH CAROLINA 28504
OLME PROJECT NO.: OLME-2023-18

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ASBESTOS INSPECTOR:
Tim Ford (Atlas), North Carolina Accreditation No. 13378

ABATEMENT DESIGNER:
Oral L. McGirt (OLME), North Carolina Accreditation No. 40338

SUPERVISING AIR MONITOR:
Gary P. Alexander (Alexander Engineering), North Carolina Accreditation No. 90090

ATTACHMENTS:

DIVISION 01
GENERAL REQUIREMENTS

CASWELL DEVELOPMENT CENTER
BYRUM BUILDING ROOF REPLACEMENT PROJECT
2415 W. VERNON AVENUE
KINSTON, NORTH CAROLINA 28504
OLME PROJECT NO.: OLME-2023-18

SECTION 01010
SUMMARY OF WORK

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 The scope-of-work, as specified in this Section, shall include a description of the requirements for precleaning, preparations and waste disposal of asbestos-contaminated waste generated during the planned roof replacement. The desired abatement work shall be performed using competent personnel trained, knowledgeable and qualified in the methods described and required for the Project. The Abatement Contractor will be required to perform the work in accordance with these Specifications and applicable Federal, State, and local regulations.

1.02. The Abatement Contractor will be required to coordinate the work with the Owner **(DHHS - Caswell Development Center)**, the Project Designer **(Atlas Engineering)** and the Roof Contractor. The Abatement Contractor will be required to supply sufficient labor, materials, equipment, supplies, etc. necessary for the performance of the work.

1.03. The Abatement Contractor will be required to coordinate site/building access, staging and working hours through the Roof Contractor.

1.04 **Project Overview:**

The Byrum Building located on the Caswell Development Center campus in Kinston, North Carolina is planned for roof replacement. Currently, minor code upgrades and non-asbestos asphalt shingles and underlying felt paper are planned for replacement. The building's pitched roof system is constructed of precast, reinforced concrete planks with seams sealed with an asbestos-containing cementitious grout. Because the scheduled work requires the grout to remain, the scope of the abatement work is developed to clean the attic of existing delaminated debris and the establishment of a "regulated" work enclosure with attached poly barriers and HEPA-equipped, negative air-pressure sufficient to contain any asbestos disturbance resulting from the work.

PART 2 INVENTORIES OF IDENTIFIED ASBESTOS-CONTAINING MATERIALS:

The following is a summary of the ACM identified:

TYPE OF MATERIAL	GENERAL LOCATION*	TYPE OF ASBESTOS AND PERCENTAGE
Light Gray Seam Grout Filler	Throughout the Roof Applied Along Seam Openings	**2% Chrysotile**

* Based on the results of samples analyzed, it would be reasonable to assume that ACMs are present in these locations and similarly applied homogeneous area(s).

PART 3 PROJECT CRITERIA

3.01 The Abatement Contractor shall include in his scope of work providing the Designer/Consultant and Air Monitor with adequate power, PPE, lighting, and access into the work area necessary for the performance of their scope of work as defined by these Specifications.

3.02 The Abatement Contractor's personnel shall be trained and licensed in the State of North Carolina, as defined by the State's Asbestos regulatory agency, Health Hazard Control Unit **(HHCU)**. The Contractor shall submit, as part of the Pre-Job submittals copies of updated training, State licenses (color copies), medical and fit-texting for review prior to the Start of Work.

3.03 There shall be an asbestos accredited Supervisor onsite for every ten (10) accredited workers during work once regulated work area(s) are established and work has commenced. There shall be an "outside" accredited Competent Person while workers are inside any regulated work area. For Worker(s) who speak a language other than English, there shall be an interpreter onsite working directly with the non-English speaking worker(s). There shall be a Site Superintendent (or Supervisor) who is knowledgeable of the requirements of the Project scope and competent in the procedures required to perform the required work in accordance with applicable Federal, State and local regulations.

3.04 The Abatement Contractor shall schedule inspection(s) and ambient air monitoring with the Air Monitor. 48-hour notice is required prior to any request. The Abatement Contractor's Supervisor will be responsible for performing a preliminary visual inspection of the work prior to requesting any visual inspection(s) and ambient air monitoring.

3.05 The Contractor is responsible for providing sufficient electrical power sources and extension cords to the Air Monitor adequate for the performance of his work. Electrical power sources shall be equipped with ground fault circuit interrupters (**GFCI**) prior to connection to the Owner's designated power source(s).

3.05 The Owner will designate a water source for use during the Work. The Abatement Contractor will be responsible for providing the proper connection(s) to the designated water source(s).

3.06 The Abatement Contractor will be required to prepare each work area as follows:

A. Installation of Warning Signage and Barrier Tape
B. Pre-Cleaning the Work Area,
C. Installation of Pre-Filters over Louvers and Dormers,
D. Installation of "Drop" Poly Sheeting and
E. Installation of Negative Air Pressurizing Machines

3.07 **Asbestos-Related Equipment:** The Contractor will not be permitted to mobilize any equipment planned for use during abatement that is not adequately cleaned or "new". The Air Monitor will inspect any equipment mobilized to the site for cleanliness and damage prior to use.

3.08 The Abatement Contractor is solely responsible for the performance of any OSHA-compliance personal exposure monitoring of his employees. The personal exposure samples shall be analyzed within 48-hours of collection and be available at the jobsite. A posted copy of the sampling results shall be in an area visible and accessible to the Worker(s). The Contractor shall provide a copy of the personal exposure sampling results to the Air Monitor for review. Laboratory performing the analysis of the OSHA-compliance sampling shall be NIOSH/PAT proficient.

3.09 Work area preparations for abatement work shall be performed as specified in Section 2100, entitled "**Site Preparations**". Disposal of waste materials shall be performed as specified in Section 02084, entitled "**Disposal of Generated Waste Materials**".

END OF SECTION 01010

SECTION 01091
DEFINITIONS AND STANDARDS

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

DEFINITIONS:

1.01 Abatement - Procedures to control fiber release from identified asbestos-containing materials (ACM). Includes any activity associated with the removal, encapsulation, enclosure, repair, demolition and/or renovation of identified ACM.

1.02 (Abatement) Contractor - The individual and/or business with whom the General Contractor contracts to perform the asbestos abatement work as defined in the Specifications. It is recommended that wherever asbestos abatement is part of a larger project, this work be contracted separately and distinctly from other contracted work. Whenever this is not possible, the Contractor is responsible for the proper completion of project activities in accordance with the Specifications even when an Abatement Contractor has been retained as a Subcontractor to perform the actual abatement.

1.03 ACGIH - American Conference of Governmental Industrial Hygienists
6500 Glenway Avenue Building D-5
Cincinnati, Ohio 45211

1.04 ACM - Asbestos-Containing and/or Asbestos-Contaminated Material(s).

1.05 AIHA - American Industrial Hygiene Association.
475 Wolf Ledges Parkway
Akron, Ohio 44311

1.06 Airlock - A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least 3-feet.

1.07 Air Monitoring - The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized to collect and analyze asbestos air samples shall be as per the NIOSH Method 7400. For clearance air monitoring, Transmission Electron Microscopy (**TEM**) methods may be utilized for lower detectability and specific fiber identification. Specific types of air monitoring:

Area Air Monitoring - Monitoring of fiber concentrations within the asbestos control area and outside the asbestos control area that is representative of the ambient airborne concentration of fibers.

Personal Air Monitoring - Representative air monitoring of the asbestos fiber concentrations within the breathing zone of a Worker during activities associated with Asbestos Abatement.

Clearance Air Monitoring - Air monitoring performed inside the Work Area to ensure that the Work Area has been properly and thoroughly cleaned after Asbestos Abatement work has been performed. Clearance criteria for air samples analyzed by Phase Contrast Microscopy (**PCM**) is less than or equal to 0.01 fibers per cubic centimeter of air. The clearance criteria for samples analyzed by TEM are 70 structures per millimeter squared of air.

1.08 Air Monitor - Contracted or employed to supervise and conduct air monitoring and to analyze samples obtained during each phase of the Project. The Air Monitor must be accredited in the State of North Carolina by the HHCU and work under the direct supervision of a Supervising Air Monitor (SAM), who is also accredited in the State of North Carolina by the HHCU.

1.09 Amended Water - Water to which a chemical wetting agent (surfactant) has been added to improve penetration of the water into ACM.

1.10 ANSI - American National Standards Institute
1430 Broadway
New York, New York 10018

1.11 Approved Landfill - A designated site for the disposal of hazardous waste materials that has been given Environmental Protection Agency (EPA) and State approval.

1.12 Architect – Not Applicable

1.13 Asbestos - The term asbestos includes Chrysotile, Amosite, Crocidolite, Tremolite, Anthophyllite, and Actinolite. Materials are considered to contain asbestos if the asbestos content is greater than one percent (1%) of the material.

1.14 Asbestos-Containing Material (ACM) – Any material composed of asbestos of any type and in an amount greater than one percent (1%) by weight and area, either alone or mixed with other fibrous or nonfibrous materials.

1.15 Asbestos-Containing Waste Material - ACM or any objects contaminated by asbestos fibers requiring disposal.

1.16 Asbestos Project Manager - An individual qualified by virtue of experience and education, which is designated by the Owner or his representative and responsible for managing the events that occur during an abatement project.

1.17 ASTM - American Society for Testing and Materials
1916 Race Street
Philadelphia, Pennsylvania 19103

1.18 Authorized Visitor – Onslow County (and any designated representatives), any representative of a Regulatory or other agency having jurisdiction over the Project, Designer/Consultant, Architect, General Contractor or their representatives.

1.19 Building Owner - A person, agent, firm or corporation having legal or equitable interest in the building (or property) for which work is planned. For this project, the building (Byrum) owner is North Carolina Department of Health and Human Services **(NC-DHHS)**.

1.20 Chemical Remover - A pre-mixed chemical penetrating agent designed specifically for removal of ACM.

1.21 Certified Industrial Hygienist (CIH) - An Industrial Hygienist who is certified in Comprehensive Practice as defined by the American Board of Industrial Hygiene.

1.22 Clean Room - An uncontaminated area or room that is a part of the Worker Decontamination Unit with provisions for storage of Worker's street clothes and clean protective equipment.

1.23 Confined space **–** an enclosed or partially enclosed space that:
a. is at atmospheric pressure when anyone is in the space; and
b. is not intended or designed primarily as a workplace; and
c. could have restricted entry to, or exit from, the place; and
d. is, or is likely to be, entered by a person to work; and
e. at any time, contains, or is likely to contain, any of the following:
    i. an atmosphere that has potentially harmful levels of a contaminant;
    ii. an atmosphere that does not have a safe oxygen level; and
    iii. anything that could cause engulfment.

1.24 Construction Manager at Risk (**CMR**) – The general contractor who will program the project and act as a general contractor to drive the schedule.

1.25 Consultant/Designer – OLM Environmental, LLC; 2317 Lockwood Folly Lane; Raleigh, North Carolina 27610.

1.26 Containment Area - Work Area or zone that is prepared with polyethylene sheeting, barriers, negative air, etc., for the asbestos abatement work.

1.27 Curtained Doorway - A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing two overlapping layers of polyethylene sheeting over an existing or temporarily framed doorway, securing each layer along the top of the doorway, securing the vertical edge of one sheet

along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Other effective designs are permissible, if approved by the Designer/Consultant.

1.28 Decontamination Unit (**DCU**) - A series of connected rooms, separated from the Work Area and from each other by airlocks, for the decontamination of Workers. The unit minimally consists of an Equipment Room, an airlock, a Shower Room, an airlock and a Clean Room.

1.29 Demolition - The wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

1.30 Designer – a person who is directly responsible for planning all phases of an asbestos abatement design from abatement site preparation through complete disassembly of all abatement area barriers. OLM Environmental, LLC is the abatement Designer/Consultant for this project.

1.31 DNR - Supervisor
Health Hazard Control Unit
N.C. Department of Environmental Health & Natural Resources
1912 Mail Service Center
Raleigh, North Carolina 27699-1912
Phone: (919) 733-0820

1.32 Encapsulant - A sealant that can be applied to ACM in order to reduce the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material or by binding its components together (penetrating encapsulant).

1.33 Encapsulation - The application of an encapsulant to ACMs to control the release of asbestos fibers into the air.

1.34 Enclosure - The construction of an airtight, impermeable, permanent barrier around ACM to control the release of asbestos fibers into the air.

1.35 EPA - U.S. Environmental Protection Agency
401 M. Street S.W.
Washington, D.C. 20460

1.36 Equipment Decontamination Unit (DCU) - That portion of a DCU designed for controlled transfer of materials and equipment into or out of the Work Area, typically consisting of a Washroom and Holding Area.

1.37 Equipment Room - A contaminated area or room that is part of the DCU with provisions for storage of contaminated clothing and equipment.

1.38 Facility - Any institutional, commercial or industrial structure, installation or building.

1.39 Facility Component - Any pipe, duct, boiler, tank, reactor, turbine, furnace or any structural member of a facility.

1.40 Fixed Object - A piece of equipment or furniture in the work area that cannot be moved or removed from the Work Area.

1.41 Friable - Any material that when dry, may be crumbled, pulverized, or reduced to powder by normal hand pressure.

1.42 Furnish - The term "furnish" is used to mean "supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations."

1.43 Glovebag Removal Technique - A method with limited applications for removing small amounts of friable ACM from HVAC ductwork, piping, valves, joints, elbows, and other non-planar surfaces in a non-contained Work Area. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6-mil transparent polyethylene or polyvinylchloride plastic), two inward projecting long sleeves, internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. All workers who are permitted to use the glovebag technique must be trained, experienced and skilled in this method of asbestos abatement.

