

**PROJECT MANUAL  
FOR  
REID BUILDING ROOF REPLACEMENT  
WESTERN CAROLINA UNIVERSITY  
SCO ID: 22-24547-01A**

**Prepared for**

**WESTERN CAROLINA UNIVERSITY  
FACILITIES MANAGEMENT  
3476 OLD CULLOWHEE ROAD  
CULLOWHEE, NORTH CAROLINA 28723**


**Prepared by**

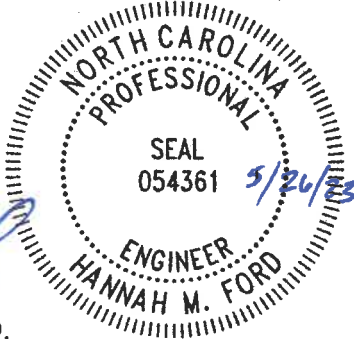
**ATLAS ENGINEERING, INC.  
551-A PYLON DRIVE  
RALEIGH, NORTH CAROLINA 27606  
ATLAS JOB NO. J2626**


**MAY 2023**

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**Prepared by: ATLAS ENGINEERING, INC.  
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Hannah Ford, P.E, R.R.O.  
Project Engineer



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

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SET NO. \_\_\_\_\_

## ADVERTISEMENT FOR BIDS

Sealed proposals will be received until **3:00 PM** on **June 20, 2023**, in the office of **Western Carolina University Facilities Management Department, 3476 Old Cullowhee Road, Cullowhee, North Carolina 28723, Attn: Daniel Fiskeaux** for the construction of the **Reid Building Roof Replacement** and immediately thereafter publicly opened and read in the Conference Room of the Facilities Management Building.

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 **June 6, 2023**, at **1:00 PM** at the **Reid Building, 160 University Way, Cullowhee, NC 28723 in Room 122H**. 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: Hannah Ford, PE, RRO** during normal office hours after May 28, 2023. Electronic documents are provided at no cost. Plan deposit of **One hundred dollars (\$100.00)** in cash or certified check is required for hardcopy sets.

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

Signed:

The State of North Carolina through the  
Western Carolina University  
(Owner)

# NOTICE TO BIDDERS

Sealed proposals will be received by the **Western Carolina University** in the office of **Facilities Management Department, 3476 Old Cullowhee Road, Cullowhee, NC 28723, Attn: Daniel Fiskeaux, Project Manager** up to **3:00 P.M. on June 20, 2023** and immediately thereafter publicly opened and read in the Facilities Management Department Conference Room for the furnishing of labor, material and equipment entering into the construction of: **Reid Building Roof Replacement** on the WCU Campus in Cullowhee, NC. The project includes the replacement of the existing low-sloped EPDM roof system with a new thermoplastic membrane system, installation of a new standing seam metal roofing system, and associated work.

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

## Pre-Bid Meeting

A non-mandatory pre-bid meeting will be held for all interested bidders on **June 6, 2023 at 1:00 P.M. at the Reid Building, 160 University Way, Cullowhee, NC 28723 in Room 122H.** 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 site 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 WCU Facilities Management Department and 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 Cherokee Business Development Center, PO Box 1200, Ginger Lynn Welch Complex, 810 Acquoni Road, Cherokee, NC 28719, Phone: 828-497 1666.

Electronic copies of the documents are available at no cost. Hardcopies of the documents may be obtained upon deposit of one hundred dollars (\$100.00) 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. Deposit for one set will be waived for Bidders attending the Pre-Bid Meeting.

**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 27606  
PM- Hannah Ford: (919) 420-7676 (O)  
[hannah@atlasnc.com](mailto:hannah@atlasnc.com)

Owner:  
Western Carolina University  
Facilities Management Department  
3476 Old Cullowhee Road  
Cullowhee, NC 28723  
PM-Daniel Fiskeaux: (828) 227-3020  
[dfiskeaux@email.wcu.edu](mailto:dfiskeaux@email.wcu.edu)

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**INSTRUCTIONS TO BIDDERS  
AND  
GENERAL CONDITIONS OF THE CONTRACT**

**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 than 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

The use or reproduction of this document or any part thereof is authorized for and limited to use on projects of the State of North Carolina, and is distributed by, through and at the discretion of the State Construction Office, Raleigh, North Carolina, for that distinct and sole purpose.

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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 solely 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 submittals.
- 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 in 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 (1<sup>st</sup> tier subs), or their sub-subcontractors (2<sup>nd</sup> tier subs, 3<sup>rd</sup> 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 1<sup>st</sup> tier sub; 1<sup>st</sup> tier, 2<sup>nd</sup> tier, 3<sup>rd</sup> tier, etc contractors shall be allowed a maximum of 2.5% on the contracted work of 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 responsibilities 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 progress, 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 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, 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.

**SUPPLEMENTARY GENERAL CONDITIONS  
OF THE CONTRACT**

**STANDARD FORM FOR CONSTRUCTION CONTRACTS**

**WESTERN CAROLINA UNIVERSITY**

## SUPPLEMENTARY GENERAL CONDITIONS (SGC's) OF THE CONTRACT

This document supplements but does not alter in any way the requirements of the General Conditions of the Contract.

### 1. **DEFINITIONS**

As defined in Article 1 of the General Conditions, the Supplementary General Conditions as well as the WCU General Requirements are considered part of the contract documents.

The Owner is the State of North Carolina through Western Carolina University.

Provide shall mean purchase, deliver, install, new, clean, completely operational, fully tested and ready for use.

### 2. **SCOPE OF WORK**

See attached Technical Specifications and Drawings for scope of work including WCU General Requirements.

### 3. **ALTERNATES**

See Section 012300, "Alternates" for listing.

### 4. **SHOP DRAWINGS, SUBMITTALS, SAMPLES, DATA**

The submittal requirements are described in Article 5 of the General Conditions. Items for which submittals are required are listed below:

Pre-Submittals:

- The contractor shall provide the Owner a complete list of contact information for the Contractor, his key personnel, and all Subcontractors. This list shall be provided to the Owner prior to beginning the Work and shall be updated regularly with the updated provided to the Owner.
- All items referenced in Technical Specifications

Post-Submittals:

- All previously submitted documents revised to show as-built condition.
- O&M Manuals for any equipment requiring a submittal.

Data on the following items shall be sent to the Designer for review and approval. The submittal process is described in Article 5 of the General Terms and Conditions. Refer to "Technical Specifications" for required submittals. All Pre-Submittals shall be delivered to the Designer and Owner no later than the Preconstruction Meeting. All Post Submittals shall be delivered to the

Designer and Owner within thirty (30) days of work completion. The final pay request shall be included with Post-Submittals.

**5. WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE**

The Contractor shall maintain at the job site a readable set of the complete set of working drawings and specifications for his work, including all shop drawings. The Contractor shall maintain at the job site an up-to-date, readable set of the As-Built drawings.

**6. MATERIALS, EQUIPMENT, EMPLOYEES**

Should an accident or disruption occur on the project work site, the Contractor shall notify the WCU Project Manager and WCU Safety and Risk Management Office as soon as possible and no less than 24 hours of occurrence.

**7. PERMITS, INSPECTIONS, FEES, REGULATIONS**

The Contractor shall request and obtain permission from the WCU Project Manager for an interruption of utility or services a minimum of seven (7) days in advance. Failure of the Contractor to obtain Owner permission shall not be grounds for an extension of time.

Prior to performing any "hot work" or any work above ceiling in existing buildings, the Contractor shall obtain a permit for such from the WCU Safety and Risk Management Office.

The Contractor shall comply with Owner's Interim Life Safety Plan requirements to maintain egress from all occupied buildings.

**8. CONSTRUCTION SUPERVISION and SCHEDULE**

The Contractor shall start work within two (2) weeks upon receipt of Notice to Proceed. The Contractor shall submit a project work schedule before beginning work. The starting date and work schedule shall be adhered to, and acceptable work hours shall be Monday-Friday between 5:00 p.m. and 6:30 a.m. during demolition to temporary roof installation over occupied areas and 8:00 a.m. and 5:00 p.m. for other work scope. Requests by the Contractor to work outside normal working hours shall be made a minimum of one (1) week in advance to the WCU Project Manager on site. The Contractor's bid shall include all costs associated with workers working outside of normal business hours and/or costs associated with workers working overtime as required to meet the specified project schedule. The Owner reserves the right to request work to be performed outside normal working hours and to limit Contractor activities when they conflict with Owner operations. Any increased costs due to Owner requirements for work outside normal hours not specified in the Contract Documents will be negotiated.

The Contractor shall maintain a daily field report including, but not limited to, listing of all personnel on site (including all Subcontractors), weather conditions, major scopes of work under construction, material deliveries, safety incidents, progress photographs, and inspections.

**9. SUBCONTRACTS and SUBCONTRACTORS**

All Subcontractors shall be identified in writing and approved by the Owner prior to the start of work.

**10. TIME OF COMPLETION, DELAYS, EXTENSION OF TIME, LIQUIDATED DAMAGES**

The Contractor shall commence work to be performed under this Contract on the date to be specified in the Notice to Proceed from the Contract Administrator and shall fully complete all work hereunder within 180 consecutive calendar days from the date specified in the Notice to Proceed. The following are the critical dates for the project: Anticipated Notice to Proceed: July 10, 2023; Site available for Work: July 10, 2023; Construction Completion: January 6, 2024. For the addition of Bid Alternate 01 and 02 work, 10 consecutive calendar days will be added for each alternate accepted (10 days for Bid Alternate 01 and 10 days for Bid Alternate 02). No increase in contract time will be allotted for the addition of Bid Alternates 03 and 04 work.

If the Contractor should fail to complete the work within the time specified (including approved Change Orders) and this failure directly prevents the Owner from utilizing and/or occupying the building premises or results in other direct costs to the Owner, Liquidated Damages in the amount of \$500.00 (Five-Hundred Dollars) per consecutive calendar day will be assessed for each day the schedule of the Work exceeds the contractual duration set forth in the contract or therefore extended by approved change order. Other reduction/restrictions to work hours, site use, and other construction general conditions may occur if the contract time extends beyond the contract time specified (including approved Change Orders).

If the Contractor is delayed at any time in the progress of the Contractor's work by any act or negligence of the Owner, the Owner's employees or the Owner's separate Contractor; by changes ordered in the work; by abnormal weather conditions; by any causes beyond the Contractor's control; or by other causes deemed justifiable by Owner, then the contract time may be reasonably extended in a written order from the Owner upon written request from the Contractor within ten (10) days following the cause for delay.