1.44 General Contractor - The General Contractor is employed by the Owner, on the advice of the Architect. The General Contractor must first assess the project-specific documents. In the case of renovations, a site visit is required to get a better understanding of the Project. The General Contractor considers the cost of materials and equipment as well as the cost of labor to provide the Owner with an approximate price for the Project based on the proposed Scope of Work.

1.45 Ground Fault Circuit Interrupter (**GFCI**) - A circuit breaker that is sensitive to very low levels of current leakage from a fault in an electrical system.

1.46 Ground Fault Interrupter (**GFI**) - A device that automatically de-energizes any high voltage system component that has developed a fault in the ground line.

1.47 HVAC - Heating, ventilation and air conditioning system.

1.48 HEPA Filter - A high efficiency particulate air filter capable of removing particles less than 0.3 microns in diameter with 99.97% efficiency.

1.49 HEPA Vacuum - A vacuum system equipped with HEPA filtration system capable of collecting and retaining asbestos fibers 3-microns or larger.

1.50 Holding Area - A chamber in the equipment decontamination unit located between the Washroom and an uncontaminated area. The Holding Area comprises an airlock.

1.51 Material Safety Data Sheet (MSDS) - OSHA Form 20 or an equivalent form containing health hazard information about chemical products.

1.52 Movable Object - A piece of equipment or furniture in the Work Area that can be moved and/or removed.

1.53 NCOSHA - North Carolina Department of Labor
Occupational Safety and Health Division
214 West Jones Street
Raleigh, North Carolina 27603

1.54 Negative Pressure Ventilation System - A portable exhaust system, equipped with HEPA filtration, capable of maintaining a constant low velocity airflow into work areas from adjacent uncontaminated areas producing a minimum pressure differential of (-)0.02 inches of water within the Work Area relative to adjacent areas.

1.55 Negative Air-Pressurizing Machine(s) - A self-contained local exhaust machine utilized in a negative pressure air system. This equipment must use HEPA filters when used in asbestos work areas to collect and retain asbestos fibers.

1.56 NESHAPS - The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)

1.57 NIOSH - The National Institute for Occupational Safety and Health
CDC- NIOSH
Building J. N.E. - Room 3007
Atlanta, Georgia 30333

1.58 OSHA - The Occupational Safety and Health Administration
200 Constitution Avenue
Washington, D.C. 202l0

1.59 Outside Air - The air outside building(s) and structure(s).

1.60 PCB - Polychlorinated biphenyls.

1.61 Plasticize - To cover floors and walls with polyethylene sheeting as herein specified.

1.62 Prior Experience - Experience required of the Contractor on asbestos projects of similar nature and scope to ensure capability of performing the Work in a satisfactory manner. The similarities between the Work shall be in areas related to material composition, project size, abatement methods required, number of employees, and the engineering, work practice and

personal protection controls required.

1.63 Project Site - The space available to the Contractor for the performance of construction activities, either exclusively or in conjunction with other subcontractors performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.

1.64 Removal - The stripping, chipping, sanding, sawing, drilling, scraping, sucking, and other methods of separating the material from its installed location in a building.

1.65 Removal Encapsulant - A penetrating encapsulant specifically designed for use during the removal of ACM rather than for encapsulation.

1.66 Renovation - Altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

1.67 Shower Room - A room between the Clean Room and Equipment Room in the worker decontamination enclosure system. The room shall supply hot and cold or warm running water controllable at the tap and suitably arranged for complete showering during decontamination.

1.68 Staging Area - Either the Holding Area or some area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the Work Area.

1.69 Stripping – The complete removal of ACMs from components and structural members of a facility.

1.70 Structural Member(s) - Any load-bearing member of a facility, such as beams, columns and walls or any non-load-bearing member(s) of a facility, such as roof systems, ceilings, floors and walls.

1.71 Supervising Air Monitor (SAM) - Supervises the procedures used by the Air Monitor when performing air sampling and evaluation of the results. Also, must have specialized experience in air sampling during abatement activities.

1.72 Surfactant - A chemical wetting agent added to water to improve penetration, normally consisting of 50% polyoxyethylene ether and 50% polyoxyethylene ester.

1.73 Visible Emissions - Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

1.74 Visual Inspection - A walkthrough type inspection of the Work Area to detect incomplete work, damage, or inadequate cleanup of a jobsite.

1.75 Waste Transfer Airlock - A decontamination unit utilized for transferring containerized waste from inside the work area.

1.76 Water Filtration System - A local water-filtering system capable of trapping and retaining 99.97% of asbestos fibers greater than 5-microns in size.

1.77 Wet Cleaning - The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils, which have been dampened with water.

1.78 Work Area - Designated rooms, spaces, or areas of the Project in which asbestos abatement actions are undertaken or which may become contaminated as a result of such abatement activities.

APPLICABLE STANDARDS AND GUIDELINES:

1.79 All work under this Contract shall be done in strict accordance with all applicable Federal, State and local regulations, standards and codes governing asbestos abatement and any other trade work done in conjunction with the work. The Abatement Contractor shall supply all labor, materials, services, insurance, permits and equipment necessary to carry out the work in accordance with all applicable Federal, State, and local regulations and these Specifications.

1.80 The most recent edition of any relevant regulation, standard, document or code shall be in effect. Where conflict among the requirements or with these Specifications exists the most stringent requirements shall be utilized.

1.81 The Contractor shall make available, in the Clean Room of the Worker DCU or other applicable areas, copies of all standards, regulations, codes and other applicable documents, including this specification and those listed hereinafter.

1.82 Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to the entity's construction activity. Copies of applicable standards are not bound with the Contract Documents. All work must meet all safety standards. The Contractor will be responsible for the site safety and security. **No smoking is permitted inside any building or on the site except designated areas as per the requirements of NC-DHHS.**

1.83 Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

SPECIFIC REQUIREMENTS (OSHA/EPA):

1.84 The Contractor shall comply with the requirements of the General Industry Safety and Health Standards, 29 CFR Part 1910, and the Safety and Health Regulations for Construction, 29

CFR Part 1926, including all other standards and regulations which administer such Acts, and said requirements, standards, and regulations are incorporated herein by reference. The Contractor shall at least strictly adhere to the provisions of the following 29 CFR sections:

1910.134 - Respiratory Protection
1926.400 - Electrical
1926.451 - Scaffolding
1910.1200 - Hazard Communication (Employee Right-To-Know)
1926.450 - Ladders
1910.37/.38 - Egress and Emergency Plans
1926.28/.100 -.107 - Personal Protective Equipment
1926.27/.51.950h - Sanitation
1926.302 - Powered Hand Tools
1926.20b - Accident Prevention
1926.16 - Abatement Contractors Responsibilities
1926.1101 - Asbestos, Tremolite, Anthophyllite, and Actinolite

1.85 The Contractor shall comply with 763.141 - NESHAP the National Emission Standard for Hazardous Air Pollutants, 40 CFR Part 61, Subparts A and M (revised subpart B) as applicable to asbestos.

1.86 North Carolina Department of Environmental Health & Natural Resources, State of North Carolina Administrative Code, 15 NAC 2D .0525, contains procedures for preventing the emissions of particulate asbestos material to outside air, warning signs, and waste disposal of ACMs and any notifications requirements.

1.87 The Contractor shall comply with the requirements of 40 CFR Part 761, regarding handling, transportation and disposal of Polychlorinated Biphenyls (PCBs) and lead, if applicable.

STATE AND LOCAL REQUIREMENTS:

1.88 The Contractor shall comply with the State of North Carolina, Department of Occupational Safety and Health Regulations for construction and handling of ACMs.

1.89 The Contractor shall comply with the Federal Environmental Protection Regulations pertaining to handling and disposal of ACMs as well as the State of North Carolina and any local governmental agencies that have delegated responsibility for the administration and enforcement of NESHAP and other federal regulations.

1.90 The Contractor shall comply with all requirements of the EPA approved landfill that is selected as the disposal site.

1.91 The Contractor shall comply with all requirements of the North Carolina Department of Environmental Health & Natural Resources, Sate of North Carolina General Stature G.S. 130A-444 - 130A-451 & N.CA.C. 19C.601.

NOTE: Compliance with all regulations and requirements shall be strictly enforced.

OTHER REQUIREMENTS:

1.92 There shall be an accredited Supervisor for every ten (10) accredited Workers inside the Work Area at all times. There shall be an accredited Supervisor assigned to any additional Workers who are working outside or inside the work area at all times performing abatement activities. There will be an outside, accredited Competent Person onsite at the decontamination unit(s) at all times. For other than English-speaking Worker(s), there shall be an interpreter on the jobsite working with the non-English speaking Worker(s) at all times. There shall be a site Superintendent, who is knowledgeable of the regulations and procedures required for all demolition work.

1.93 All Workers and Supervisors must be made knowledgeable regarding public information, public access, media, noise, proper behavior, and language, etc. due to high visibility. At no time shall anyone associated with this Project wear any personal protective equipment (PPE) outside the containment, except during loadout.

SUBMITTALS:

1.94 For Caswell Development Center's records, submit copies of permits, licenses, certificates, inspection reports, releases, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01091

SECTION 01092
CODES AND REGULATIONS

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

1.02 The Abatement Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to the work practices, hauling, disposal and protection of Workers, Visitors and persons occupying areas adjacent to the work.

1.03 The General Contractor and his Sub-Contractors must be licensed in the State of North Carolina for their respective trades.

PRIOR TO COMMENCEMENT OF WORK SUBMITTALS:

1.04 Send written notification, in accordance with 40 CFR Part 61.145 of Subpart B, to the appropriate State or Federal air pollution control agency (listed below) responsible for the enforcement of the National Emission Standard for Asbestos prior to the commencement of any on-site project activity. The period of time required for notification is 10 days for projects greater than 260 lineal feet or 160 square feet. Also provide the Designer/Consultant and Building Owner's Designee (listed below) with a copy of the notice.

1. Commissioner of Labor
   N.C. Department of Labor
   Division of Occupational Safety and Health
   319 Chapanoke Road, Suite 105
   Raleigh, North Carolina 27603-3432
   (800) LABOR-NC

2. N.C. Department of Environment, Health, and Natural Resources
   Asbestos Hazard Management Program
   1912 Mail Service center
   Raleigh, North Carolina 27699-1912
   (919) 733-0820

3. Solid Waste Program
   1646 Mail Service Center
   Raleigh, North Carolina 27699-1646
   (919) 733-0692

4. OLM Environmental, LLC
   2317 Lockwood Folly Lane
   Raleigh, North Carolina 27610
   Attn.: Oral L. McGirt
   Office: (919) 212-3019
   Cell: (919) 931-0629

5. Atlas Engineering, Inc. (Building Owner's Designee)
   551-A Pylon Drive
   Raleigh, North Carolina 27606
   Attn: Kelli Wilcox
   Office: (919) 420-7676
   Mobile: (919) 931-0961

BEFORE COMMENCEMENT OF WORK SUBMITTALS:

1.05 Provide satisfactory proof that the required permits, site location and arrangements for transport and disposal of ACM waste have been made. A copy of handling procedures and a list of protective equipment to be utilized during disposal at the landfill shall be provided.

1.06 Documentation from a physician (specializing in asbestos and respiratory diseases) that all employees or agents who may be exposed to airborne asbestos, in excess of background levels, have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. In addition, document on medical facility letterhead stationery that personnel have received medical monitoring as required in OSHA 29 CFR 1926.1101. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the workplace environment (e.g., high temperatures, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.

1.07 Manufacturers' certification that HEPA-equipped vacuums, negative pressure ventilation units and other local exhaust ventilation equipment conform to ANSI Z9.2-79. Also, submit the manufacturers' information on water filtration unit(s) to be used.

1.08 Documentation of respirator fit-testing for Workers who will enter the Work Area. This fit-testing shall be in accordance with qualitative procedures as detailed in the OSHA Asbestos Standard 29 CFR 1926.1101 Appendix C Qualitative Fit-Test Protocol or be quantitative in nature.

1.09 Document NIOSH approvals for all respiratory protective devices utilized onsite. Include manufacturer certification of HEPA filtration capabilities for all cartridges and filters.

1.10 When rental equipment is to be used in Work Area(s) or to transport asbestos-contaminated waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Designer/Consultant.

COMMENCEMENT OF WORK SUBMITTALS:

1.11 Weekly (or as otherwise required) job progress reports detailing abatement activities. Include a review of progress with respect to previously established milestones and schedules, major problems and actions taken, injury reports, equipment breakdown and bulk material and air sampling results conducted by Contractor's Air Monitor.

1.12 Copies of all transport manifests, trip tickets and disposal receipts for all asbestos waste materials removed from the Work Area.

1.13 Daily copies of worksite entry logbooks with information on Worker and Visitor access.

1.14 Logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls.

1.15 Results of any bulk material analysis and air sampling data collected during the course of the abatement including OSHA compliance Air Monitoring results.

1.16 Post in the Clean Room a list containing the names, addresses, and telephone numbers of the Contractor(s), Caswell Development Center’s representative(s), Atlas’ representative(s), the Designer/Consultant, the Air Monitor and any other personnel who may be required to assist during abatement activities.

BUILDING OWNER REQUIREMENTS:

1.21 Notify occupants of Work Area(s) that may be disrupted by the abatement activities of project dates and requirements for relocation. Arrangements must be made, prior to start, for relocation of furnishings, equipment and personal possessions to avoid unauthorized access into the Work Area.

Note: Notification of all building occupants and users is recommended in order to prevent unnecessary or unauthorized access to the contaminated Work Area.

1.22 Document that any Caswell Development Center’s employees who will be required to enter the Work Area during abatement activities have received training equal to that detailed in Section 01560, entitled: "**Worker Protection**".

1.23 Provide the Contractor information concerning access, shutdown and protection requirements of certain equipment and systems in the Work Area.

1.24 Submit to the Contractors, results of any additional bulk and/or air sampling results obtained during the course of the Work. The sample results are for information only. They serve only to monitor the Contractor performance during the Project and will not release the Contractor(s) from any OSHA-compliance sampling.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01092

CONTRACTOR EMPLOYEE DATA RECORDING FORM

EMPLOYEE NAME	N. C. ACCRED. NO.	EXPIRATION DATE	DATE OF LAST X-RAY	RESPIRATOR TYPE	RESULTS: PASS/FAIL	CONDUCTED BY	DATE OF LAST MEDICAL EXAM	LIST ANY RESTRICTIONS

Notes: If Quantitative fit tests are performed, then report the numerical value. If Qualitative fit tests are performed, then report the type of test conducted (saccharin, banana oil or irritant smoke) and if passed or failed. Also report the type and name of respirator used while conducting the test (half-face negative pressure, full-face negative pressure or PAPR). Generally North, MSA or Survivair are typical brand names.

Firm's Name and Address_____

The above information is true and accurate. Corporate Seal

BY:_____ DATE: _____ Title: _____

SIGNATURE Owner/Partner/Pres./V/ Pres.

Subscribed to and sworn before me this _____ day of _____, _____

_____ my commission expires _____, _____

Notary Public

SECTION 01410
TESTING LABORATORY SERVICES

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

AIR MONITORING:

1.01 The Air Monitor shall conduct the required ambient air sampling for the Project and should not be affiliated with the General Contractor or his Sub-Contractor(s) in any way, unless previously approved by Caswell Development Center before any services are performed.

1.02. The Air Monitor shall be experienced and knowledgeable in the methods for asbestos air sampling and be able to select the representative numbers and locations of samples to monitor the Project. The Air Monitor shall also be knowledgeable in asbestos abatement procedures.

1.03 For work in the State of North Carolina, the Air Monitor must be accredited by the North Carolina's HHCU and licensed in each jurisdiction where the work is performed pursuant to this contract, if required by applicable law.

1.04 The Air Monitor shall conduct air sampling in accordance with the NIOSH Standard Analytical Method for Asbestos in Air (P&CAM 239 and/or Method 7400) or other acceptable methods as otherwise agreed upon.

1.05 If any work is to be delegated to another person(s) by the Air Monitor, then their names, accreditation number and qualifications shall be submitted for approval prior to this assignment.

1.06 The opinion and monitoring results of the Air Monitor shall be final in settling any disputes or questions arising from the Abatement Contractor or his representative.

LABORATORY SERVICES:

1.07 Individuals and/or laboratories that are utilized to perform analysis of air samples are preferred to be satisfactory participants in the NIOSH Proficiency Analytical Testing (PAT) Program for asbestos analysis. It is preferred that onsite analysis be performed by analysts who are listed as participants in the AIHA Asbestos Analyst Registry (AAR) program.

1.08 Turnaround time for analytical results should not exceed 24-hours. Onsite analysis is preferred.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

AIR MONITORING:

3.01 The Air Monitor shall provide all materials, labor, services, and equipment necessary to fulfill the air monitoring requirements to accurately determine airborne asbestos concentrations in accordance with the project specifications and applicable regulations.

3.02 Ambient air samples shall be collected and analyzed using NIOSH Standard Analytical Method 7400 using a 0.8 um pore size cellulose ester filter.

3.03 The Air Monitor is required to perform area air sampling using high volume pump having an airflow capacity of 5 to 15 liters per minute and be appropriately calibrated.

3.04 The Abatement Contractor and Air Monitor shall perform independent air sampling.

3.05 Area and personal sampling results shall be submitted to the Designer as part of the final submittals by the Air Monitor and Abatement Contractor.

3.06 Documentation of air sampling and analysis results will be maintained site and copies thereof shall also be made available to all authorized parties.

A. Documentation of area air sampling must include, at a minimum: sampling times; sampling locations (with appropriate diagrams); evidence of periodic inspection of sampling equipment; documentation of the calibration of monitoring equipment; detailed description of work conditions; description of worker protective devices and a description of any “atypical” environmental conditions.

B. Documentation of sample analysis must include, at a minimum: sample identification; total sample duration; total air volume; blank filters analysis and fiber concentration in fibers per cubic centimeter.

3.07 **Exposure Level:** The exposure limit of fibers in the air shall be less than 0.01 fibers/cc personal exposure limit inside the face piece of respirators within the Work Area and 0.01 fibers/cc outside of the Work Area without use of any respirators, in lieu of any limits established by the regulations and codes referenced in Section 01091, entitled "**Definitions and Standards**". The concentration of fibers shall be determined by the membrane filter method at 400 - 450X (magnification) (4-millimeter objective) with phase contrast illumination.

3.08 Minimum sampling required for the Project shall consist of the following:

A. **Periodic Ambient Area Air Sampling:** During the “First Day” of roof replacement when the potential for disturbance of the identified ACM is anticipated, the Air Monitor shall perform ambient area air sampling within each established Attic work and from random, “designated” locations within the building to assure that asbestos fiber migration is not occurring. When sampling results are determined to be greater than 0.01 f/cc, then work should be halted immediately until all potential causes of

contamination have been investigated and remedied. The Abatement Contractor would then be required to install negative air-pressurizing machines to the work area to control dust and fiber migration.

3.09 When additional air sampling is required due to excessive airborne fiber counts, costs for additional monitoring will be the responsibility of the Abatement Contractor until levels are determined acceptable. The Air Monitor is required to provide 24-hour analytical results. However, if the Abatement Contractor desires faster turnaround time for sample results, the additional cost shall solely be his responsibility.

3.10 The Designer/Consultant has the authority to stop the abatement work if it is determined that either personally or through air sampling results the conditions are not within the limits established in the Specifications and applicable regulations. The stoppage of Work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the Designer/Consultant. Standby time required to resolve violations shall be at the Contractor's expense.

ASSESSMENT:

3.11 The Air Monitor shall perform an adequate assessment prior to initiation of the Work and periodically during the Project on the Contractor's critical equipment. Deficiencies shall be immediately reported verbally to the Contractor and Designer/Consultant. Deficiencies and corrective actions shall be documented in writing in the Air Monitor's site logbook.

A. PPE and Respiratory Protection Equipment.
B. Negative Air-Pressurizing Machines (HEPA-Equipped).
C. Polyethylene Sheeting.
D. Vacuum Systems (HEPA-Equipped).
E. Airlock.

VISUAL INSPECTIONS:

3.12 The Air Monitor shall perform visual inspections during the Project.

3.13 Visual inspections shall be utilized for but not limited to the following:

A. To determine the completeness of the asbestos-contaminated waste removal and cleaning.

B. To determine the completeness of pre-cleaning prior to obtaining ambient air sampling.

C. To provide direct feedback to the Contractor on the adequacy of the work area preparations.

D. To determine the adequacy of the work area preparations.
   1. To verify barrier integrity.
   2. To verify enclosure adequacy prior to commencing abatement activities.

3.14 Visual inspection findings, observations, and recommendations as well as the Contractor's corrective actions shall be recorded in the Air Monitor's logbook.

3.15 The criteria for passing a visual inspection are that visible debris is left on surfaces that have been removed throughout the building's attic spaces. The Air Monitor's judgment is considered final. During the final visual, the Air Monitor shall inspect the affected areas throughout the attic to assure proper removal of delaminated debris.

VIOLATIONS OF SPECIFICATIONS AND REGULATIONS:

3.16 The Air Monitor, when at the jobsite, shall observe and be reasonably aware of monitoring programs, work practices, engineering controls equipment performance, overall jobsite conditions and employee protection programs, and the overall Specifications, as they relate to employee safety and health. When deviations from regulations, Specifications or recognized good practice are observed and recognized by the Air Monitor or his designee, they shall be verbally discussed with the Contractor. Written documentation of these observations and discussions shall be submitted to Designer/Consultant by the following workday. Copies of memos shall be maintained at the jobsite by the Air Monitor and made available to all parties.

PROJECT COMPLETION REPORT:

3.17 The Air Monitor is required to provide the Designer/Consultant with a project log containing original copies of all monitoring results, equipment calibrations, personal observations, incident summaries of personal injury accidents, hazardous waste contamination, etc. occurring during the project, communication, etc. occurring during the Project, communications with the Contractor during abatement activities and a statement confirming, if correct, that the requirements of the Contract have been met as they apply to the Industrial Hygiene activities contracted for.

END OF SECTION 01410

SECTION 01513
NEGATIVE AIR-PRESSURIZING SYSTEM

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 The Contractor shall submit the design and specifications of the negative air-pressurizing system to the Designer/Consultant for review. Include in the submittal the following:

A. Number of negative air-pressurizing machines required and the calculations necessary to determine the number of machines. When required, a minimum of two machines will be installed per work area.

B. Description of projected airflow within the Work Area and methods required to provide adequate airflow in all portions of the designated Work Area(s).

C. Pressure differential across the Work Area enclosures anticipated.

D. Description of methods of testing for airflow and pressure differentials.

E. Manufacturer's product data sheet on machines to be used.

F. Location of the negative air-pressurizing machines in the Work Area.

G. Method of supplying adequate power to the negative air-pressurizing machines and designation of building electrical panel(s) that will be supplying the power.

H. Description of work practices to ensure that airborne fibers travel downstream from Workers.

I. Manufacturer's product data on equipment used to monitor pressure differential between inside and outside the Work Area.

PART 2 PRODUCTS

2.01 Supply the required number of negative air-pressurizing machines in accordance with these Specifications.

2.02 The negative air-pressurizing machine shall be constructed of steel or other durable materials able to withstand damage from rough handling and transportation. The cabinet shall be factory sealed to prevent asbestos-containing dust from being released during use, transport,

or maintenance. Access to and replacement of all air filters shall be from the intake end. The unit shall be mounted on casters or wheels.

2.03 Each unit shall be equipped with a Magnahelic gauge or Manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed. A table indicating the usable air-handling capacity for various static pressure readings on the Magnahelic gauge shall be affixed near the gauge for reference, or the Magnahelic reading indicating at what point the filters should be changed, noting cubic feet per minute (**CFM**) air delivery at that point.

2.04 The units shall have an electrical (or mechanical) lockout to prevent the fan from operating without a high efficiency particulate air (**HEPA**) filter. Units shall be equipped with automatic shutdown systems to stop the fan in the event of major rupture in the HEPA filter or blocked air discharge. Warning lights are required to indicate normal operation, too high a pressure drop across the filters (i.e., filter overloaded), and too low of a pressure drop (i.e. major rupture in HEPA filter or obstructed discharge).

2.05 The electrical components shall be approved by the National Electrical Manufacturer's Association (**NEMA**) and Underwriter's Laboratories (**UL**). Each unit shall be equipped with overloaded protection sized for the equipment. The motor, fan, fan housing, and cabinet shall be grounded.

PART 3 EXECUTION

3.01 Provide a fully operational negative air-pressurizing system within the work maintaining continuously a pressure differential across the work area enclosures.

3.02 Continuously monitor and record the pressure differential between the work area and the building outside of the work area.

3.03 Provide fully operational negative pressure systems supplying a minimum of one air change every 15 minutes. Determine the volume in cubic feet of the work area by multiplying floor area by ceiling height. Determine total ventilation requirement in cubic feet per minute (CFM) for the Work Area by dividing this volume by the air change rate.

Ventilation Required (CFM) = Volume of Work Area (cu. ft.)/15 minutes

3.04 Determine the number of units needed to achieve a 15-minute change rate by dividing the ventilation requirements (CFM) above by capacity of exhaust capacity in cubic feet per minute with fully loaded filters (pressure differential which causes loaded filters warning light to come on) in the machines labeled operating characteristics.

$$\text{Number of units need} = \frac{\text{Ventilation Requirement (CFM)}}{\text{Capacity of unit loaded with filters (CFM)}}$$

Add one (1) additional unit as a backup in case of equipment failure or machine shutdown for filter changing.

3.05 Locate negative air-pressurizing machine(s) so that the makeup air enters the Work Area primarily through the DCUs and traverses the Work Area as much as possible. This may be accomplished by positioning the negative air-pressurizing machine(s) at a maximum distance from the DCU opening or other makeup air sources.

3.06 Each negative air-pressurizing machine shall be serviced by a dedicated minimum 115V, 20A circuit with overload device tied into an existing building electrical panel which has sufficient spare capacity to accommodate the load of all negative air-pressurizing units connected. Dedication of an existing circuit may be accomplished by shutting down existing loads on the circuit.

3.07 Test each negative air-pressurizing machine used in the Work Area before any ACM is disturbed. After the Work Area has been prepared and the machines installed, start the negative air-pressurizing machines (one at a time).

3.08 Start negative air-pressurizing machines before beginning work. After disturbance has begun, run the negative air-pressurizing machines continuously to maintain a constant negative pressure until decontamination of the Work Area is completed.

END OF SECTION 01513

SECTION 01560
WORKER PROTECTION

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

TRAINING:

1.01 Prior to their involvement in any activities relating to the handling or disturbance of any known ACM identified on this jobsite, each Worker will be required to receive adequate training in accordance with this Section and for the type of Work being performed.

1.02 Updated training is for personnel who will be required to disturb any identified ACMs or enter any environment in which ACMs have been disturbed.

1.03 At a minimum, personnel will be required to have successfully completed a State and EPA-approved 4-day course in accordance with current AHERA regulations and be accredited by the State of North Carolina's HHCU program. Each worker and Supervisor will be required to present to the Designer/Consultant and Air Monitor the license provided by the HHCU prior to being allowed to perform any work on the jobsite in which disturbance and handling of known ACM is required.