Non-compensable weather delays affecting the critical path shall be tracked during the period leading up to the building being dried-in, and calculated and awarded via Change Order if warranted, at the end of the construction period.

**11. USE OF PREMISES**

Work under this contract shall be performed in such a manner as to avoid interruption or interference with the operation of any existing activity on the premises or at the location of the work. The Owner may enforce extra restrictions during certain periods of the year. During examination periods, the Contractor shall restrict noise-making activities. If the project involves work in or near a building in which an exam is being conducted, the Contractor shall be required to restrict operations which are disturbing to students during the hours of the exam(s). Work will not be permitted on Graduation Day, or the day preceding it.

While on campus, Contractor's and Sub-Contractor's personnel shall be identifiable at all times, for example, by wearing company names or logos on garments or hard hats.

Damage done to the University premises that are under the control of the Contractor, or damage caused by the contractor to premises used by the contractor, shall be corrected at the Contractor's expense.

The contractor shall schedule deliveries between 7:00 am and 4:00 pm. The contractor shall have adequate personnel and any necessary equipment onsite to receive deliveries. The contractor shall notify the WCU Project Manager of any deliveries of equipment, material or road work that will impede the flow of vehicular or pedestrian traffic. The contractor shall provide traffic control by certified traffic control personnel (vehicular and pedestrian) during these deliveries. Staging for multiple concrete / steel / other large material deliveries, crane and other large pieces of equipment must be coordinated with the WCU Project Manager. Walks, streets, and drives are most congested with pedestrians at the top of the hour, when making deliveries the carrier should be made aware of this and plan his deliveries accordingly.

A minimum five working days' notice must be given to the WCU Project Manager to block parking spaces, drives, roads, streets and pedestrian walks.

Roads, streets, drives, fire lanes must remain open at all times. Adequate clearance must be maintained for emergency vehicles to negotiate the drive. Maintain a minimum of 20 feet for fire lanes. Construction vehicles are not allowed to block, park, or stage in a fire lanes. Vehicles blocking fire lanes will be ticketed and towed at the Contractor's expense.

Construction fences should be covered with fabric screening unless it blocks the view of oncoming traffic. Construction gates will swing into the construction area. The construction fences shall not obstruct pedestrian or vehicle traffic unless alternate ways were designed in the site drawings and approved by the WCU Project Manager.

The Contractor will provide additional cleanup, warning signs, and barricades if deemed necessary by the Owner.

The Contractor's scheduling and staging requirements must be coordinated with, and approved by, the WCU Project Manager.

Contractors working for the University are required to comply with Western Carolina University's policies, which are provided herein and hereby incorporated and made a part of this contract.

- Smoking and Vaping Policies  
<https://www.wcu.edu/discover/leadership/office-of-the-chancellor/legal-counsel-office/university-policies/numerical-index/university-policy-45.aspx>
- Alcoholic Beverages  
<https://www.wcu.edu/discover/leadership/office-of-the-chancellor/legal-counsel-office/university-policies/numerical-index/university-policy-81.aspx>
- Weapons on Campus  
<https://www.wcu.edu/discover/leadership/office-of-the-chancellor/legal-counsel-office/university-policies/numerical-index/university-policy-91.aspx>
- Campus/Workplace Violence Prevention and Management  
<https://www.wcu.edu/discover/leadership/office-of-the-chancellor/legal-counsel-office/university-policies/numerical-index/university-policy-109.aspx>
- Title IX Sexual Harassment Policy  
<https://www.wcu.edu/discover/leadership/office-of-the-chancellor/legal-counsel-office/university-policies/numerical-index/university-policy-129.aspx>

**12. UTILITIES, STRUCTURES, SIGNS**

The Owner will provide water and electricity to the extent they are available at the project site. The Contractor shall be responsible for making connections to provided utilities.

The Contractor shall provide restroom facilities. The Contractor's personnel shall not use toilet or washroom facilities in the existing building.

The Contractor shall be responsible for procedures to make temporary disruptions to existing utilities serving the building(s) as well as disruptions to roads and pedestrian walks and any disruptions shall be planned well in advance of the work. The work shall be executed in a manner to provide reasonably continuous service throughout the construction period. Any and all disruptions and interruptions of service shall be coordinated with the WCU Project Manager a minimum of seven (7) days in advance. Failure of the Contractor to obtain Owner permission shall not be grounds for an extension of time.

**13. SECURITY**

The Contractor and Subcontractors shall be responsible for security to their equipment and the site-stored materials under their jurisdiction, whether paid for by the Owner or not, until acceptance of the project. The Contractor shall coordinate security requirements with the WCU Project Manager.

# **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 bidding, 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](http://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.

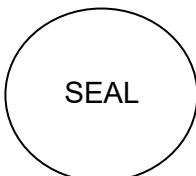
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure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



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

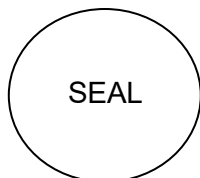
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

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: \_\_\_\_\_



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

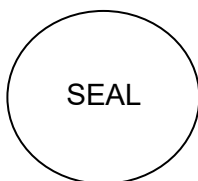
\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**\*\* 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: \_\_\_\_\_



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 ID# \_\_\_\_\_ (Project Name) 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:

- 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.
- Copies of quotes or responses received from each firm responding to the solicitation.
- A telephone log of follow-up calls to each firm sent a solicitation.
- 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.
- Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- Copy of pre-bid roster
- Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- Letter detailing reasons for rejection of minority business due to lack of qualification.
- 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.

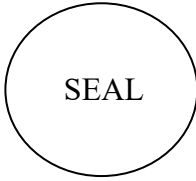
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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: \_\_\_\_\_



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**

## 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 and associated work at the Reid Building at the campus of Western Carolina University in Cullowhee, North Carolina.
- B. The following is a summary of roof replacement work items included. 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.
  - 1. Perform a Pre-Job Damage Survey prior to the start of work. The purpose of the survey is to document existing conditions and identify existing damages/distresses. Survey must include roof-top components, building exterior, site features (pavements, walkways, landscaping, etc.), building interior, applicable equipment, and other applicable components. A pre-job damage survey is considered to be a protection for the contractor and documentation will be used to assist the Owner, Designer and Contractor in determining whether damages noted during construction were caused by construction activities or were existing.
  - 2. Clean and test roof drains and drainage lines to their outlet from the building and water test underground drain lines from existing boot at grade. Remove readily accessible debris from the drain strainer, bowl, and initial section of vertical drain leader (up to 2'). Water test the drains to confirm that the existing assembly allows the free flow of water without visible leaks/water entry to the interior prior to the start of construction. Testing must be completed prior to the demolition of the existing roof system. Notify the Designer and Owner if water testing indicates suspected or confirmed clogged or damaged drain/drain leader/or underground drain line components. During this testing, inspect existing drain components for damage or conditions that may prevent installation of the specified retrofit drain assembly.
  - 3. The roof consists of a total of 20 identified roof areas. (Refer to Section 012300 for information of roof areas included in Bid Alternate scope of work). Areas are separated by expansion joints, area dividers, or a change in system type/slope, etc.
    - a. **Area A1:** The existing roof system generally consists of an EPDM roof membrane over polyisocyanurate insulation over a bituminous vapor barrier/base sheet, and a cementitious wood fiber roof deck on bulb tees, supported by steel purlins, and steel trusses. Area A1 has a 1-1/2:12 slope in the deck. Total depth of existing system is approximately 2" (field verify).
    - b. **Area C1:** The existing roof system generally consists of an EPDM roof membrane over tapered polyisocyanurate insulation over a bituminous vapor barrier/base sheet,

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- and a sloped cementitious wood fiber roof deck. Area C1 has a 1/4:12 slope in the deck.
- c. **Areas C2, C3, C4, C5, C6, C7, and C9:** The existing roof systems generally consist of an EPDM roof membrane over tapered polyisocyanurate insulation over a bituminous vapor barrier/base sheet, and a cementitious wood fiber roof deck. Portions of Area C2, C3, and C9 contain gypsum board and various depths of thermosetting insulation fill (3" – 5" in thickness). Portions of C9 contain wood fiber board as infill for varying roof deck transitions (1/2" – 3" in thickness). Roof Area C3 has various roof decks including cementitious wood fiber, tongue and groove wood plank, metal, and concrete plank. Total depths of existing systems are approximately anywhere from 3-1/2" – 11" (field verify).
  - d. **Area C8:** The existing roof system generally consists of asphaltic shingles over underlayment on wood decking supported by wood structure with batt insulation in between wood rafters, and a gypsum ceiling. Area C8 has a 7:12 slope in the deck.
  - e. **Areas D1, D2, and D3:** The existing roof system consists of an EPDM roof membrane over wood fiber board, polyisocyanurate insulation, a bituminous vapor barrier, and a sloped cementitious wood fiber deck (3:12). The flat sections of these areas contain varying depths of thermosetting insulation fill (1" – 5" in thickness) and gypsum board. Total depth of existing system on the sloped deck is approximately 2-1/2" (field verify).
  - f. **Area E4:** The existing roof system consists of an EPDM roof membrane over polyisocyanurate insulation, a bituminous vapor barrier, gypsum board thermal barrier, and a metal deck. Total depth of existing system is approximately 3" (field verify).
- 4. Remove all existing roof membrane, insulation, vapor barrier/base sheet, and flashings from Roof Areas A1, C1-C5, D1-D3, and E4 down to the top of the roof deck 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.
  - 5. At Roof Area C8, remove existing shingles, underlayment, decking, batt insulation, perimeter flashings, and other isolated trim as needed down to existing wood structure and gypsum ceiling and legally dispose of off-site. Do not remove more of the existing roof than can be returned to a watertight condition prior to the end of the workday. Do not damage existing gypsum ceiling.
  - 6. Remove existing sheet metal flashings, counterflashings, gutters, receivers, expansion joint caps, partial perimeter blocking, and other existing flashing accessories and dispose of off-site as necessary to allow for the proper installation of the new roof system assembly and details. Components shall remain if they are noted to be incorporated into the new roof system/detail. Protect components that will remain for reuse, including, but not limited to, penetrations, curbed equipment, portions of wood blocking, skylights, drain bowls, etc.
  - 7. Inspect the existing roof decks, wood blocking, drain bowls, and other components noted to remain and make repairs, or replace, damaged or deteriorated materials in accordance with applicable sections of these specifications. Reuse existing wood blocking only

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where shown on the design details or specifically approved on-site by the Designer. Otherwise install new materials. Methods of repair for the cementitious wood fiber, concrete, metal, and wood roof decks will vary dependent upon severity of damage. Refer to base bid allowances (estimated quantities of work in Section 012100) for additional information.