1.04 Each of the Supervisors used during the Project will be required to have successfully completely a State and EPA-approved 5-day Supervision course in accordance with current AHERA regulations and accredited by the State of North Carolina's HHCU program.

1.05 At a minimum, awareness training should include the following:

A. The health hazards of asbestos including the nature of various asbestos-related diseases, routes of exposure, known dose-response relationships, the synergistic relationship between asbestos exposure and cigarette smoking, latency periods for disease and the health basis for the standards.

B. The physical characteristics of asbestos include fiber size, aerodynamic properties, physical appearance and uses.

C. Proper usage of PPE; including the types and characteristics of each respirator planned for usage; proper cleaning, maintenance and storage of each type of respirator; fit-testing procedures for each respirator, including qualitative and quantitative fit-testing procedures; any factors that will affect the fit of each respirator; and proper selection and use of disposable clothing, gloves, eye protection and hard hats.

D. Medical monitoring requirements including recommended tests, reasons for medical monitoring and procedures for employees' access to their medical records.

E. Permissible Exposure Limits (**PEL**), including description of monitoring equipment planned for usage, reasons for and the importance of proper PEL monitoring, and the types and level of sampling planned for the Project.

F. Proper work practices to use during the disturbance and handling of ACM; construction and maintenance of airtight critical barriers, negative pressure enclosure(s), airlocks and DCU and Waste Loadouts; posting of warning signs; engineering controls; lockout/tagout and cleaning and storage procedures.

G. Personal decontamination procedures and proper equipment decontamination procedures.

H. Safety hazards that may be encountered including abatement, demolition and excavation activities.

I. Specific hands-on training, such as glovebag installation, torch cutting procedures and the use of specialized equipment.

J. Supervisory personnel shall, in addition, receive training on contract specifications, liability insurance and bonding, legal considerations related to abatement, establishing respiratory protection medical surveillance programs, EPA, OSHA, and State record keeping requirements, and other topics as requested by ACS.

1.06 Training should be provided by individuals qualified by virtue of their experience, qualifications and education.

1.07 Training should have been provided to Worker within twelve (12) months prior to the start of the Project.

1.08 Documentation of training should include the date of training, course overview and the names of each provider.

1.09 Training in emergency response and evacuation procedures unique to this job shall be provided, as required.

MEDICAL MONITORING:

1.11 Medical Monitoring shall be provided by the Contractor to any Worker or Agent who may be exposed to asbestos in excess of background levels during any phase of the Project. The purposes of a medical program, in addition to meeting the requirements of the Law, are to document the state of health of Workers including any preexisting conditions for Workmen's Compensation and to determine work-relatedness of disease, as well as to ensure fitness for duty, particularly the ability to wear a respirator.

1.12 Smokers shall be made aware of the synergistic effects of cigarette smoking and asbestos exposure (50 times greater risk of contracting lung cancer). The medical monitoring program provides the appropriate setting to share this information. Employers should also be aware of the potential cost of this additional risk. Medical monitoring shall include at a minimum the requirements of OSHA 29 CFR 1926.1101(m) as follows:

A. A Work/Medical history to elicit symptomatology of respiratory disease.

B. A chest X-ray (posterior-anterior, 14 x 13 inches) taken by a certified radiology technician and evaluated by a certified B-reader (Physicians discretion).

C. A pulmonary function test, including forced vital capacity (FVC) and forced expiratory volume at one second (FEV 1), and FEV 1 /FVC ration (administered by a NIOSH or A.T.S. certified pulmonary technician and interpreted and compared to standardized normal(s) by a board-certified pulmonary specialist).

D. Workers should be given the opportunity to be evaluated by a physician to determine their capability to work safely while breathing through the added resistance of a respirator. (Examining physicians shall be aware of the nature of respiratory protective devices and their contributions to breathing resistance. They shall also be informed of the specific types of respirators the employees shall be required to wear and the work they will be required to perform, as well as special workplace conditions such as high temperatures, high humidity, and chemical contaminants to which they may be exposed. Evaluation of groups of Workers should take into consideration epidemiological principles as suggested by the American Thoracic Society in their statement on the work relatedness of disease adopted in 1982).

PART 2 EQUIPMENT

PROTECTIVE CLOTHING:

2.01 Disposable clothing including head, foot and full body protection shall be provided in sufficient quantities and adequate sizes for all Workers and authorized Visitors.

2.02 Laundered clothing, if required, shall be provided in sufficient quantities and adequate sizes for all Workers and authorized Visitors.

2.03 Hard hats, protective eyewear, gloves, rubber boots and/or other footwear shall be provided as required for Workers and authorized Visitors. Safety shoes may be required for some activities.

PART 3 EXECUTION

RESPIRATORS:

3.01 Provide Worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work.

3.02 Instruct and train each Worker in proper respirator use and require that each Worker always wear a respirator, properly fitted on the face, while inside a designated Work Area(s).

3.03 Respiratory requirements are future specified in Section 01562, entitled "**Respiratory Protection**".

END OF SECTION 01560

SECTION 01562
RESPIRATORY PROTECTION

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 Respiratory protection shall be provided to each Worker in accordance with the submitted written respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (b). This program shall be posted in the Clean Room of the DCU. Respirator selection shall be in accordance with these requirements.

1.02 Workers shall be provided with personally issued, individually identified respirators at no expense to the Worker.

1.03 The Abatement Contractor shall supply new respirators (minimum of two of each type) being used at the jobsite for Authorized Visitors who may request entry into the Work Area.

SUBMITTALS:

1.04 Submit manufacturer's product information for each component used, including NIOSH and MSHA Certifications for each component in assembly and/or for entire assembly.

1.05 Submit complete Operating and Maintenance instructions for all components and systems as a whole. Submittals are to be in bound manual form suitable for field use.

PART 2 PRODUCTS

AIR PURIFYING RESPIRATORS:

2.01 The Contractor shall provide half-face or full-face type respirators as necessary to perform the Work. Equip full-face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit.

2.02 Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z88.2.

2.03 Supply a sufficient quantity of respirator filters approved for asbestos protection, so that the Workers can change filters during each shift. **All respirators shall be wet-rinsed, and**

filters discarded, each time a Worker leaves the Work Area. New filters shall be installed each time a Worker re-enters the Work Area. Store respirators and filters at the jobsite in the Clean Room and protect totally from exposure to asbestos prior to their use.

PART 3 EXECUTION

3.01 Require that respiratory protection be used at all times when there is the potential for the disturbance of ACMs materials, whether intentional or accidental.

3.02 Require that a respirator be worn by individuals inside each negative pressure Work Area at all times, regardless of activity, during any point at which asbestos fibers may become airborne fibers until the time final air clearance samples are determined to be acceptable.

3.03 Require that the minimum level of respiratory protection used be a half-face air-purifying respirator with high efficiency filters during pre-cleaning and final cleaning activities. Maximum concentration inside the face-piece shall not exceed, at anytime, 0.01 fibers/cc.

FIT-TESTING:

3.04 Workers must perform positive and negative air pressure fit tests each time a respirator is put on, whenever the respirator design permits.

3.05 Workers shall be given a qualitative fit-test in accordance with procedures detailed in the OSHA Asbestos Standard (29 CFR 1926.1101, Appendix C, Qualitative Fit-Test Protocols) for all negative pressure respirators to be used on this abatement project. An appropriately administered quantitative fit-test may be substituted for the qualitative fit-test.

3.06 Documentation of adequate respirator fit-testing must be provided to the Designer/Consultant and Owner Designee, as part of the Submittals.

RESPIRATORY PROTECTION FACTORS:

3.07

EXPOSURE LEVEL	MINIMUM RESPIRATORY PROTECTION
up to 0.1 fiber/cc	Air purifying respirator with HEPA filters
up to 0.5 fibers/cc	Full-face air purifying respirator quantitatively fit-tested with HEPA filters
to 1 fiber/cc	Full-face Powered Air Purifying Respirators (**PAPR**) with HEPA filters
up to 10 fibers/cc	Full-face pressure-demand air line respirator with emergency egress HEPA filters

less than 10 fibers/cc	Full-face pressure-demand airline respirator with emergency egress HEPA filters; self-contained breathing apparatus, open circuit.

SPECIFIC PROJECT REQUIREMENTS:

3.09 Respiratory Protection:

A. Pre-Cleaning and Work Area Preparations

1. During Pre-Cleaning and Work Area Preparations, in areas where ACMs or materials may be disturbed, the minimum respiratory protection required during the work shall be half-face, negative pressure air-purifying respirator equipped with P-100 rated HEPA filter cartridges. The filter cartridges can only be worn a maximum of three-days per use and may require replacement sooner depending on the conditions inside the Work Area.

B. Final Inspection, Cleaning and Waste Removal

1. The minimum respiratory protection required during the work shall be half-face, negative pressure air-purifying respirator equipped with P-100 rated HEPA filter cartridges. The filter cartridges can only be worn a maximum of three-days per use and may require replacement sooner depending on the conditions inside the Work Area.

END OF SECTION 01562

SECTION 01632
PRODUCTS AND SUBSTITUTIONS

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 It should not be inferred that all materials, tools, and equipment listed in Part 2 of this Section are required or that all required materials, tools and equipment necessary are listed herein.

1.02 Deliver all materials in the original packages, containers of bundles bearing the name of the manufacturer and the brand name (where applicable).

1.03 Store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination. Replacement materials shall be stored outside of the Work Area until abatement is completed.

1.04 Damaged, deteriorating or previously used materials shall not be used and shall be removed from the jobsite and disposed of properly. Material that becomes contaminated with asbestos shall be disposed of in accordance with the applicable regulations.

PART 2 PRODUCTS

2.01 **Polyethylene Sheeting:** A single poly film in the largest sheet size possible to minimize seams, 6-mil thick as indicated, clear, black or frosted as indicated.

2.02 **Tape:** Capable of sealing joints of adjacent layers of poly and attaching poly to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions, including use of amended water, chemical removers, or removal encapsulant.

2.03 **Chemical Remover:** Suitable to aid in removal of ACM such as CerTane 2075 or equal.

2.04 **Disposal Bags:** Shall be of 6-mil poly, pre-printed with labels as required by EPA regulations 40 CFR 61.150(A)(i)(iv) or OSHA Requirement 29 CFR 1926.1101(k) (8).

2.05 Method of attaching poly is the responsibility of the Contractor, and the method must be selected to minimize damage to equipment and surfaces. Method of attachment may include any combination of duct tape or other waterproof tape, furring strips, spray glue, staples, nails, screws or other effective procedures capable of sealing adjacent poly and capable of sealing poly to dissimilar finished or unfinished surfaces under both wet and dry conditions (including the use of amended water).

2.06 The Contractor shall apply, install, connect, erect, use, clean and condition manufactured articles, materials, and equipment as recommended by the manufacturer, unless specified to the contrary.

2.07 The Contractor shall use warning signs as required by 29 CFR 1926.1101 (k)(7)(i)(ii)(iii).

2.08 A sufficient quantity of negative air pressurizing machines equipped with HEPA filtration and operated in accordance with ANSI Z29.2-79 (local exhaust ventilation requirements) and EPA guidance document DPA 560/5-83-002 (Guidance for Controlling Friable Asbestos-Containing Materials in Buildings Appendix F: Recommended Specifications and Operating Procedures For the Use of Negative Pressure Systems for Asbestos Abatement) shall be utilized so as to provide one workplace air change every 15 minutes.

A. To calculate total airflow requirement:

$$\text{Total cubic ft./min.} = \frac{\text{Volume of work area (in cubic ft.).}}{\text{15 min.}}$$

B. To calculate the number of units needed for the abatement:

$$\text{Number of units needed} = \frac{\text{(Total cubic ft./min.)}}{\text{(Capacity of unit in cubic ft./min.)}}$$

2.09 The negative air-pressurizing machines shall be capable of filtering asbestos fibers of 0.3 um @ 99.97% efficiency. Prefilters, which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of prefiltration are required. The first-stage prefilter shall be a low efficiency type [e.g., for particles (10) um and larger). The second-stage (or intermediate) filter shall have a medium efficiency (e.g., effective for particles down to (5) um]. Prefilters and intermediate filters shall be installed either on or in the intake grid of the unit and held in-place with special housings or clamps.

2.10 Full body disposable protective clothing, including head, body and foot coverings, consisting of material which prevents gross contamination from asbestos fibers (Tyvek R or similar), shall be provided to all Workers and authorized visitors in sizes adequate to accommodate movement without damaging the protective clothing.

2.11 Additional safety equipment (e.g. hard hats meeting the requirements of ANSI Standard Z89.1-1969, eye protection meeting the requirement of ANSI Standard Z87.1-1968, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable PVC gloves), as necessary, shall be provided to all Workers and Authorized Visitors.

2.12 Non-skid footwear shall be provided to all Workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

2.13 If launderable clothing is to be worn underneath disposable protective clothing, it shall be provided by the Contractor to all Workers. Laundering must occur in accordance with 29 CFR 1926.1101(i),

2.14 Provide sufficient supply of disposable mops, rags and sponges for Work Area decontamination.

2.15 Provide scaffolds, ladders, lifts and hand tools such as scrapers, wire cutters, brushes, utility knives, wire saws, as the work requires.

2.16 Sprayers with pumps capable of providing 14-15 pounds per square inch (PSI) at the nozzle tip at a flow rate of two (2) gallons per minute shall be used for spraying amended water.

2.17 Rubber dustpans and rubber squeegees shall be provided for cleanup.

2.18 A sufficient supply of HEPA-filtered vacuum systems shall be available during cleanup.

2.19 Brushes utilized for removing loose asbestos containing material shall have nylon or fiber bristles, not metal.

2.20 **Warning Labels:** As required OSHA Regulation 29 CFR 1926.1101(k)(8)(i)-(vii).

2.21 Heavy-duty power cables for temporary electrical service and a portable electric generator for maintaining negative pressure in the Work Area in case of power failure are required.

2.22 Additional support equipment the Contractor deems necessary for asbestos abatement work shall be submitted to the Designer for approval prior to their use.

SUBSTITUTIONS:

2.23 The Contract is based on the materials, equipment and methods described in the Contract Documents.

2.24 The Designer/Consultant will consider proposals for substitutions of materials, equipment and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Designer/Consultant to evaluate the proposed substitution.

2.25 Do not substitute materials, equipment or methods unless such substitution has been specifically approved for the Designer/Consultant.

2.26 Where the phrase "or equal" or "equal as approved by the Designer/Consultant" occurs in the Contract Document, do not assume that materials, equipment or methods will be approved by the Designer/Consultant unless the item has been specifically submitted for and Designer/Consultant has pre-approved the material, equipment and methods. The decision of the Designer/Consultant shall be final.

PART 3 EXECUTION

3.01 Except as otherwise indicated in individual sections of these Specifications, comply with the manufacturer's instructions and recommendations for installation of the products in the applications indicated.

3.02 Anchor each product securely in place, accurately located and aligned with other work. Clean exposed surfaces and protect surfaces as necessary to ensure freedom from damage and deterioration at time of acceptance.

END OF SECTION 01632

SECTION 01712
CLEANING AND DECONTAMINATION PROCEDURES

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 Decontaminate all tools and equipment and remove each from the Work Area at the appropriate time in the cleaning sequence.

1.02 Before final visual inspection, the Contractor's onsite Supervisor shall inspect the Work Area and visually assure that all ACMs have been removed and the Work Area is clean. During visual inspection by the Air Monitor, the Supervisor who previously inspected the Work Area shall accompany the Air Monitor. Additional manpower shall be provided by the Contractor to clean any areas identified for additional cleaning by the Air Monitor.

1.03 The Contractor shall assure that the Work Area is clean before visual inspection is initiated.

1.04 The Air Monitor shall perform the final visual inspection.

1.05 The Contractor will be responsible for performing the necessary cleaning of each the Work Area until the Air Monitor's approval.

1.06 Following the Air Monitor's visual approval, critical barriers, pre-filters and drop poly sheeting applied throughout the work area can then be removed and disposed of as asbestos-contaminated waste material(s).

PART 2 PRODUCTS (NOT APPLICABLE):

PART 3 EXECUTION (NOT APPLICABLE):

END OF SECTION 01712

DIVISION 02
SITEWORK

CASWELL DEVELOPMENT CENTER
BYRUM BUILDING ROOF REPLACEMENT PROJECT
2415 W. VERNON AVENUE
KINSTON, NORTH CAROLINA 28504
OLME PROJECT NO.: OLME-2023-18

SECTION 02084
DISPOSAL OF ASBESTOS-CONTAMINATED WASTE MATERIALS

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 As the work progresses, to prevent exceeding available storage capacity onsite, sealed and labeled containers of asbestos-containing waste shall be removed and transported directly to the prearranged disposal location, which must be an authorized site in accordance with regulatory requirements of NESHAP and DOT. Use of intermediate storage locations is not an accepted disposal procedure. All waste (including containers) shall be labeled as required by OSHA, NESHAP, DOT, State and local regulations.

1.02 Any containerized asbestos-containing waste that must be stored onsite until proper disposal must be adequately posted and enclosed to prevent any possible tampering by others.

1.03 The Abatement Contractor shall provide documentation in the form of a transportation and disposal manifest and disposal bonding insurance to the Designer/Consultant with the request for final payment. Asbestos-containing waste generated must be accounted for by these records and copies of all such records shall be delivered to NC-DHHS, Designer/Consultant and the North Carolina Health Hazards Control Unit (**HHCU**). Manifest forms are available from the HHCU. Only HHCU forms will be acceptable for asbestos waste.

1.04 Asbestos-containing waste shall be initially bagged in opaque or black bags.

1.05 The exterior of each asbestos waste disposal bag and any poly-wrapped materials shall be washed before going through the building in order to avoid the release of “dried” asbestos-containing debris outside the work area.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

TRANSPORTATION TO THE LANDFILL:

3.01 Once bagged waste has been removed from the Work Area, each shall be loaded into an enclosed truck or container for transport to the landfill.

3.02 The enclosed cargo area of the truck or container shall be free of debris and lined with 6-mil poly to prevent contaminated materials from leaking or spilling into the cargo area. Floor poly shall be installed first and extend up the sidewalls. Wall sheeting shall be overlapped and taped into place.

3.03 Containers shall be placed on level surfaces in the cargo area and packed tightly together to prevent shifting and tipping. Large components shall be secured to prevent shifting and bags placed on top. Do not throw contained waste materials into the truck and/or designated waste container.

3.04 Workers loading each type of hazardous waste shall be protected by disposable clothing including gloves and head, body and foot protection, at a minimum, and half-face, air-purifying, dual cartridge respirators equipped with HEPA filters with safety glasses.

3.05 Any debris or residue observed on containers or surfaces outside of the Work Area resulting from cleanup or disposal activities shall be immediately cleaned up using the appropriate cleaning methods determined by the type of hazardous waste involved.

3.06 If a rental vehicle/truck is used for transportation, then the Contractor must notify the rental agency, in writing, that the rental equipment will be used in the transportation of hazardous waste such as asbestos.

DISPOSAL AT THE LANDFILL:

3.07 Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos-containing waste.

3.08 Bags, drums and components shall be inspected as they are off-loaded at the disposal site. Damaged containers shall be very carefully taped shut and re-packed into drums or bags, as applicable.

3.09 Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of trucks (weight of wet material could rupture containers).

3.10 Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-face, air-purifying, dual cartridge respirators equipped with HEPA filters.

3.11 Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA-equipped vacuums and/or wet methods to meet the no visible residue criteria. Poly shall be removed and discarded along with contaminated cleaning materials and protective clothing, in bags or drums, at the disposal site.

3.12 The Contractor will be required to comply with the methods designated for each type of hazardous waste material when containing, transporting and delivering each type of material to its respective disposal location.

END OF SECTION 02084

SECTION 02100
SITE PREPARATIONS

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions (if provided) and other Specification sections, apply to work of this Section.

PART 1 GENERAL

1.01 The Abatement Contractor shall take complete charge of the Work under this Contract and coordinate the Work with the General Contractor and the Air Monitor.

1.02 The Contractor shall have access to a phone or cellphone at the jobsite.

1.03 Post Caution Signs meeting the Specifications of OSHA 29 CFR 1926.1101(k)(1)(ii) at any location and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the Work Area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of workplace enclosure barriers.

1.04 Ensure safe installation (including ground faulting) of temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. Electrical connections are the responsibility of the Contractor. All costs for electric power shall be paid for by ACS. The Contractor shall establish minimum lighting requirements as follows:

A. Ten (10) foot-candles in the general Work Area.

B. Thirty (30) foot-candles on working surfaces where removal and/or detailing are taking place.

1.05 Shutdown and lockout all heating, ventilation and air conditioning (**HVAC**) system components that are in, supply or pass through the Work Area.

1.06 Per-Clean the proposed Work Area(s) using HEPA vacuums and wet cleaning methods as appropriate to facilitate good tape adhesion. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

1.07 The Owner will be responsible for removing all movable items inside the designated Work Area prior to the commencement of the abatement activities. The Contractor shall coordinate with the General Contractor the salvage value of any remaining movable items. If requested, the Contractor shall clean all remaining movable objects within the Work Area using an HEPA-equipped vacuum and/or wet cleaning methods, as appropriate.

1.08 Preclean all fixed, immovable objects in the Work Area using an HEPA-equipped vacuums and/or wet cleaning techniques, as appropriate. After precleaning, enclose fixed objects in 6-mil poly, pre-filters for required ventilation or exhaust and seal securely with tape.

1.09 Seal off openings and penetrations between the Work Area and uncontaminated areas after completing pre-cleaning with 6-mil poly and tape.

1.10 Loosely install poly sheeting throughout the work area adequate to protect underlying insulation and equipment during the work.

1.11 Attach pre-filters over perimeter louvers and dormer vents adequate to maintain airflow for equipment remaining in operation during the work.

1.12 A designated location for water shall be identified at the site for the Contractor's use. The Contractor shall supply hoses and fittings, as required, to make proper connections to the water supply.

1.13 The Contractor shall have a barricade of 10-foot around each regulated work area and his equipment wherever required.

PART 2 PRODUCTS

2.01 See Section 01632 entitled "**Products and Substitutions**".

PART 3 EXECUTION

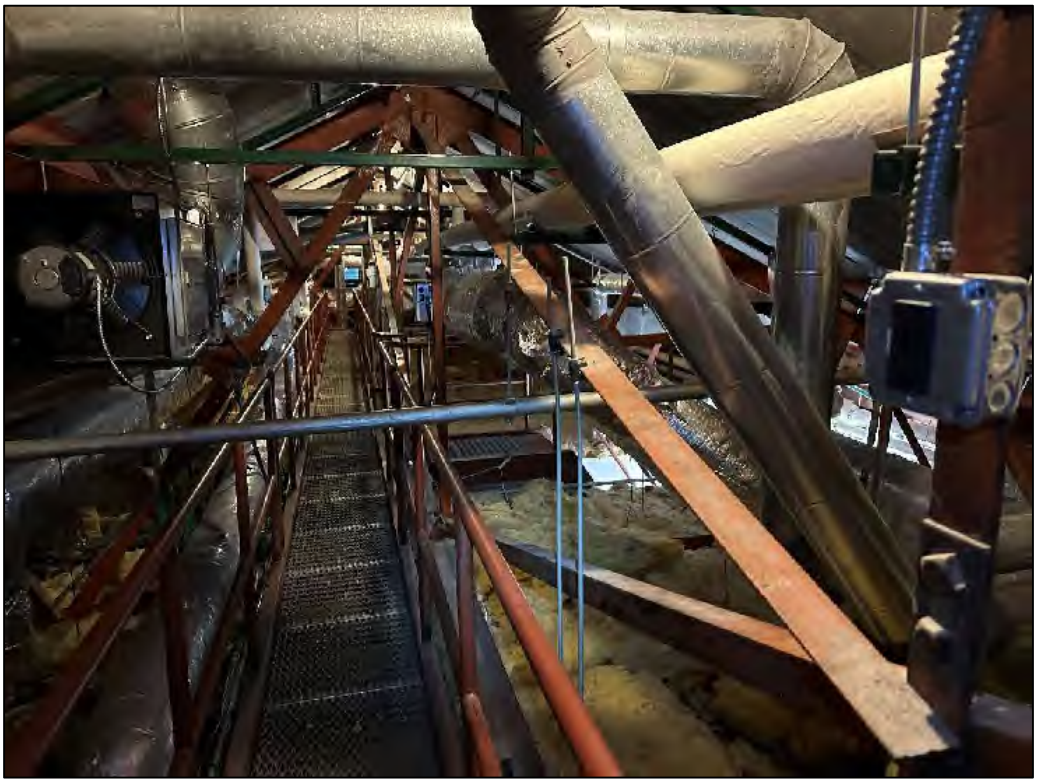
END OF SECTION 02100

ATTACHMENTS

CASWELL DEVELOPMENT CENTER
BYRUM BUILDING ROOF REPLACEMENT PROJECT
2415 W. VERNON AVENUE
KINSTON, NORTH CAROLINA 28504
OLME PROJECT NO.: OLME-2023-18

REPORT SUMMARIZING MATERIAL BULK SAMPLING ANALYSIS RESULTS TO DETERMINE ASBESTOS CONTENT

North Carolina Department of Health and Human Services
Byrum Building – Roof Replacement Project
Caswell Developmental Center
2415 W Vernon Avenue, Kinston, NC 28504



Prepared for:
North Carolina Department of Health and Human Services
Division of Property and Construction
2104 Umstead Drive, 3026 Mail Service Center
Raleigh, NC 27699

Prepared by:
Atlas Engineering, Inc.
551-A Pylon Drive
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(919) 420-7676

ATLAS ENGINEERING, INC.

October 2, 2023

NC Department of Health and Human Services
Division of Property and Construction
2104 Umstead Drive
3026 Mail Service Center
Raleigh, NC 27699

Subject: **Report Summarizing Bulk Sampling Analysis Results to Determine Asbestos Content**
Byrum Building – Roof Replacement Project
Caswell Developmental Center
2415 W Vernon Avenue, Kinston, NC 28504
Atlas Engineering Job No. J2740

Attention: **Mr. Neal Enevoldsen**
Project Manager

Dear Mr. Enevoldsen:

Atlas Engineering is pleased to present this report summarizing the analytical results for the bulk sampling of suspect materials obtained from Byrum Building to determine asbestos content. Atlas Engineering was contracted by North Carolina Department of Health and Human Services (NCDHHS) to design the roof replacement at Byrum Building, which included bulk sampling to determine asbestos content. Our objective was to determine if any suspect asbestos containing materials (ACM) will be disturbed as a result of the planned roof replacement, and to obtain sufficient samples to determine if any suspect materials contain asbestos.

Atlas Engineering visited the project site on August 22, 2023, completing a walkthrough of the existing roofs and attic spaces, assessing each for suspect materials requiring bulk sampling collection. The inspection was performed under the direction of Tim Ford (NC Accredited Inspector #: 13378) with Atlas Engineering. Kelli Wilcox with Atlas Engineering also assisted with the bulk sampling. This report presents general project information, known survey procedures, survey results and recommendations, and also provides general information such as existence, general location, condition, and type of identified ACM.