8. At Area A1, cut the existing roof deck to allow for installation of new fall protection anchors, secured to the existing steel roof framing as shown in the project drawings and details. Anchor installation should be coordinated with demolition and roof system installation to ensure that a watertight condition at new penetrations is maintained. Horizontal lifeline and other fall protection components installation must be performed after installation of the new roof system is complete.
9. Remove roof penetrations that are identified on the drawings as “abandoned” or “for removal”. Make required repairs to the roof decks. Repairs will vary based on the size of the penetration removed.
10. Inspect existing securement of wood blocking that will remain in use. Install supplemental fastening of existing blocking where noted on the drawings to ensure adequate wind uplift pressure resistance. Install new wood blocking where shown on the drawings to form the roof perimeter, raise existing curbs to accommodate the new thickness of the roof system, and to provide securement points for membrane transitions.
11. Roof Area A1: Install new structural framing, insulation, new plywood roof deck, and standing seam metal roof system and roof accessories as shown in the design drawings.
12. Roof Area C8: Repair wood rafters where damaged or deteriorated. Install new batt insulation, new roof deck, and standing seam metal roof system and roof accessories as shown in the design drawings.
13. Roof Areas C1-C5, D1-D3, and E4: Install the new low-sloped roofing system and roof accessories as shown in the design drawings. Do not install the thermal barrier over the section of Roof Area C3 with a concrete deck. Fastener pull-out testing must be performed on cementitious wood fiber deck, metal deck, and tongue and groove wood plank deck.
14. The installed vapor barrier may be used as a temporary roof system until installation of the completed new roof system. The Contractor may not have an exposed vapor barrier/temporary membrane on areas larger than one area (area sizes/layout are as defined by the over project drawings). The Contractor remains responsible for adequate temporary drainage and overall watertightness of the temporary roof membrane until installation of the completed new system occurs. Drain clamping rings and strainers must be reinstalled as a part of the temporary roof system to promote watertight temporary detailing at internal drains. Temporary retrofit roof drains may also be utilized as an alternate method.

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15. Install new skylights where the existing skylights are broken, or moisture is present within the skylight. Refer to the design drawings for locations of existing damaged skylights. See section 077200 for additional information.
16. Prior to installation of the new roof system over the vapor barrier, clean and coat existing drain strainers and clamping rings and install wood blocking as needed to accommodate the new roof system heights.
17. Install 1 new 6" diameter secondary drain on Roof Area C3. See Section 221423 for additional information.
18. Insulation adhesive patterns must provide wind uplift resistance in accordance with these specifications, the North Carolina State Building Code and ASCE-7, latest edition, and submittal of adhesion testing data for existing conditions will be required.
19. Provide and install clad-metal components, membrane flashings at roof perimeters and flashings at penetrations. Raise and/or extend equipment curbs, pipe vents and other roof penetrations as necessary to provide minimum 8-inch vertical flashing heights above the new roof membrane. Extend/modify any mechanical and/or electrical connections, ductwork, communication lines, etc. as necessary to raise penetrations to required heights. Make specific modifications to penetration components where noted on the drawing details.
20. Locate new overflow scupper cuts in the raised edge detail where indicated on the design drawings. Confirm scupper locations and detailing with the Designer prior to installing the associated flashings and sheetmetal.
21. Provide and install termination bars, counterflashings, sheetmetal flashings, clad-metal cleats, scupper sleeves, fascia and extensions, trim, gutters, downspouts, straps, and other sheetmetal trim and sealants as shown on the drawings for proper installation of the design details.
22. Perform asbestos abatement of ACM where indicated on the design drawings and in accordance with local and state guidelines. A report of the ACM testing can be provided electronically upon request during bidding.
23. Roof Areas C6, C7, and C9: The coating manufacturer shall conduct a minimum of two adhesion tests on each area. Prepare the existing membrane with the manufacturer's requirements to receive the specified coating. Prime the existing substrate in accordance with the manufacturer's requirements. Install the specified coating over existing EPDM membrane.
24. Make minor modifications to the two (2) existing fixed ladders to accommodate the new roof system heights as necessary.

25. At the existing overflow scupper from the Campus Recreational Center onto Area B1, install a new conductor head and drain line to re-route overflow drainage as shown in the design drawings.
  26. Provide and install membrane system walk tread at locations shown on the drawings and at other locations requested by the Owner (additional locations in accordance with unit rate work).
  27. Provide and install other associated system components as detailed or as required by the membrane manufacturer (ex. Plywood on wall, perimeter enhancements, etc.).
  28. Prior to each day's work, plan and sequence work to maintain the roof and building in a watertight condition during construction. Refer to Section 015000 for additional requirements.
  29. 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.
  30. Roof system including standing seam metal roof panels, membrane, flashings, coatings, 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.
- C. 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 portions of the premises during the period of construction for the conduct of normal operations (during summer and fall semesters). 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. The Contractor shall schedule and coordinate work with the designated points of contact at Facilities Management and within the building.
- B. For the purpose of bidding, acceptable work hours shall be Monday-Friday between 5:00 p.m. and 6:30 a.m. during demolition to temporary roof installation over occupied areas and 8:00 a.m. and 5:00 p.m. for other work scope. The WCU Project Manager must be notified in advance of work on weekends or outside of the hours listed above to allow for coordination and approval. This anticipated schedule is provided for general planning and does not eliminate the requirement for the Contractor to coordinate with the Owner to limit disruption to potential interior functions/use.

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- C. The Contractor must follow all requirements of Western Carolina University including, but not limited to, use of staging and storage areas as designated by the project documents, entrance to the site by workers and delivery vehicles, coordination to avoid significant noise disruption, and coordination of construction scheduling around the events of the building and University. Contractor shall not perform work if requested by the Owner due to special events at the building. Contractor shall receive additional contract time for time not permitted to work but shall not receive additional compensation.
- 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 along the building and at entrance/exits from the building where overhead work may occur. Alternative protection methods such as spotters located on the ground will be entertained by the Owner and Designer for short-term/isolated work over ancillary or less used egress/entrance points.
- 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. Where requested by the Owner, the Contractor must maintain a minimum 8' clearance from specific equipment or utilities that may require Owner access.
- F. Parking and access to the site must be coordinated with the Owner's representative. Designated limits for delivery trucks and other parking associated with the project will be defined at the pre-construction conference. The Contractor may be required to pay fees associated with parking of worker's vehicles and additional storage and staging.
- G. Contractor shall provide a superintendent, 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. A representative or personnel in a supervisory position (Superintendent) directly employed by the Prime Contractor must be present full-time anytime work is occurring on site.

#### 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. The Contractor shall provide evidence of acceptance of work by submitting inspection forms from appropriate agencies indicating acceptance of work.
- B. The Contractor may be required to fill out WCU's Hot Work Permit and to follow any requirements of the permit on days when work performed involves welding, torching, or heat-welding of materials. Permits must be completed daily unless otherwise agreed upon with the Owner.

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#### 1.04 CONTRACT TIME AND SCHEDULING

- A. The contract time from the Notice to Proceed to project completion for Base Bid work is 180 days. The Notice to Proceed date is anticipated to be set as early as possible following execution of construction contracts.
- B. Roof demolition, deck inspection and repair, and base sheet and vapor barrier installation over occupied areas must be performed after hours (between the hours of 5:00 p.m. and 6:30 a.m.). Other work that significantly effects interior/below deck spaces (removal of abandoned penetrations, deck repair, etc.) should be performed when the specific areas beneath are unoccupied by building occupants, unless otherwise coordinated with/approved by the Owner.

#### 1.05 BASE BID

- A. The Base Bid includes the following scope of work shown on the drawings and specified in the Project Manual: Roof replacement of the existing systems on Roof Areas A1, C1-C5, C8, D1-D3, and E4, and roof coating on Roof Areas C6, C7, and C9 and all associated work.
- B. **The Base Bid shall also include the estimated quantities of work specified in Section 012100 of this Project Manual.**

#### 1.06 BID ALTERNATES

- A. Refer to Section 012300 for information regarding Bid Alternates for this project.

#### 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.
- 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 are anticipated to include first day of removal and replacement on main 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

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## 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, 074100, 075400, 075600, and 077200, 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.

<i>Work Item</i>	<i>Estimated Quantity</i>
1. Wood Blocking Replacement per Section 061140	500 BD FT
2. Cementitious Wood Fiber Deck Repair per Section 075400	20 CU FT
3. Cementitious Wood Fiber Deck Replacement per Section 075400	50 SQ FT
4. Metal Deck Restoration per Section 075400	50 SQ FT
5. Metal Deck Replacement per Section 075400	50 SQ FT
6. Wood Deck Replacement per Section 075400	10 SQ FT
7. Walktread per Section 075400	100 LN FT
8. Drain Strainer per Section 077200	10 Each
9. Clamping Rings (bolted) per Section 077200	5 Each
10. Clamping Rings (sergeant clamps) per Section 077200	3 Each
11. Skylight Replacement per Section 077200	2 Skylights
12. Replacing Wet Insulation at Coating Areas per Section 075600	350 SQ 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

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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 Engineer or Owner is not possible.

END OF SECTION 012100

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## 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. A list of Bid Alternates is provided in this Section. Additional information necessary to achieve the work described under each alternate is provided within technical specification sections referenced.
- G. Bid Alternate No. 01: The scope of work for Bid Alternate No. 01 includes full-depth replacement of Roof Areas B1 and B2. Refer to the design drawings for existing system notes, new system descriptions, and detailing. Refer to Sections 024110, 061140, 075400, and 076200 for technical specifications.
- H. Bid Alternate No. 02: The scope of work for Bid Alternate No. 02 includes full-depth replacement of Roof Areas E1, E2, E3, and E5. ***The black mastic/vapor barrier on Roof Area E2 and the residue from a previous vapor barrier under existing EPDM flashings at Roof Area E2 contains Asbestos and should be removed and disposed of off-site in accordance with federal, state, and local regulations. An asbestos test report is available upon request from the Designer.*** Refer to the design drawings for existing system notes, new system descriptions, and detailing. Refer to Sections 024110, 061140, 075400, and 076200 for technical specifications.

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- I. Bid Alternate No. 03: The scope of work for Bid Alternate No. 03 includes full-depth replacement of Roof Areas C6 and C7. Refer to the design drawings for existing system notes, new system descriptions, and detailing. Refer to Sections 024110, 061140, 075400, and 076200 for technical specifications.
- J. Bid Alternate No. 04: The scope of work for Bid Alternate No. 04 includes removal and disposal of the existing sunshade along the south elevation of Roof Area A1. Do not disturb/damage the existing soffit, window systems, or building itself during removal. Any holes/openings left from removal of the sunshade will need to be filled (sealant, cover, etc.) and should be discussed with the Designer prior to removal of the sunshade. Photos of the existing sunshade can be provided to the Contractor upon request from the Designer.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 012300

012300.2

## 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 necessary) 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. The 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.

##### 1.02 PROGRESS MEETINGS

- A. Engineer will schedule and administer progress meetings throughout progress of the Work at regular and appropriate intervals (typically weekly meetings, more if the project requires).
- B. Engineer will make 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

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## 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. If hardcopies of submittals are provided, submit a minimum of four complete sets of "Pre-Job Submittals," including shop drawings (as necessary), to the Engineer for review. Electronic copies of submittals may be provided in lieu of hardcopies for submittals that do not include material samples, color charts, sheets larger than 11"x17", or documents with original signatures or seals.
- 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 Owner. 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 their 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.
  - 2. Product manufacturers' installation instructions for each material and product to be installed

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3. Product SDS for each material to be installed and associated equipment/products to be used during installation.
  4. Material samples of membrane or insulation materials to be used only if requested by the Engineer. Material samples must have manufacturer's product identification on the sample.
  5. Color selection materials for pre-finished metal, sealants, membrane, or other products as noted in the applicable specification sections. Physical metal chip samples in addition to a color chart may be requested for pre-finished metal color selection.
  6. Documentation showing asbestos certifications for asbestos abatement workers.
- 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. Once accepted, this outline may only be changed with written approval. Include procedures to keep roof areas 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 tapered insulation layout, detail configurations, metal fabrication shapes and sizes, etc. Show adhesive patterns as well as perimeter and corner dimensions 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.
  3. Certifications that materials to be installed are asbestos-free and are compatible with the substrates to which they will be applied.
  4. Letter from the roof system manufacturer stating that the Contractor (or subcontractor when applicable) is an approved applicator of its roof system as specified.
  5. Letter from the roof system manufacturer 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.
  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. Refer to Section 024120 for submittal requirements regarding ACM.
- 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. A maximum of 50% will be allowed for materials unless otherwise approved by the designer.

4. Insurance certificate issued to Owner by Contractor's insurance carrier listing required coverage. The Owner and the Engineer shall be listed as "Additional Insured."
5. Written security plan, if required by the Owner.
6. Contractor Safety Program, specifically designed for this project, 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, including sub-contractor(s), equipment suppliers, and material suppliers (properly signed, notarized, etc.)
3. Final Application for Payment (5 original copies)
4. Contractor's Affidavit of Payment of Debts and Claims (properly signed, notarized, etc.)
5. Properly executed release of liens by subcontractors and/or vendors
6. Certification letter that no asbestos containing materials were used.
7. Final list of all subcontractors and suppliers with names, addresses, and phone numbers
8. Specific operating and maintenance manual for the new roof system and components.
9. Waste manifests for disposal of asbestos containing materials.
10. Owner Log Book, load test verification, signage and user instructions for fall protection anchor system.
11. Duplicate, notarized copies of the Contractor's 2-year and the Manufacturer's warranty.
12. Three complete sets of as-built drawings- including a copy of both design and shop drawings with changes clearly marked.

#### 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 to the Owner's representative for their review.

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- 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 their review.
- A. Contractor accepts responsibility for delays resulting from incomplete or late submittal packages.
- B. 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, they 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

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## SUBMITTAL TRANSMITTAL FORM

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

Project Name: Reid Building Roof Replacement  
Code: SCO ID: 22-24547-01A;

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

**ATLAS** Job No.: J2626  
-No corrections noted  
-Make corrections noted  
-Revise and resubmit  
-Not acceptable - see remarks

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.

**ATLAS ENGINEERING, INC.**

BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

DATE RECEIVED: \_\_\_\_\_  
DATE RETURNED: \_\_\_\_\_

Corrections Noted:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Remarks:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 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 bidding contractor shall have been in business a minimum of two (2) years prior to the date of bid and must have (or utilize a subcontractor who has) a minimum of 2-year's prior experience with installation of the specified roof system(s) on commercial or public buildings. Upon request, Contractor must be able to provide documentation of age of business, and of completed projects of the same system (with similar size and scope). This documentation may be requested for the purpose of reviewing and evaluating bids and failure to provide requested documentation may result in disqualification of bid.
- B. Roof system including membrane, 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 the system manufacturer warranty period. Work must be performed by people qualified to produce workmanship of the above quality. Project Manager and Project Superintendent must have specific experience with the system(s) to be installed and on projects of similar size and complexity.
- C. Contractor must maintain the same Project Manager and Superintendent throughout the project duration unless a change is reviewed by and agreed upon by the Owner. The Contractor must replace the Project Manager or Superintendent 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 while subcontracted work is underway.
- D. 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.
- E. Contractor shall provide a foreman or a representative from the Contractor that is in a supervisory position and who will be on the site anytime that work by the Contractor or one of the Subcontractors is in progress.

##### 1.03 MANUFACTURER'S SERVICES AND INVOLVEMENT

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- A. The installing Contractor (or subcontractor performing the work) shall be an approved applicator for the manufacturer of the roof system for installation of replacement roof systems *at the time of bidding*. Certification of the contractor's status with the manufacturer may be requested for the purpose of reviewing and evaluating bids and failure to provide requested documentation may result in disqualification of bid.
- 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. Failure of a particular roof system to meet the requirements of the specifications, or failure of the manufacturer to provide intent to warranty for the project may result in the requirement for the Contractor to utilize another conforming roof system manufacturer's products at no additional cost to the Owner.
- C. Comply with the manufacturer's installation instructions, including each step in proper sequence. Should manufacturer's instructions or detail requirements be less stringent than 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.

#### 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 the first day of tear-off and replacement on specific roof areas or installation of specific details. 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 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. When specified in respective Specification Sections and/or required to obtain specified system warranty, require the manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, as applicable, and to make appropriate recommendations. A minimum of 4 visits to the site by the roof system(s) manufacturer's *technical* representative are required. Representatives of the manufacturer shall submit written reports, observations, and recommendations during field services. A copy of the manufacturer's report must be provided to the Engineer within 2 days of receipt by the Contractor.
- 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.
- E. Warranties provided by the contractor or manufacturers for any systems or products installed may not require signature by the Owner for the warranty to be valid.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 014000

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## SECTION 015000

### CONSTRUCTION FACILITIES

#### 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 FACILITIES

- 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 shall be provided by the Contractor from a point designated by the Owner. Temporary connection to existing water must be turned off and disconnected with 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 unless otherwise agreed upon by the Owner. If the Owner agrees to provide temporary power, and existing exterior power supply is adequate for required equipment and installation, the required connections and extensions for temporary use shall be provided by the Contractor from a point designated by the Owner. The Contractor shall provide required distribution boxes, grounding requirements and breaker protection. Contractor shall be responsible for the coordination and cost of any required inspection of temporary power components. Abuse of power privilege shall be grounds for cancellation of same by Owner. The Contractor must provide a dedicated generator for use during heat welding of the thermoplastic membrane with an automatic robot welder.
- 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.

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- 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. 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 may be restricted to storage and staging area 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 Facilities Management 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) 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, and other site 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 discuss 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, equipment and other University or building user property located inside the building as necessary. Contractor shall be responsible for damages resulting from construction activities including damages to interior finishes and university and personal 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

015000.2

and entry of water, debris, or other items into the interior spaces. Refer to specific roof system specification sections for additional requirements for weathertightness during construction.

- D. Provide barriers around trees, plants and ground-mounted equipment. Tree protection fencing must be installed at all trees located in the general vicinity of staging and storage, anticipated equipment traffic routes, dumpsters and other construction activities unless otherwise agreed upon with the Owner's representative. 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. Limit traffic and storage to areas located on the site plan and agreed upon by the Owner's representatives.
- H. Roof replacement must be sequenced to limit foot and equipment traffic over areas of temporary membrane, new roof system installation, and existing roof membrane to remain. Where foot and equipment traffic over the existing or new roof system is unavoidable, provide protective walkways or other methods to adequately protect the materials. The Contractor is responsible for leaks in the existing roof system caused by or exacerbated by construction traffic.
- I. Air intakes are present on the Reid Building roof. Discuss with the Owner's representative and Designer prior to installation of the new roof system adjacent to the existing air intakes to allow for coordination and monitoring of the interior space.

#### 1.05 CLEANING

- A. Clean debris from construction activities daily at minimum. Place debris in closed containers.
- B. Clean up shall include removal of mud, oil, sand, dirt, trash, scrap, debris, and excess materials from any areas outside of designated and barricaded storage area.
- C. 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.

#### 1.06 STORAGE AREA

- A. Limited storage and staging area will be provided on site as coordinated with the Owner. It is the Contractor's responsibility to adequately secure stored materials and equipment. Install separate orange snow fencing surrounding the perimeter of the storage area(s). Chain link fencing installed shall be a minimum of 6' tall, have movable bases and shall not be installed such that existing concrete or asphalt surfaces are damaged. Alternate fencing must be discussed with and

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agreed upon by the Owner. 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.

- B. Contractor shall load materials onto the roof when areas 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 roof deck and structure. Storage of materials on the roof surface shall be limited to those expected to be installed within 5-7 workdays unless discussed with and agreed upon by the Owner and Designer.
- C. The 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

015000.4

## 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. Store loose or granular materials on solid surfaces in a well-drained area and prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect materials to ensure 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. Handle rolled goods so as to prevent damage to edges or ends. Store rolled goods in accordance with the product manufacturer's recommendations.
- H. The Contractor shall not load more materials on the roof than can be installed within 5-7 working days, unless otherwise approved. Materials shall be distributed and not stacked. Gasoline storage containers, open cleaners, or other flammable or volatile materials shall be removed from the roof daily.
- I. 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,

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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.