Project Information

The Byrum Building is located at the Caswell Developmental Center in Kinston, North Carolina. It is our understanding that the building was constructed in the 1950's and the roof was replaced in the mid-1990's, therefore the building is on the order of seventy years old and the existing roof system is on the order of thirty years old. Atlas had previously replaced a similar shingled roof system at the Parrot Building, which was a "sister building" to the Byrum Building and had reviewed asbestos sampling and test results associated with the previous project. No other information was made available to Atlas Engineering at this time.

Survey Procedures

Atlas representatives conducted a visual assessment of the existing roofing systems and attic spaces prior to obtaining bulk samples. At the completion of each assessment, a sampling strategy was determined and bulk samples were obtained. Suspect materials were grouped based on material homogeneity. A homogenous area is an area that contains materials that seem by texture, color, and condition to be uniform and applied during the same general time period. Suspect materials sampled included, but were not limited to shingles, underlayment, and seam grout filler visible at the ridgelines from within the attic spaces.

Analysis Procedures

Each bulk sample of suspect roofing material obtained was analyzed using Polarized Light Microscopy (PLM), coupled with Dispersion Staining as outlined in the Environmental Protection Agency's (EPA) accredited test method EPA 600/M4-82-020 that incorporates method EPA-600/R93/116 where applicable as per 40 CFR 763. A summary of the bulk samples identified to contain asbestos fibers in amounts greater than one percent (>1%) is included in the Section of this report entitled, "Summary of Analysis Results". A complete summary of the bulk sampling performed is attached in the Section entitled "Asbestos Bulk Sampling Record".

Summary of Analysis Results

The following is a summary of the identified materials containing asbestos fibers greater than one percent (>1%):

TYPE OF MATERIAL	GENERAL LOCATION	TYPE OF ASBESTOS AND PERCENTAGE
Seam Grout Filler	Throughout Seam Openings Visible in Attic Spaces	**2% Chrysotile**

General location of asbestos containing seam grout filler (typical).

Close-up view of asbestos containing seam grout filler (typical).

Recommendations

The above mentioned ACM is considered Category I Non-Friable and was observed to be in fair to good condition. The identified ACM will not be removed as a result of the planned roof replacement project; however, there is a risk that the material could be disturbed by the vibration from construction activies such as securement of new retrofit framing. The material must be addressed in accordance with applicable Federal, State, and Local regulations.

Atlas does not believe that removal of the asbestos containing seam grout filler is necessary nor feasible, and potential disturbance of the ACM can be minimized, but not eliminated. Atlas will utilize an asbestos sub-consultant certified in asbestos design as well as air monitoring to provide an asbestos work plan to protect the attic space below the material during the roof replacement project. The sub-consultant will also provide air-monitoring services during the roof replacement project to confirm that any disruption has not caused release of material into the attic space or building interior. The asbestos design and air-monitoring services will follow the EPA's NESHAP regulations, and will resemble the design and work plan used during the previous roof replacement project by Atlas at the adjacent Parrott Building (located south of the Byrum Building).

Asbestos was not detetected in the shingles or associated underlayment.

We have attached a copy of the PLM laboratory analysis report for the bulk sampling in the Section entitled "Amerisci Richmond – PLM Bulk Sampling Asbestos Report". We have also attached "Photos", to show the general location and typical materials obtained in the bulk sampling. Finally, we have attached drawings entitled "Sampling Locations" which display the approximate location of each bulk sample taken.

This report summarizes Atlas' evaluation of the conditions observed at the Byrum Building. Our findings are based upon our observations at the time of our site visit, discussions with NCDHHS and discussions with the Caswell Developmental Center, and the analysis results for the bulk sampling obtained. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

In Closing

Atlas Engineering appreciates the opportunity to provide these services and looks forward to working with NCDHHS and the Caswell Developmental Center on this and future projects. If there are any questions concerning this report or the analysis results, please contact us at (919) 420-7676 with any questions.

Sincerely,

Atlas Engineering, Inc., by

Tim Ford, EI
Asbestos Project Manager
NC Inspector #13378

Kelli Wilcox, PE, RRC
Principal Engineer

ASBESTOS BULK SAMPLING RECORD

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

ASBESTOS BULK SAMPLING RECORD

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING - ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740
SAMPLES TAKEN: AUGUST 22, 2023

SAMPLE NUMBER	SAMPLE LOCATION	TYPE OF MATERIAL	TYPE OF ASBESTOS AND PERCENTAGE
BB-1	Central Wing - Attic	Seam Grout Filler	**2% Chrysotile**
BB-2	Central Wing - Attic	Seam Grout Filler	**2% Chrysotile**
BB-3	Central Wing - Attic	Seam Grout Filler	**2% Chrysotile**
BB-4	North Wing of Original Building - South Perimeter	Asphalt Shingle Underlayment	All Layers: None Detected
BB-5	South Wing of Original Building - South Perimeter	Asphalt Shingle Underlayment	All Layers: None Detected
BB-6	Northwest Mechanical Room Addition - South Perimeter	Asphalt Shingle Underlayment	All Layers: None Detected
BB-7	Southwest Mechanical Room Addition - North Perimeter	Asphalt Shingle Underlayment	All Layers: None Detected

PHOTOS

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

PHOTOS

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

PHOTO 1
View of Sampling Location for BB-1
Central Wing - Attic
2% Chrysotile

PHOTO 2
Close-up view of Sample BB-1
Central Wing - Attic
2% Chrysotile

PHOTO 3
View of Sampling Location for BB-2
Central Wing - Attic
2% Chrysotile

PHOTO 4
Close-up view of Sample BB-2
Central Wing - Attic
2% Chrysotile

PHOTOS

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

PHOTO 5
View of Sampling Location for BB-3
Central Wing - Attic
2% Chrysotile

PHOTO 6
Close-up view of Sample BB-3
Central Wing - Attic
2% Chrysotile

PHOTO 7
View of Sampling Location BB-4
North Wing of Original Building – South Perimeter
(NONE DETECTED)

PHOTO 8
Close-up view of Sample BB-4
North Wing of Original Building – South Perimeter
(NONE DETECTED)

PHOTOS

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

PHOTO 9
View of Sampling Location BB-4
South Wing of Original Building – South Perimeter
(NONE DETECTED)

PHOTO 8
Close-up view of Sample BB-4
South Wing of Original Building – South Perimeter
(NONE DETECTED)

PHOTO 11
View of Sampling Location BB-6
Northwest Mechanical Room Addition – South Perimeter
(NONE DETECTED)

PHOTO 12
Close-up view of Sample BB-6
Northwest Mechanical Room Addition – South Perimeter
(NONE DETECTED)

PHOTOS

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

PHOTO 13
View of Sampling Location BB-7
Southwest Mechanical Room Addition – North Perimeter
(NONE DETECTED)

PHOTO 14
Close-up view of Sample BB-7
Southwest Mechanical Room Addition – North Perimeter
(NONE DETECTED)

AMERISCI RICHMOND PLM BULK ASBESTOS REPORT

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

AmeriSci Richmond
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: 8047631200 FAX: 8047631800

August 29, 2023

Atlas Engineering, Inc.
Attn: Tim Ford
551A Pylon Dr
Raleigh, NC 27606

RE: Atlas Engineering, Inc.
Job Number 123081988
P.O. #J2740
J2740; Byrum Building; Roof Replacement Project

Dear Tim Ford:

Enclosed are the results for PLM asbestos analysis of the following Atlas Engineering, Inc. samples received at AmeriSci on Friday, August 25, 2023, for a 3 day turnaround:

BB-1, BB-2, BB-3, BB-4, BB-5, BB-6, BB-7

The 7 samples contained in zip lock bag were shipped to AmeriSci via Fed Ex 8175 6326 4572 B 920. These samples were prepared and analyzed according to EPA PLM Method (EPA 600/R-93/116 Section 2.2). The required analytical information, analysis results, analyst signature and laboratory identification are contained in the PLM Bulk Asbestos Report. If TEM analysis was requested for selected samples the gravimetric reduction data (by Sec 2.3) and TEM Asbestos % (by Sec 2.5) are included in Table 1 along with a summary of Asbestos % by PLM for all samples analyzed.

This report relates ONLY to the sample analysis expressed as % asbestos. AmeriSci assumes no responsibility for customer supplied data such as “sample type”, "location", or “area sampled”. This report must not be used to claim product endorsement by AmeriSci, NVLAP or any agency of the U. S. Government. The National Institute of Standards and Technology accreditation requirements mandate that this report must not be reproduced, except in full, without the written approval of the laboratory. This report may contain specific data not covered by NVLAP or ELAP accreditations, if so identified in relevant footnotes.

AmeriSci appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

Beverly A. Schrage

Senior Analyst | Authorized Signatory

AmeriSci Richmond
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

PLM Bulk Asbestos Report

Atlas Engineering, Inc.
Attn: Tim Ford
551A Pylon Dr

Raleigh, NC 27606

Date Received 08/25/23
Date Examined 08/29/23

AmeriSci Job # 123081988
P.O. #
Page 1 **of** 3

RE: J2740; Byrum Building; Roof Replacement Project

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
BB-1	123081988-01	*Yes*	2.0% (by CVES) by Beverly A. Schrage on 08/29/23
Location: Central Wing - Attic; Seam Grout Filler			
Analyst Description: Beige/Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 2.0% **Other Material:** Non-fibrous 98%			
BB-2	123081988-02	*Yes*	2.0% (by CVES) by Beverly A. Schrage on 08/29/23
Location: Central Wing - Attic; Seam Grout Filler			
Analyst Description: Beige/Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 2.0% **Other Material:** Non-fibrous 98%			
BB-3	123081988-03	*Yes*	2.0% (by CVES) by Beverly A. Schrage on 08/29/23
Location: Central Wing - Attic; Seam Grout Filler			
Analyst Description: Beige/Gray, Heterogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** Chrysotile 2.0% **Other Material:** Non-fibrous 98%			
BB-4	123081988-04L1	*No*	NAD (by CVES) by Beverly A. Schrage on 08/29/23
Location: North Wing Of Original Building - South Perimeter; Asphalt Shingle Underlayment			
Analyst Description: Black, Heterogeneous, Non-Fibrous, Shingle **Asbestos Types:** **Other Material:** Fibrous glass 5.0%, Non-fibrous 95%			
BB-4	123081988-04L2	*No*	NAD (by CVES) by Beverly A. Schrage on 08/29/23
Location: North Wing Of Original Building - South Perimeter; Asphalt Shingle Underlayment			
Analyst Description: Black, Heterogeneous, Non-Fibrous, Underlayment **Asbestos Types:** **Other Material:** Cellulose 55%, Non-fibrous 45%			

See Reporting notes on last page

PLM Bulk Asbestos Report

J2740; Byrum Building; Roof Replacement Project

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
BB-5	123081988-05L1	***No***	NAD
Location: South Wing Of Original Building - South Perimeter; Asphalt Shingle Underlayment			(by CVES) by Beverly A. Schrage on 08/29/23
Analyst Description: Black, Heterogeneous, Non-Fibrous, Shingle			
Asbestos Types:			
Other Material: Fibrous glass 5.0%, Non-fibrous 95%			
BB-5	123081988-05L2	***No***	NAD
Location: South Wing Of Original Building - South Perimeter; Asphalt Shingle Underlayment			(by CVES) by Beverly A. Schrage on 08/29/23
Analyst Description: Black, Heterogeneous, Non-Fibrous, Underlayment			
Asbestos Types:			
Other Material: Cellulose 55%, Non-fibrous 45%			
BB-6	123081988-06L1	***No***	NAD
Location: Northwest Mechanical Room Addition - South Perimeter; Asphalt Shingle Underlayment			(by CVES) by Beverly A. Schrage on 08/29/23
Analyst Description: Black, Heterogeneous, Non-Fibrous, Shingle			
Asbestos Types:			
Other Material: Fibrous glass 5.0%, Non-fibrous 95%			
BB-6	123081988-06L2	***No***	NAD
Location: Northwest Mechanical Room Addition - South Perimeter; Asphalt Shingle Underlayment			(by CVES) by Beverly A. Schrage on 08/29/23
Analyst Description: Black, Heterogeneous, Non-Fibrous, Underlayment			
Asbestos Types:			
Other Material: Fibrous glass 5.0%, Non-fibrous 95%			
BB-7	123081988-07L1	***No***	NAD
Location: Southwest Mechanical Room Addition - North Perimeter; Asphalt Shingle Underlayment			(by CVES) by Beverly A. Schrage on 08/29/23
Analyst Description: Black, Heterogeneous, Non-Fibrous, Shingle			
Asbestos Types:			
Other Material: Fibrous glass 5.0%, Non-fibrous 95%			
BB-7	123081988-07L2	***No***	NAD
Location: Southwest Mechanical Room Addition - North Perimeter; Asphalt Shingle Underlayment			(by CVES) by Beverly A. Schrage on 08/29/23
Analyst Description: Black, Heterogeneous, Non-Fibrous, Underlayment			
Asbestos Types:			
Other Material: Fibrous glass 5.0%, Non-fibrous 95%			

See Reporting notes on last page

PLM Bulk Asbestos Report

J2740; Byrum Building; Roof Replacement Project

Reporting Notes:

Analyzed by: Beverly A. Schrage  Reviewed by: Beverly A. Schrage 

Date: 8/29/2023

*NAD = no asbestos detected, Detection Limit <1%, Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; "Present" or NVA = "No Visible Asbestos" are observations made during a qualitative analysis; NA = not analyzed; NA/PS = not analyzed / positive stop; PLM Bulk Asbestos Analysis using Meiji, Model MT 6130 microscope, Serial #1410301, by EPA 600/R-93/116 per 40 CFR 763 (NVLAP Lab Code 101904-0) and ELAP PLM Analysis Protocol 198.1 for New York friable samples which includes quantitation of any vermiculite observed (198.6 for NOB samples) or EPA 400 pt ct by EPA 600/M4-82-020 (NYSDOH ELAP Lab # 10984); CA ELAP Lab # 2508; Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. This PLM report relates ONLY to the items tested.

AMERISCI

America's Laboratory

CHAIN OF CUSTODY RECORD

AMERISCI RICHMOND Job No.: 123081988

AMERISCI RICHMOND
13635 GENITO ROAD
MIDLOTHIAN, VA 23112
PHONE: (804) 763-1200
FAX: (804) 763-1800
TOLL FREE: (800) 476-5227
www.amerisci.com

Atlas Engineering, Inc.	551A Pylon Drive Raleigh, NC 27606	P.O.#: SPECIAL INSTRUCTIONS:

PROJECT INFORMATION	ANALYSIS TYPE	TURNAROUND TIME (X)							AIR FILTER INFORMATION:	
		6-8 HR	12 HR	24 HR	48 HR	72 HR	5 DAY	OTHER		
JOB NAME: Byrum Building	TEM/AHERA								MCE	
	TEM/LEVEL II								PC	
JOB NO.: J2740	TEM/7402								25 mm	
	TEM/BULK								37 mm	
JOB MANAGER: Tim Ford	TEM/DUST								0.45 um	
	TEM/WATER								0.80 um	
JOB DESCRIPTION: Roof Replacement Project	PLM					X			OTHER:	
	PCM									
	OTHER:									

RESULTS TO: Tim Ford — INVOICE TO: Atlas Engineering, Inc. — RETURN SAMPLES: YES ____ NO X

EMAIL RESULTS: (Y) / N — EMAIL ADDRESS: tim@atlasnc.com — PHONE: 336-745-1983

WRITTEN REPORT TO: Atlas Engineering, Inc. — FAX: N/A

COMMENTS: Caswell Developmental Center
2415 W Vernon Ave, Kinston, NC 28504 — SITE FAX: N/A

PAGER/CELL: 336-745-1983

LAB ID	SAMPLE ID	SAMPLE LOCATION	START TIME	STOP TIME	TOTAL TIME	X	LITERS /MIN.	=	TOTAL VOLUME	DATE COLLECTED
		Please See Attached								
		Bulk Sampling Record								

SAMPLED BY: Tim Ford	DATE/TIME: 8/22/2023	RECEIVED BY: Received	DATE/TIME:
RELINQUISHED BY Tim Ford	DATE/TIME: 8/24/2023	RECEIVED IN LAB BY: AUG 25 2023	DATE/TIME:

123081988

ASBESTOS BULK SAMPLING RECORD

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING - ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740
SAMPLES TAKEN: AUGUST 22, 2023

SAMPLE NUMBER	SAMPLE LOCATION	TYPE OF MATERIAL	TYPE OF ASBESTOS AND PERCENTAGE
BB-1	Central Wing - Attic	Seam Grout Filler	
BB-2	Central Wing - Attic	Seam Grout Filler	
BB-3	Central Wing - Attic	Seam Grout Filler	
BB-4	North Wing of Original Building - South Perimeter	Asphalt Shingle Underlayment	
BB-5	South Wing of Original Building - South Perimeter	Asphalt Shingle Underlayment	
BB-6	Northwest Mechanical Room Addition - South Perimeter	Asphalt Shingle Underlayment	
BB-7	Southwest Mechanical Room Addition - North Perimeter	Asphalt Shingle Underlayment	

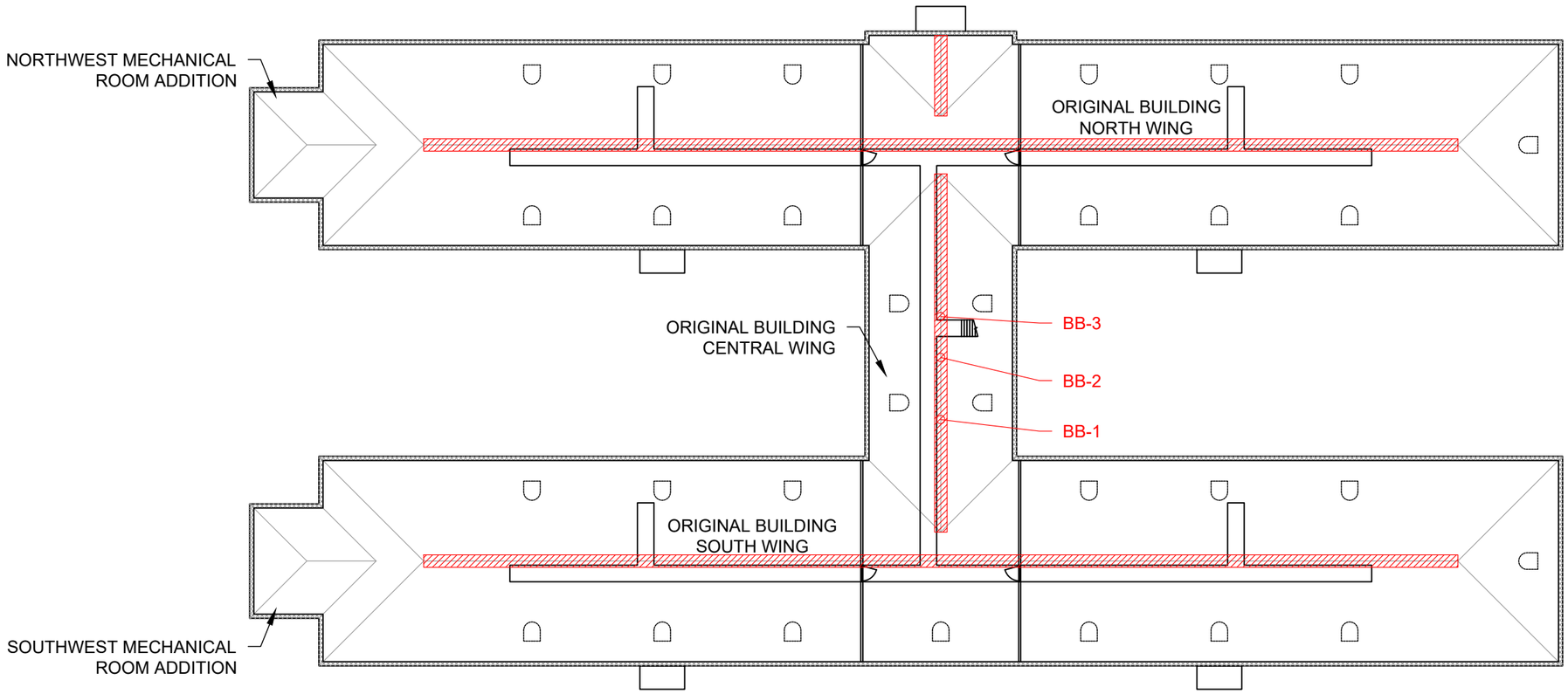
SAMPLING LOCATIONS

NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
BYRUM BUILDING – ROOF REPLACEMENT PROJECT
CASWELL DEVELOPMENTAL CENTER
2415 W VERNON AVENUE, KINSTON, NC 28504
ATLAS JOB NUMBER: J2740

LEGEND

BB-# ASBESTOS SAMPLE LOCATION

KNOWN LOCATION OF ACM (SEAM GROUT FILLER)



1 / 1.0 BYRUM BUILDING - ATTIC PLAN

SCALE: NOT TO SCALE

SAMPLES TAKEN: AUGUST 22, 2023

ATLAS ENGINEERING, INC.
551A Pylon Drive
Raleigh, North Carolina 27606
(919) 420-7676
LIC.# C-1349

SAMPLING LOCATIONS

BYRUM BUILDING - ATTIC PLAN

CASWELL DEVELOPMENTAL CENTER

2415 W VERNON AVENUE, KINSTON, NC 28504

No.	REVISION	By	Date

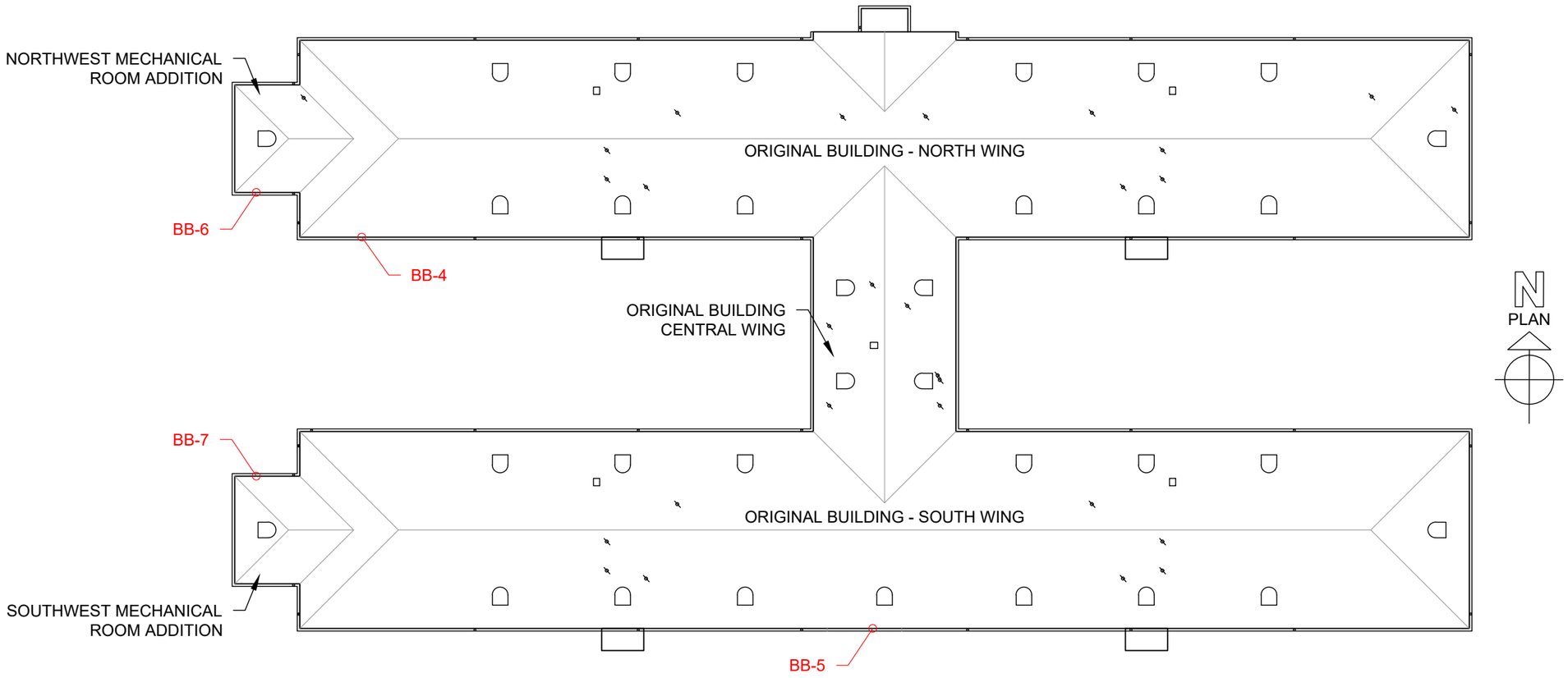
DRAWN BY:	TJF
ENGINEER:	N/A
APPROVAL:	TJF
DATE:	AUG 2023
PROJ.: J2740	SCALE: AS SHOWN

DWG. NO.