- J. 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 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 roof 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.
- C. Requests for a substitution of the roof 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. Requests must be made by the Contractor, requests 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, the 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.
- 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

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## SECTION 017700

### PROJECT CLOSE-OUT

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. When Contractor considers Work to have reached completion, submit written certification that Contract Documents have been reviewed, the Contractor has inspected Work, and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection. For the purpose of requesting a pre-final 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 roof system(s).
- B. Designer shall make one pre-final 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 the contract on time, the Owner reserves the right to assess liquidated damages in accordance with the Supplementary Conditions of the Contract.
- D. If the Contractor fails to complete the 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. The Designer will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

##### 1.02 FINAL CLEANING

- A. Execute final cleaning of the roof membrane surface and all components prior to performance of the Pre-Final 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.

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- 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 Section 013300.

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION - Not Used.

END OF SECTION 017700

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## 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. Clean and test roof drains and drainage lines in conjunction with performance of a Pre-Job Damage Survey. The purpose is to remove readily accessible debris from the drain strainer, bowl, and leader (drain bowls) and to water test with a standard water hose to determine if the existing component allows the free flow of water prior to the start of construction. Notify the Designer and Owner if water testing indicates suspected or confirmed clogged or damaged drain/drain line components.
- C. Provide labor, materials, equipment, and supervision necessary to perform selective demolition, which includes, but is not limited to the following:
  - 1. Remove existing roof membrane and flashings from specified roof areas down to the existing roof decks and legally dispose of off-site.
  - 2. The gray infill grout/sealant at the gymnasium pilasters along the north and south elevations of the gymnasium contain asbestos and should be removed and disposed of off-site in accordance with federal, state, and local regulations. An asbestos test report is available upon request from the Designer.
  - 3. Remove existing sheet metal flashings, counterflashings, receivers, expansion joint caps, blocking, plywood, and other existing flashing accessories and dispose of off-site if they are not noted to be incorporated into the new roof system.
  - 4. Protect components that will remain for reuse, including, but not limited to, pipe vents, penetrations, curbed equipment, existing plywood and blocking on parapet walls, and masonry walls.
  - 5. Inspect the existing roof decks, wood blocking, plywood, and other components noted to remain and repair or replace damaged or deteriorated materials in accordance with applicable sections of these specifications. Reuse existing wood blocking and plywood only where shown on the design details or specifically approved on-site by the Designer, otherwise install new materials.
  - 6. Locate new overflow scuppers where indicated on the design drawings and cut perimeter edge metal and/or wall to allow for proper height and size of scupper shown. Coordinate exact scupper location and elevations with the Designer prior to cutting.
  - 7. Remove and dispose of the existing sunshade at the south elevation of the gymnasium without damaging the roof system or existing building (Bid Alternate 04).
  - 8. Provide other demolition whether or not indicated on the drawings or in the specifications as required to perform the specified work.

#### PART 2 PRODUCTS – NOT USED

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## 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.
- 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 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 DRAINS

- A. Water test drains and leaders in conjunction with the Pre-Job Damage Survey. The purpose of the test is to confirm that water flows freely through the drain lines and leaders without evidence of clogging, or backup. Roof drains should be water tested prior to start of demolition at respective areas.
- B. At minimum, cleaning should include removal of any visible and readily accessible debris at the drain strainer, bowl, and portion of the drain leader visible from the roof.
- C. At minimum, water testing should include placement of water from a garden hose into roof drains for a minimum of 15 minutes per drain with visual confirmation that water continues to flow freely through the drain without backing up or another noticeable decrease in drainage flow. Notify the Engineer and Owner of suspected or observed damage/clogging of drainage leaders.

### 3.03 DEMOLITION

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- 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 roof system materials than can be replaced with new materials to a watertight condition by the end of the same workday. 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 from the roof daily. Material and debris shall be transported to and from the roof by crane, hoist, or forklift unless otherwise approved by the Engineer or Owner. If crane is used, it shall be operated by a certified crane operator.
- 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 such as wood blocking to remain, drain components, and other substrates as exposed. Substrates discovered to be damaged, wet, or deteriorated such that they are unacceptable as a substrate for the new roof materials must be replaced or repaired prior to installing new roof system in accordance with the Project Manual. 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 of 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

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work performed toward the estimated quantities) may not be provided without proper documentation.

END OF SECTION 024110

024110.4

## Appendix J

### **WASTE MANAGEMENT PLAN**

#### **General**

Wastes from construction, renovation, demolition, abatement, decommissioning, and other projects with environmental consequences warrant waste management plans to ensure proper waste management practices and recognition of responsibilities. Many of these types of projects involve contracted services, for which the University and its contractor(s) assume liabilities.

Waste management plans, as developed by WCU, are intended to identify potential wastes to be managed, proper management practices, responsible parties, and needed services in simple and concise forms. Two forms have been developed for this purpose, the first for project design and the second for project implementation (demolition/construction).

Waste management must be addressed as part of project design, and should be incorporated in project and/or bid documents. Project design may include site preparation and/or construction. Site preparation may include land clearing, relocation of utilities, decontamination of existing structures, and demolition of existing structures. As the project progresses, some adjustments may be necessary for waste management activities, including relocation of waste areas and managing newly-discovered waste materials.

Completion of the *Designer Waste Information Form* allows WCU to identify wastes of concern and prepare for any necessary services to ensure compliance with environmental regulations. The contractor's Waste Management Plan enables WCU to efficiently plan regulated waste disposal and control costs.

Waste management plans will vary depending on the scale and scope of the project. In the most general terms, the plan should identify the general types of wastes that may be encountered for each phase of the project, the collection and accumulation strategy, marking and identification requirements, and procedures for appropriate removal of wastes from the site.

The forms should be completed by the designer prior to contract award, preferably as part of the bid process. The contractor will submit a waste management plan to the University for approval prior to implementing any work. The approved plan will serve as the basis for project-specific plans. The Plan will specify procedures for all aspects of waste management.

#### **Assignment of Waste Responsibilities**

Waste generated by demolition, decontamination, decommissioning, abatement, maintenance of fixed facilities, and most site preparation wastes will be attributable to both the contractor and the University as co-generated waste (University waste materials removed under contract, including lamp replacement and remediation). Accumulation and initial management of waste generated by project activities will be the responsibility of the contractor(s). The University may provide oversight to ensure protection of properties and liabilities. The contractor will prepare waste for collection by the University or shipment to facilities identified in the waste management plan. Hazardous or universal waste generated as a direct result of project activities (e.g., decontamination or demolition of structures, removal of batteries or mercury-containing articles) will leave the University under the University's signature.

NOTE: Wastes derived solely from materials that the contractor brought to the site, such as construction materials and cleaning of contractor equipment, will be the responsibility of the contractor, and may be included in the waste management plan. The University Project Manager shall receive copies of disposal certifications and shipping papers for all wastes shipped.

### **Designer Waste Information Form**

The Designer Waste Management Form contains preliminary information beneficial to identifying the types of wastes expected to be removed by the project. Once the designer completes the form, it can be submitted to the WCU Project Manager.

Basic sections of the form that require completion are as follows:

- Project Name;
- Project Designer;
- Waste Types: The types of wastes listed are those that are often subject to environmental regulation due to potential hazards. Indicate if wastes are present within the project area and scope using Y (yes) or N (no). If there are additional wastes on-site, add them next to “Other” and indicate their presence.
- Comment
- Signature (designer)

### **Contractor Waste Management Form**

The Contractor Waste Management Form contains updated and more detailed information for managing wastes of concern for WCU. Once the contract has been awarded, the primary contractor completes the form which identifies the WCU Project Manager, the principal contractor, and any responsible subcontractors. After completing the form, the contractor can submit the form via email to the WCU Project Manager. The contractor is responsible for implementing the plans prepared by the project designer and managing site activities.

- Project Name:
- Contact Information:
  - WCU Project Manager
  - Contractor name, address, phone, and e-mail: Consider this to be the primary contractor.
  - Onsite contact and phone number
  - Emergency contact and phone number: The contractor is generally held accountable for accidents that may occur on a project site. The role of WCU in the event of an emergency is to protect University personnel and property beyond the project boundaries or scope.
  - Subcontractor name, address, phone, and e-mail: Consider this to be the subcontractor(s) responsible for managing project “wastes of concern.”
  - Subcontractor’s emergency contact and phone number requires information regarding facilities that may recycle, treat, or dispose of “wastes of concern” if disposed by the contractor.
  - Wastes of Concern: Common wastes identified by WCU as posing environmental or regulatory concerns have been listed, and additional wastes may be added by WCU based on project design information. The contractor shall identify container types and specific storage locations for each type of waste listed.
  - Areas where hazardous wastes are accumulated are required to be inspected at least weekly to ensure spills and other releases are minimized and controlled, and wastes are secured.
  - The “wastes of concern” include materials that would be hazardous wastes if not managed properly. The contractor will comply with WCU requirements to document the inspection of waste areas on a weekly basis while “wastes of concern” are present. A weekly inspection log has been provided as a template for minimum inspection requirements.
  - Inspection criteria are presented with a simple description of concerns. The inspector’s legible signature, date, and time are required. The “Corrective Actions” should indicate the unacceptable condition, date corrected, and signature.
  - Waste removal: The WCU Project Manager shall contact WCU Recycling

## **Management of Regulated Demolition Debris**

### **Designer Waste Information Form**

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## ATTACHMENT TO:

### **MANAGEMENT OF REGULATED DEMOLITION DEBRIS DESIGNER WASTE INFORMATION FORM – ATLAS ENGINEERING, INC. REID BUILDING ROOF REPLACEMENT (SCO ID: 22-24547-01A)**

#### Item A: - Asbestos

Test results indicated that the gray infill grout/sealant at the gymnasium pilasters along the north and south elevations of the gymnasium contain asbestos. The black mastic/vapor barrier and flashing materials located beneath the existing roof system at Roof Area E2 (Bid Alternate 02) contains asbestos. This material would be designated as Category I Nonfriable Material and will require removal in accordance with EPA regulations and OSHA requirements. Test results are available upon request. The Project Specifications for the roof replacement project include requirements for removal and disposal of the asbestos-containing material (ACM). A report regarding ACM inspections and sample test results were provided to WCU.