1.0

LEGEND

BB-# ASBESTOS SAMPLE LOCATION



1 / 2.0 BYRUM BUILDING - ROOF PLAN

SCALE: NOT TO SCALE

SAMPLES TAKEN: AUGUST 22, 2023

ATLAS ENGINEERING, INC.
551A Pylon Drive
Raleigh, North Carolina 27606
(919) 420-7676
LIC.# C-1349

SAMPLING LOCATIONS

BYRUM BUILDING - ROOF PLAN

CASWELL DEVELOPMENTAL CENTER

2415 W VERNON AVENUE, KINSTON, NC 28504

No.	REVISION	By	Date

DRAWN BY: TJF

ENGINEER: N/A

APPROVAL: TJF

DATE: AUG 2023

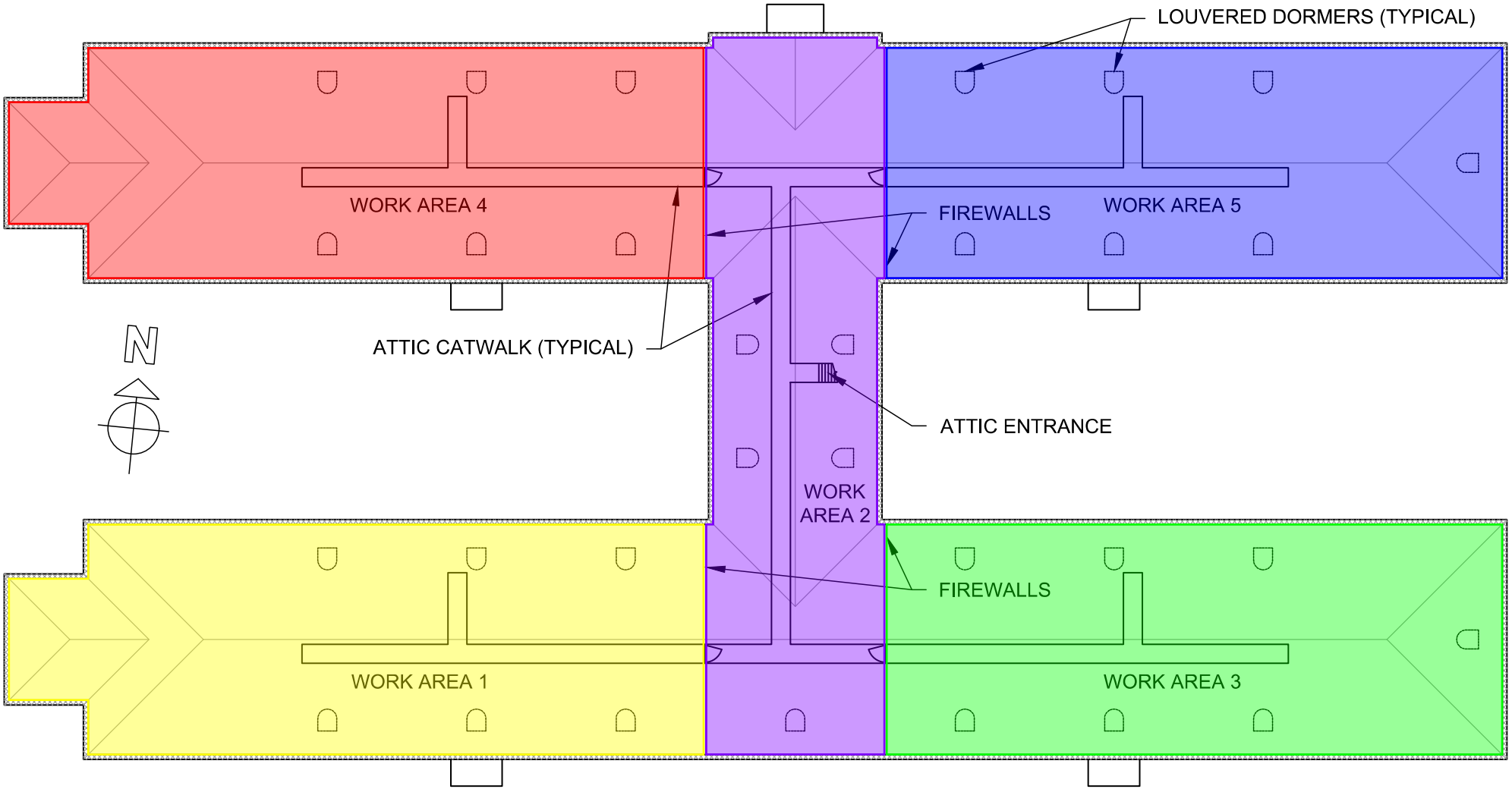
PROJ.: J2740 | SCALE: AS SHOWN

DWG. NO.

2.0

WORK AREAS LAYOUT DRAWING ATTACHMENT

CASWELL DEVELOPMENT CENTER
BYRUM BUILDING ROOF REPLACEMENT PROJECT
2415 W. VERNON AVENUE
KINSTON, NORTH CAROLINA 28504
OLME PROJECT NO.: OLME-2023-18


LOUVERED DORMERS (TYPICAL)
WORK AREA 4
FIREWALLS
WORK AREA 5
ATTIC CATWALK (TYPICAL)
N
ATTIC ENTRANCE
WORK
AREA 2
FIREWALLS
WORK AREA 1
WORK AREA 3

F O R M O F P R O P O S A L

Byrum Building Roof Replacement

NC Department of Health and Human Services

SCO ID: 22-25783-01A

Contract: **Roof Replacement**

Bidder: _____

Date: _____

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed. The bidder further declares that he and his subcontractors have fully complied with NCGS 64, Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

.

The Bidder proposes and agrees if this proposal is accepted to contract with the **North Carolina Department of Health and Human Services** in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of the **Byrum Hall Roof Replacement** in full and complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the State of North Carolina, the **NC Department of Health and Human Services, and the Designer - Atlas Engineering** a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the contract documents, for the sum of:

SINGLE PRIME CONTRACT: _____

Base Bid:

_____ Dollars($) _____

Roofing Subcontractor (Standing Seam Metal):

_____ Lic _____

Asbestos Abatement Subcontractor:

_____ Lic _____

Roofing Subcontractor (Single-Ply):

_____ Lic _____

Steel Subcontractor:

_____ Lic _____

Other:

_____ Lic _____

Other:

_____ Lic _____

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

ALTERNATES:

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" or "deducted from" the base bid. (Strike out "Add" or "Deduct" as appropriate.)

GENERAL CONTRACT:

Bid Alternate 01: Provide the same scope of work for installation of standing seam metal roof and associated purlin bearing extension and attic protection and monitoring services for the areas beneath at the ***southern half*** of the main building as specified in the project manual and in these drawings.

(Add) *(Deduct)* _____ Dollars($) _____

UNIT PRICES

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.

GENERAL CONTRACT:

Estimated quantities for each item listed below are defined in Section 012100, Paragraph 1.03A of the Project Manual.

Item:	Unit:	Unit Price:
1. Wood Blocking Replacement (*bd.ft.)*		Unit Price ($)_____
2. Concrete Deck Repair (*sq.ft.)*		Unit Price ($)_____
3. Additional Tapered Insulation (bd.ft.)		Unit Price ($)_____

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Special Requirements of the Formal Contract Article 23. Applicable liquidated damages amount is also stated in the Special Requirements of the Formal Contract Article 23.

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B)** to that effect in lieu of Affidavit (**A)** required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

*** OR ***

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MBE contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

Proposal Signature Page

Byrum Building Roof Replacement (SCO# 22-25783-01A)

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of _____

_____
(Name of firm or corporation making bid)

WITNESS:

By: _____
Signature

_____
(Proprietorship or Partnership)

Name: _____
Print or type

Title _____
(Owner/Partner/Pres./V.Pres)

Address _____

ATTEST:

_____

By: _____

License No. _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

Federal I.D. No. _____

Email Address: _____

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 _____ Addendum No. 3 _____ Addendum No. 5 _____ Addendum No. 6 _____

Addendum No. 2 _____ Addendum No. 4 _____ Addendum No. 6 _____ Addendum No. 7 _____

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT _____ _____ as principal, and _____, as surety, who is duly licensed to act as surety in North Carolina, are held and firmly bound unto the State of North Carolina through _____ as obligee, in the penal sum of _____ DOLLARS, lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this ____ day of _____ 20__

WHEREAS, the said principal is herewith submitting proposal for and the principal desires to file this bid bond in lieu of making the cash deposit as required by G.S. 143-129.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that if the principal shall be awarded the contract for which the bid is submitted and shall execute the contract and give bond for the faithful performance thereof within ten days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so execute such contract and give performance bond as required by G.S. 143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by G.S. 143-129.1

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

FORM OF CONSTRUCTION CONTRACT

(ALL PRIME CONTRACTS)

THIS AGREEMENT, made the _____ day of _____ in the year of 20__ by and between _____ _____ hereinafter called the Party of the First Part and the State of North Carolina, through the_____ _____ hereinafter called the Party of the Second Part.

WITNESSETH:

That the Party of the First Part and the Party of the Second Part for the consideration herein named agree as follows:

1. Scope of Work: The Party of the First Part shall furnish and deliver all of the materials, and perform all of the work in the manner and form as provided by the following enumerated plans, specifications and documents, which are attached hereto and made a part thereof as if fully contained herein: advertisement; Instructions to Bidders; General Conditions; Supplementary General Conditions; specifications; accepted proposal; contract; performance bond; payment bond; power of attorney; workmen's compensation; public liability; property damage and builder's risk insurance certificates; approval of attorney general; certificate by the Office of State Budget and Management, and drawings, titled:

_____

_____

_____

Consisting of the following sheets:

_____

_____

_____

_____

Dated: _____ and the following addenda:

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

Addendum No _____ Dated: _____ Addendum No. _____ Dated: _____

2. That the Party of the First Part shall commence work to be performed under this agreement on a date to be specified in a written order of the Party of the Second Part and shall fully complete all work hereunder within _____ consecutive calendar days

from said date. For each day in excess thereof, liquidated damages shall be as stated in Supplementary General Conditions. The Party of the First Part, as one of the considerations for the awarding of this contract, shall furnish to the Party of the Second Part a construction schedule setting forth planned progress of the project broken down by the various divisions or part of the work and by calendar days as outlined in Article 14 of the General Conditions of the Contract.

3. The Party of the Second Part hereby agrees to pay to the Party of the First Part for the faithful performance of this agreement, subject to additions and deductions as provided in the specifications or proposal, in lawful money of the United States as follows:

_____

_____($_____).

Summary of Contract Award:

4. In accordance with Article 31 and Article 32 of the General Conditions of the Contract, the Party of the Second Part shall review, and if approved, process the Party of the First Party's pay request within 30 days upon receipt from the Designer. The Party of the Second Part, after reviewing and approving said pay request, shall make payments to the Party of the First Part on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the First Party, less five percent (5%) of the amount of such estimate which is to be retained by the Second Party until all work has been performed strictly in accordance with this agreement and until such work has been accepted by the Second Party. The Second Party may elect to waive retainage requirements after 50 percent of the work has been satisfactorily completed on schedule as referred to in Article 31 of the General Conditions.

5. Upon submission by the First Party of evidence satisfactory to the Second Party that all payrolls, material bills and other costs incurred by the First Party in connection with the construction of the work have been paid in full, final payment on account of this agreement shall be made within thirty (30) days after the completion by the First Party of all work covered by this agreement and the acceptance of such work by the Second Party.

6. It is further mutually agreed between the parties hereto that if at any time after the execution of this agreement and the surety bonds hereto attached for its faithful performance, the Second Party shall deem the surety or sureties upon such bonds to be unsatisfactory, or if, for any reason, such bonds cease to be adequate to cover the performance of the work, the First Party shall, at its expense, within five (5) days after the receipt of notice from the Second Party so to do, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the Second Party. In such event no further payment to the First Party shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Second Party.

7. The Party of the First Part attest that it and all of its subcontractors have fully complied with all requirements of NCGS 64 Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

IN WITNESS WHEREOF, the Parties hereto have executed this agreement on the day and date first above written in _____ counterparts, each of which shall without proof or accounting for other counterparts, be deemed an original contract.

Witness:

_____
Contractor: (Trade or Corporate Name)

_____
(Proprietorship or Partnership)

By: _____

Title: _____
(Owner, Partner, or Corp. Pres. or Vice Pres. only)

Attest: (Corporation)

By: _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

The State of North Carolina through*

(CORPORATE SEAL)

_____
(Agency, Department or Institution)

Witness:

_____

By:_____

Title: _____

FORM OF PERFORMANCE BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind, ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body, identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the contracting body, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

_____
(Proprietorship or Partnership)

Attest: (Corporation)

By: _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

(Corporate Seal)

_____
Contractor: (Trade or Corporate Name)

By: _____

Title: _____
(Owner, Partner, or Corp. Pres. or Vice Pres. only)

_____
(Surety Company)

Witness:

_____

By: _____

Title: _____
(Attorney in Fact)

Countersigned:

_____

_____
(N.C. Licensed Resident Agent)

_____

_____
Name and Address-Surety Agency

_____

_____
Surety Company Name and N.C. Regional or Branch Office Address

(Surety Corporate Seal)

FORM OF PAYMENT BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project _____

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall promptly make payment to all persons supplying labor/material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

_____
Contractor: (Trade or Corporate Name)

_____
(Proprietorship or Partnership)

By: _____

Attest: (Corporation)

Title_____
(Owner, Partner, or Corp. Pres. or Vice Pres. only)

By: _____

Title: _____
(Corp. Sec. or Asst. Sec.. only)

(Corporate Seal)

_____
(Surety Company)

Witness:

By: _____

_____

Title: _____
(Attorney in Fact)

Countersigned:

_____

(Surety Corporate Seal)

_____
(N.C. Licensed Resident Agent)

_____

_____
Name and Address-Surety Agency

_____

_____
Surety Company Name and N.C.
Regional or Branch Office Address

Sheet for Attaching Power of Attorney

Sheet for Attaching Insurance Certificates

APPROVAL OF THE ATTORNEY GENERAL

CERTIFICATION BY THE OFFICE OF STATE BUDGET AND MANAGEMENT

Provision for the payment of money to fall due and payable by the

_____

under this agreement has been provided for by allocation made and is available for the purpose of carrying out this agreement.

This _____day of _____ 20___.

Signed _____
Budget Officer

STATE OF NORTH CAROLINA
COUNTY SALES AND USE TAX REPORT
SUMMARY TOTALS AND CERTIFICATION

CONTRACTOR: _____ Page __1____ of _____

PROJECT: _____ FOR PERIOD: _____

	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL ALL COUNTIES
CONTRACTOR							
SUBCONTRACTOR(S)*							
COUNTY TOTAL							

* Attach subcontractor(s) report(s)
** Must balance with Detail Sheet(s)

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the _____ day of _____, 20____

_____
Signed

_____
Notary Public

_____
Print or Type Name of Above

My Commission Expires: _____

Seal

NOTE:
This certified statement may be subject to audit.

STATE OF NORTH CAROLINA
SALES AND USE TAX REPORT DETAIL

CONTRACTOR: _____

SUBCONTRACTOR _____ FOR PERIOD: _____

PROJECT: _____

PURCHASE DATE	VENDOR NAME	INVOICE NUMBER	TYPE OF PROPERTY	INVOICE TOTAL	COUNTY TAX PAID	COUNTY OF SALE *
				$	$	
				TOTAL:	$	

* If this is an out-of-state vendor, the County of Sale should be the county to which the merchandise was shipped.