#### Item B: - Roofing Materials

The existing roof system includes board insulation and EPDM membrane. The EPDM roofing membrane is fully adhered to the rigid insulation beneath. When the membrane is removed, the backside will be contaminated with adhesives and portions of the board facer it was adhered to. The majority of membrane recycling companies will not accept fully-adhered membranes due to contamination with other roofing materials and years of organic debris and repair materials.

#### Item C: - Sheetmetal Perimeter

The perimeter of the building includes a pre-finished sheetmetal edge. The materials may or may not be accepted by metal recycling facilities based on their condition and coating type. The Contractor would need to determine if there is a reasonably located facility that would accept this material for recycling.

## **Management of Regulated Demolition Debris**

<b>Contractor Waste Management Form</b>			
<b>Project Name:</b>	Reid Building Roof Replacement		
<b>Contact Information</b>			
WCU Project Manager:			
Contractor Name:		Subcontractor Name:	
Address:		Address:	
Phone Number:		Phone Number:	
Onsite Contact:		Emergency Contact:	
Phone Number:		Phone Number:	
Emergency Contact:			
Phone Number:			
Recycling/Reclamation Facility:		Phone Number:	
Treatment/Disposal Facility:		Phone Number:	
<b>Wastes of Concern</b>			
Type	Container Type*	Storage Location	Comments
Asbestos			
Decontamination/ Cleaning Liquids			
Lead Paint			
Fluorescent Lamps			
Ballast (PCB or Non PCB)			
Mercury Containing Equipment			
Batteries			
Sink Traps (labs only)			
Oil			
Scrap Tires			
White Goods			
Other:			
Other:			
Other:			
Other:			
Other:			
Other:			
*Container Type – Roll-off, Tank, Drum (specify size), Boxes, Other (specify)			
Signature		Date	
<b>Please complete this form and e-mail to the Project Manager</b>			

[illegible]

	<div>WESTERN CAROLINA UNIVERSITY</div> <div>REUSE OF CONSTRUCTION AND DEMOLITION MATERIALS</div>
Date	
Location/Job Name:	
Project Manager:	
Released To:	
Phone#:	
Material Description:	
Quantity Each Item:	
Estimate Weight Each Item:	
Estimate \$ Donation Value:	
Released By (WCU):	

Description of Program: The University has established a program to salvage building materials, parts and furnishings that would otherwise be considered construction and demolition waste. Prior to the beginning of construction and renovations projects on campus, Facilities Management will have an opportunity to reclaim C&D materials for reuse. Facilities Management will have first priority in the invitation to salvage materials from construction and renovation projects. Other donees, such as Habitat for Humanity, may receive donation of reusable materials. The following conditions and procedure must be met in order to participate in the reuse program.

**Criteria:**

Clear understanding of the purpose of the reuse program.

**Tracking the reuse materials is extremely important to protect all participants from possible liability claims or false acquisition of materials by shops or done and must be submitted to WCU Project Manager.**

Facilities Management Shop or donee is responsible for removal and transportation of materials, has adequate second use or storage for the materials, and takes responsibility for the timely and lawful surplus or disposal of materials if an adequate reuse is not identified in an appropriate amount of time.

**Questions? Contact Facilities Management Project Manager or Recycling Coordinator at 227-7442**

## SECTION 024120

### REMOVAL OF ASBESTOS-CONTAINING MATERIALS

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Provide labor, materials, equipment, and supervision necessary to perform removal of asbestos containing roofing material, which includes, but is not limited to the following:
1. **The gray infill grout/sealant at the gymnasium pilasters along the north and south elevations of the gymnasium contain asbestos and must be removed and disposed of in strict accordance with all appropriate Local, State, and Federal regulations so as to protect human health and the environment.**
  2. The black mastic/vapor barrier membrane and flashings at Roof Area E2 (part of Bid Alternate 02) contains asbestos and must be removed and disposed of in strict accordance with all appropriate Local, State, and Federal regulations so as to protect human health and the environment.
  3. Sampling and testing for asbestos was performed by a North Carolina Accredited Asbestos inspector (Mr. Oral McGirt, NC Inspector No. 10755 with OLM Environmental, LLC) and a copy of the test results are available upon request.
  4. Provide copies of chain of custody and waste removal documentation (landfill tickets, etc.) for asbestos-containing materials to the Owner for their records.
- B. The Contractor shall furnish and is responsible for costs including, but not limited to: notifications, permit fees, insurance, bonding, certifications, training, and equipment necessary to carry out removal and disposal operations in accordance with the plans and specifications, current EPA and OSHA regulations, and any applicable state and local government regulations.
- C. The Contractor must coordinate with WCU to ensure that any additional paperwork or requirements of WCU are followed during removal and disposal.

##### 1.02 QUALITY ASSURANCE

- A. Follow OSHA and NESHAP regulations and procedures, latest edition applicable to the removal of roofing materials containing asbestos. Also, conform with North Carolina Asbestos Hazard Management Program (NCAHMP) requirements. The Contractor shall meet the requirements listed under the OSHA Standard 29 CFR 1926.1101 for roofing.
- B. Contractor shall contact the NC Health Hazards Control Branch (HHCB) concerning the need for permit, fees, and accredited roofing workers and supervisors when removing regulated roofing materials. A courtesy notification for any amount of asbestos, regulated or non-regulated, to be removed shall be sent to the HHCB 10 working days prior to the start date of the asbestos removal. Utilize a waste shipment record acceptable to the State of North Carolina.
- C. Provide required signage and coordinate removal with Owner and occupants to reduce possible

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contact with ACM.

- D. Train personnel in health effects of asbestos, work practices for proper handling of ACM, applicable regulation, and air monitoring and hazard communication. Maintain current licenses for contractors and accreditation for workers and supervisors as required by applicable State or local jurisdictions for the removal, transportation, disposal, or other regulated activity relative to the work of this contract. ***Copies of licenses, permits and certifications must be submitted to the Owner before the start of demolition.***
- E. There shall be one supervisor for every 10 workers on the site at all times that asbestos containing materials are being removed to monitor material removal and to determine if the materials have become friable. This supervisor shall be trained in the provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) and OSHA Standard 29CFR1926.1101. Provide all required safety equipment including respirators, unless otherwise shown to be unnecessary through negative exposure assessments or by the requirements of the referenced standards.

### 1.03 SUBMITTALS

- A. Provide copies of written notification to the NC HHCB, local EMS, fire, and police departments.
- B. Provide copies of lists of supervisors and workers, along with their accreditation to be utilized during removal of asbestos containing materials. ***Copies of licenses, permits and certifications must be submitted before the start of demolition.***
- C. Provide copies of approval of a waste disposal site in compliance with OSHA 40 CFR 61.154. Provide a sample of the waste shipment record that will be maintained during disposal.
- D. Provide a time schedule for the project, outlining the start and stop dates for phases of the project containing removal of asbestos-containing materials.
- E. Provide a sample of any signage to be used during asbestos removal to the Owner in advance of installation on the site.
- F. Provide copies of exposure assessments, or other documentation required to support anticipated removal methods and personnel protection equipment.
- G. Provide other documents requested or required by WCU.

PART 2 PRODUCTS - Not used.

### PART 3 EXECUTION

#### 3.01 PREPARATION

- A. Wet non-friable materials with water and establish a regulated area.
- B. Post required signage at site entrances, dumpsters, and work areas.

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- C. Ensure no ACMs are released into the environment or into the building. Lock and tag any HVAC intakes in the general vicinity of asbestos abatement activities. Additionally, cover these intakes with one layer of 6-mil polyethylene sheeting until removal is complete.
- D. Allow no activities or equipment to be used that could cause fiber release such as drilling, sawing, sanding, or cutting with power tools unless combined with approved wetting methods.
- E. Allow no throwing or dropping of materials. Contain and lower materials to ground level by a means that will not generate airborne dust. If lowering materials to the ground presents a hazard or there is a risk that the materials will become friable, double bag the materials on the roof prior to lowering. If materials are not contained within double bagging or closed canisters, dumpsters must be covered or double lined to meet referenced State and Federal regulations.

### 3.02 DISPOSAL

- A. Transport materials to a permitted landfill in a covered truck in double bags or dumpster covering as required by State and Federal regulations regarding transport of asbestos-containing materials. Materials will be disposed of as asbestos-containing construction waste. Landfill must be notified in advance of the delivery of asbestos containing materials.
- B. Provide copies of the waste manifests to the Owner throughout the project and provide a complete set of waste manifests as a post-job submittal to be submitted before final payment. Include date, quantity of material delivered, signature of authorized representative of landfill and name of waste transporter.

END OF SECTION 024120

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## 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. Install supplemental fastening of existing blocking where noted on the drawings to ensure adequate securement to the building structure.
  - 3. Replace existing wood blocking and plywood 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.

##### 1.02 QUALITY ASSURANCE

- A. Contractor shall provide sufficient qualified workers 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 workers.

##### 1.03 SUBMITTALS

- A. Submit product data and SDS for each product listed in this specification section. For treated wood, confirm preservation treatment type 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, plywood to masonry and other plywood, 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.

##### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver blocking, plywood, 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.

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## 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 AWWPA Standard U1, to the requirements of use category for ground contact. Asphaltic or creosote preservatives shall not be used. The presence of a mark or tag identifying preservative type and retention on each piece is required. Where full penetration of ACQ is not evident, field cuts shall be coated in accordance with AWWPA standard M-4. Dimensions shall be determined by job conditions. Site-sawn ends shall be treated with one coat of preservative treatment. If the roof membrane manufacturer does not accept the use of the specified preservative treatment for use in their warranted system, or lead times for specified retention rate is substantial, notify the Engineer to allow for approval of an alternate product. Alternate products must provide an equivalent retention for the required use category.
- B. Plywood: Shall be stamped APA –rated CDX (C side out), smooth-surfaced, exterior grade. Plywood thickness shall be 1" or 3/4" thickness as noted on the design details or required by the manufacturer. If plywood is installed to repair/replace existing damaged materials, match the existing plywood in thickness even if less than noted above.

### 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 containing copper must be stainless steel. If alternate wood preservative treatments are provided that do not contain copper, the Designer will review possible use of corrosion coated fasteners.
- B. Wood to masonry/concrete: Minimum 1/4" 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.
- C. Wood to metal (general): Minimum self-drilling, self-tapping, hot-dipped 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. Fasteners must be capable of securing new plywood to the new cold-formed steel hat channels and cee-shaped supports.

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- D. Wood to wood: Minimum No. 10 hot-dipped 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, unless otherwise required by the roof system manufacturer.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install new wood blocking, shims and plywood as shown on the drawings or as required by the roof system manufacturer for proper installation of the details.
- 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 and plywood 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.
- 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/wall and to each other, to resist a minimum uplift force of 300 pounds per linear foot. Based on this requirement, a maximum spacing of 18" 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 300 pounds per foot load requirement, increase the number of fasteners as necessary to meet requirement.
- D. Wood nailer pieces shall be no less than 12" in length and shall be secured with a minimum of two fasteners per piece. Where length is adequate, fasteners shall be positioned 6-inches from each end and a maximum of 12 inches 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. Secure plywood at 24" o.c. staggered in both directions unless otherwise noted in the design details.

### 3.02 REPLACEMENT OF DETERIORATED/DAMAGED MATERIALS

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- A. If existing wood blocking or plywood is marked on design details to be existing and 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 or plywood and install new blocking or plywood to match sizes of pieces to be replaced unless otherwise approved. Minimum length of blocking for replacement is 12”.
- B. Notify Engineer upon discovery of materials requiring repair or replacement in accordance with Section 024110.

END OF SECTION 061140

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## 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 systems with mechanically seamed panel ribs, including associated flashings and accessories at Roof Areas A1 and C8 of Reid Building.
- B. 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 standing seam roof system assembly including flashing and trim components shall be watertight, shall conform to North Carolina State Building Code and ASCE 7-10 requirements for wind uplift resistance. Retrofit framing layout and securement must result in a system rating capable of resisting design wind uplift loads in the field with enhancements at the perimeters and corners will be required. Field, corner, and perimeter zones for wind uplift are as shown on the drawings.
- B. 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.
- C. The installed roof panels and flashing system must be capable of withstanding thermally induced movement, code-applied wind uplift pressures, 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.
- D. 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.
- E. The roof panels will be fabricated to match the slope of the roof deck and will drain to perimeter gutters at the eaves (Roof Area A1). Panels shall be fabricated to prevent significant crowning, or isolated/point specific oil canning due to stresses induced by improper fit with panel clips.

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- F. 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.
- G. 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).
- H. 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 swege laps will not be accepted.

### 1.03 QUALITY ASSURANCE

- A. 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 2.02 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 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 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 4 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 may be requested to be present for certain in-place mock-up installations of complicated transitions and details.
- B. 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.
- C. Aesthetic Considerations: An aesthetically pleasing overall appearance of the finished roof and perimeter flashings is desired. 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. Provide a complete list of materials proposed for use including product data sheets, test data, and SDS for each product including accessory materials (fasteners, tapes, sealants, etc.).
  1. When multiple products, thicknesses, finishes, 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. Test data should cover wind uplift, air infiltration and water infiltration testing at minimum. Product data and test data provided must be sufficient to confirm that materials meet these specifications.
- B. Provide 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.
- C. Provide a signed letter from the metal roof system manufacturer approving the system proposed for receipt of their system warranty.
- D. Provide a sample copy of the Roof System Manufacturer's warranty meeting the requirement specified in this section.
- E. 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.
- F. Provide detailed shop drawings of the new metal roof system indicating profiles and dimensions of all components including roof layout, clip fastening patterns, elevations, anchoring methods, zee purlins, details and locations of transitions, and other provisions necessary for thermal expansion and contraction. Dimensioned profiles of all roof flashings including, but not limited to, gutters,

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eave metal, downspouts, rake, cleats, and other flashings, must be included in the shop drawings. Shop drawings shall show all locations and type of fasteners and factory and field-applied sealants. Shop drawings must be signed and sealed by a Professional Engineer registered in the State of North Carolina. Refer to section 2.01 for requirements of the sealed shop drawings for the retrofit substructure. If shop drawings are not provided by the roof system manufacturer, additional written approval in the form of signature of the shop drawings by the roof system manufacturer's technical representative must be provided.

- G. Provide color sample chips of the available pre-finished colors. The Designer may request additional samples to show surfacing options (flat, pencil rib, striations) to aid in selection by the Owner.
- H. Requested Mock-Ups: Provide up to a 10' section of new roof panels with gutter and rake, provide general transitions such as ridge and other details as requested by the Designer to allow for review 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.

#### 1.06 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.

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## 1.07 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.
- 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.
  - 4. 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.
  - 5. 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.
  - 6. 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.
- D. 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. Zee supports for detailing, 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.
- C. Fasteners: Fasteners between framing members, backing plates, etc. 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 retrofit framing members 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 substructure post. Final approval of fasteners will be provided by the Designer based on review of fastener pull test results and manufacturer calculations.

### 2.02 BOARD ROOF INSULATION MATERIALS

- A. Rigid Board Insulation (for use with Standing Seam Metal Roof System): Shall be closed-cell, extruded polystyrene complying with ASTM C-578, Type IV. Board shall be high density with smooth skin surface and square (butt) edges. Board insulation shall be maximum 4 feet by 8 feet in size with minimum compressive strength of 25 psi in accordance with ASTM D-1621; minimum density shall be 2.5 pcf; flame spread (5) and smoke developed (165) ratings shall be in accordance with ASTM E-84. Flexural strength shall be minimum 50 psi in accordance with ASTM C-203. Total thickness shall be a minimum of 4.0". The total thickness should be provided in two layers, unless otherwise approved. Insulation shall be CFC free.
- B. Batt Insulation (for Roof Area C8): Shall be fiberglass insulation that meets ASTM C764, ASTM C518, and ASTM E136 as manufactured by CertainTeed, Johns Manville, Owen-Corning, or approved equal.

## 2.03 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" on center. Finished height of standing seams shall be a minimum of 1.5" and a 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 end/swage 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.
- C. Panel Clip Fasteners: Shall be cadmium or zinc plated carbon steel, size head profile and length, as shown on the drawings or as required/recommended by the roof system manufacturer. Length of fasteners shall be sufficient for fastener to penetrate clip and substrate as required (wood penetration, min. 3/4").
- D. Acceptable Manufacturers:
1. Acceptable manufacturers of the specified standing seam metal roof systems (including framing system, and trim/flashings) include:
    - a. McElroy Metal – Maxima
    - b. MBCI – BattenLok HS
    - c. Architectural Metal Systems – Loc Seam
    - d. Metal Roof Systems (MRS) – System 2500
  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 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 material as the metal roof panel (cleats one gauge heavier) and shall be pre-finished to match the metal roof panels unless otherwise noted. Gutter Support Straps/Spacers: Shall be 1/16 inch x 1 inch, Type 304 stainless steel conforming to the re-quirements of ASTM BA480. 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.

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- F. Fasteners: Provide fastener size and length that meet the manufacturer's requirements:
1. Panel to Structure: Unless otherwise required by the manufacturer, provide ¼-14 by 1-1/4" (min.) stainless steel, 3/8" hex-head fasteners with ¾" OD aluminum-backed EPDM washers. ***Increase length of fastener as needed to adequately penetrate new plywood roof deck.***
  2. Panel to Panel: 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.
  3. All concealed fasteners must have head profiles that are countersunk or flush with the material being fastened.
  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 (steel structure).
- G. Self-Adhered Underlayment: Shall consist of either a rubberized-asphalt (minimum 40-mil thickness) or butyl-based adhesive (minimum 30-mil thickness) flexible membrane with a polyethylene carrier sheet. The underlayment shall form an air/vapor barrier, be capable of adhering to the existing plywood roof sheathing and be acceptable for use in high temperature applications (up to 240 degrees F) such as beneath metal roof panels. Underlayment must be acceptable to the metal roofing system manufacturer warranting the overall system. Provide any related primers, mastics, sealants, etc. as recommended by the manufacturer and required to maintain a watertight condition.
- 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 provide single component, non-sag polyurethane sealants per ASTM C920.
- J. Panel Closures: Provide sheetmetal closures/supports along cut edges of panels.
- K. Ridge: Provide pre-fabricated ridge component flashing as provided by the roof system manufacturer for use. Ridge detail must be acceptable to the manufacturer for inclusion in the roof system warranty.
- L. Snow Guard System: Snow guard system shall be a "bar-type" 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.

- M. 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.
- N. Stainless steel band clamp (at penetrations): Provide a min. ½” wide stainless steel plumbers clamp.
- O. 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.
- P. Provide other perimeter flashings, cleats, sheetmetal trim, and system components not specifically noted but required for proper installation of the new roof system.
- Q. Coating for Downspout Boots and Drain Pipe on South Side of Roof Area A1: 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.
- R. Backer Rod and Sealant: Provide single component, non-sag polyurethane sealant per ASTM C920 and associated primer and backing materials.
- S. Roof system products and accessories used for installation of the standing seam metal roof system, including self-adhering membrane; 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.

## 2.04 FABRICATION

- A. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations of the Metal Building Manufacturers Association – MBMA Low Rise Building Systems Manual; American Iron and Steel Institute – AISI Light Gauge Cold-Formed Steel Design Manual; and the "Architectural Sheet Metal Manual", 5<sup>th</sup> newest edition, as published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).
- B. Fabricate metal roofing pans in continuous lengths to match the dimensions of the roof area with longitudinal dimension formed to provide standing seams spaced 16 inches on center.
- C. Fabricate and install sheet metal pans in continuous lengths. It is required that panels be fabricated at the manufacturer’s indoor, controlled factory/plant, in lieu of on-site roll forming.

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- D. Seams shall have a continuous groove capillary break and shall be securely rolled/locked over anchor clips in-place on-site with electrically powered, field operated, roll forming tool.
- E. Form sections square, true and accurate to size, free from distortion, sharp edges, and other defects detrimental to appearance or performance in and conformance with details on the approved shop drawing.
- F. Junctures, intersections, corners, and unions of sheet metal flashings shall be held to 18-inch legs or less.

## PART 3 EXECUTION

### 3.01 UNDERLAYMENT AND FRAMING SYSTEM INSTALLATION

- A. Install the new fall protection anchors and supplemental framing where shown on the drawings. Fall protection anchors shall be installed prior to installation of the new retrofit standing seam metal roof system. Install the horizontal lifeline components of the fall protection system after installation of the standing seam metal roof system.
- 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 zee purlin layout and installation. Perform fastener pull-out testing at a minimum of four 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 zee purlins at 24" O.C. over the top of the existing cementitious wood fiber roof deck into existing wide-flanged purlins. The zee purlins will run perpendicular to the existing wide-flanged purlins, and fastened with two self-drilling, self-tapping fasteners at each connection point; the zee purlins shall be pre-drilled for installation into the existing structure. 4" of extruded polystyrene will be installed between each zee purlin. Install the 3/4" plywood roof deck with each end of a plywood board supported on the zee purlin, secured at 6" O.C. along the edge and 12" O.C. in the middle of the board to supporting zee purlins. Stagger the joints of the plywood decking along each row with the long side running parallel to the eave. Install underlayment on plywood deck.
- E. Zee purlins 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.

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- H. Install self-adhered underlayment in accordance with manufacturer installation instructions and recommendations to fully cover the plywood deck to provide a watertight barrier. Start at the eave and install underlayment parallel to the eaves and lapped at the edges in the direction of waterflow and in accordance with the manufacturer's installation instructions. Do not expose membrane to sunlight longer than as recommended by the manufacturer. Inspect installation prior to enclosing assembly and repair punctures, damaged areas, and inadequately lapped seams with a patch of membrane lapped as recommended by manufacturer.

### 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 new plywood roof deck 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 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. 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.
- D. Mechanically seam the panel ribs to form the standing seam.
- E. Install new eave trim and gutter, and downspouts around the building perimeter. Sequence installation to allow for proper order of work with installation of the new roof system panels and flashing. Panels and flashings must be installed without crowning, or poor fit causing oil canning or stresses. Damaged/dented panels will not be accepted and should be replaced immediately if damaged during installation. Flashing joints must be flush along their entire length and may not stand proud of an adjacent panel by more than 1/32" at any one location.
- F. 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.
- G. 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.
- H. Exposed edges of flashings shall be hemmed unless otherwise noted; hems shall be concealed from view.

- I. Dissimilar metals shall be kept separated to prevent galvanic action. Preventive measures shall include separation by suitable bituminous paint, or non-conductive separation sheet.
- J. 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.
- K. 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.
- L. 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.
- M. 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 ROOF ACCESSORIES

- A. Snow Guard System: Snow guards shall be installed in one row over the exterior wall/structural support below where shown on the drawings. 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.
- B. Penetration Flashings-Round Penetration: Install prefabricated, flexible boot flashings in accordance with the manufacturer's installation instructions. Top of boot flashing must fit snugly against the penetration with a minimum of ½" of vertical material against penetration. Install sealant and a stainless steel clamping ring around the top of the flashing boot. The base compression ring and tape sealant must be installed flush with the metal roof panel pan and shall be fastened in accordance with the manufacturer's instructions. The compression ring (collar) must lay flat and flush and shall not be fastened in a way that causes fishmouths or buckling of the collar. Penetrations must be located through the roof in the center of roof panel pans to allow flashing boot

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to have proper clearance from the panel ribs. Where it is not possible to provide clearance, provide flat curb detailing to interrupt the panel rib and allow for proper boot installation.

- C. 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. Maintain the roof system air barrier at all penetrations and transitions.

### 3.04 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 4 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.

### 3.05 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.

### 3.06 TEMPORARY WATER CUT OFFS AND WATERTIGHTNESS DURING CONSTRUCTION

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- 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 effect 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.

### 3.07 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

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## 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.
- B. Perform a Pre-Job Damage Survey and clean and test roof drains and drain lines to their outlet from the building prior to the start of work in accordance with Section 024110 of the Project Manual.
- C. Remove all existing roof membrane, insulation, and flashings, sheetmetal, etc. from specified roof areas down to the top of the roof deck and legally dispose of off-site in accordance with Sections 024110 as necessary to allow for proper installation of the new roof system. Do not remove more existing roof system than can be returned to a watertight condition prior to the end of the work day.
- D. Inspect the existing roof decks, wood blocking, and other components noted to remain and make repairs, or replace, damaged or deteriorated materials in accordance with this specification section (deck repair) and Section 064110 (wood blocking repair/replacement) to provide suitable substrates for new roof system installation. Refer to base bid allowances (estimated quantities of work in Section 012100) for additional information regarding documentation and tracking.
- E. Install a mechanically-fastened thermal barrier over the cementitious wood fiber deck and secure at fastener patterns specified. Fastener pull-out testing to confirm fastener type and spacing must be performed. Install a new self-adhered vapor barrier/retarder over the thermal barrier. This vapor barrier should be installed in a watertight condition and must be sealed at all penetrations, including internal drains to allow it to act as a temporary roof membrane.
- F. At roof areas with concrete deck (small section of Roof Area C3) (Bid Alternate 01 Areas), prepare and prime the concrete deck and install a new self-adhered vapor barrier/retarder directly over the deck. This vapor barrier should be installed in a watertight condition and must be sealed at all transitions with adjacent exterior walls to allow it to act as a temporary roof membrane.
- G. The installed vapor barrier may be used as a temporary roof system until installation of the completed new roof system. The Contractor may not have an exposed vapor barrier/temporary membrane on areas larger than one full roof area and one half of adjacent wing without advance approval by the Designer. The Contractor remains responsible for adequate temporary drainage and overall watertightness of the temporary roof membrane until installation of the completed new system occurs. Drain clamping rings and strainers must be reinstalled as a part of the temporary roof system to promote watertight temporary detailing at internal drains. Temporary retrofit roof drains may also be utilized as an alternate method.

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- H. Clean the existing drain components for reuse.
- I. Clean and prepare the surface of the vapor barrier to form an acceptable substrate for new roof system installation. Install a 1.5" thick base layer of new rigid insulation over the vapor barrier (use 1.5" base layer for areas with a minimum of 3" of insulation at the drain sump/gutter, and 2" base layer for areas with a minimum of 3.5" of insulation at the drain sump/gutter. Refer to the roofing assemblies on the design drawings).
- J. At roof areas with varying deck types (Area C) install an additional layer of new rigid insulation over the initial base layer to account for change in deck levels. Additional insulation layer is intended to raise the height of the roof at the concrete/wood/metal deck level with or slightly higher than the adjacent construction along the entire transition.
- K. Over all roof areas, install 1/8" per foot tapered rigid insulation with a minimum thickness of 1.5" over the base insulation. Install additional tapered insulation to form saddles and crickets (min. 1/4" per foot slope) between drains and at upslope sides of penetrations greater than 18" and tapered drain sumps as shown on the design drawings. Install tapered edge strips where shown to transition along raised perimeters. At locations where existing drain assembly will be reused, size of drain sump can be increased if slope at drain sumps will be too steep for proper installation of membrane without stretching/wrinkling.
- L. At all areas, install a 1/2" coverboard over the insulation.
- M. All layers of insulation and coverboard shall be adhered in low-rise polyurethane foam adhesive in accordance with specified adhesion patterns. Insulation adhesive patterns must provide wind uplift resistance in accordance with these specifications, the North Carolina State Building Code and ASCE-7, latest edition and submittal of adhesion testing data for existing conditions will be required. Adhesion testing may be required dependent on vapor barrier material submitted and surface conditions observed.
- N. Provide and install a fully-adhered, thermoplastic roof membrane and membrane flashings with heat-welded seams. Provide and install other associated system components. New roof system must meet the requirements for UL Class A fire classification and wind uplift resistance in accordance with these specifications, the North Carolina State Building Code and ASCE-7, latest applicable edition and be eligible for the specified manufacturer warranty.
- O. Raise and/or extend equipment curbs, pipe vents and other roof penetrations as necessary to provide minimum 8-inch vertical flashing heights above the new roof membrane. Make repairs to loose or damaged pipe vents where noted on the drawings.
- P. Provide and install clad-metal components, membrane flashings at perimeters and at roof penetrations.
- Q. Provide and install membrane system walk tread at locations shown on the drawings and at other locations requested by the Owner (additional locations in accordance with estimated quantity work in Section 012100).

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- R. Provide and install termination bars, counterflashings, sheetmetal flashings, clad-metal cleats, fascia, closures, overflow scuppers, and extensions, trim, and other sheetmetal trim and sealants as shown on the drawings for proper installation of the design details in accordance with Section 076200.
- S. Install new low-profile expansion joint assembly components.
- T. Prior to each day's work, plan and sequence work to maintain the roof and building in a watertight condition during construction. Refer to Section 015000 for additional requirements.
- U. 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.
- V. 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 current versions of the 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 membrane and flashings to continue to perform in a watertight condition, with reasonable maintenance, over the 20-year manufacturer's warranty period.

#### 1.02 QUALITY ASSURANCE

- A. Obtain roof membrane, insulation, flashings, and accessories, from a single manufacturer with not less than 10 years of successful experience in manufacture of a thermoplastic membrane meeting the specified requirements and without significant change to the chemical formulation. Provide other system components such as adhesives, fasteners, termination bars, pipe boots, and membrane-coated metal flashings, only as approved by manufacturer of primary membrane materials for the warranted system.
- B. Contractor shall be an approved/authorized applicator of the manufacturer for installation of the product to be installed. Approved status must be in-place prior to the bid date. Certification of the contractor's status, or the status of a designated subcontractor, with the manufacturer may be requested for the purpose of reviewing and evaluating bids and failure to provide requested documentation may result in disqualification of bid.
- C. Use adequate number of skilled workmen who are trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for performance of the Work. Contractor shall have a minimum of two (2) years experience with the installation of single-ply thermoplastic membranes with heat-welded seams.
- D. 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

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NRCA recommendations differ from the design specifications and drawings, the more stringent requirement will take precedence unless otherwise agreed upon with the Engineer.

- E. Unless otherwise agreed upon with the Designer and Owner, 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 by 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 their membrane within 6 months of the start date of the project.
- F. Provide a minimum of three (3) on-the-job inspections and one (1) final inspection by the manufacturer during membrane installation, technical assistance, and material application guidance as necessary to complete the roof membrane system installation in accordance with the membrane system manufacturer's warranty requirements and these specifications. The initial visit to the site should be made within the first three (3) days of roof removal and new membrane installation.
- G. Aesthetic Considerations: An aesthetically pleasing overall appearance of the finished roof application is desired for this project. 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.

#### 1.03 SUBMITTALS

- A. Submit written confirmation of contractor's approved applicator's status from the roof membrane system manufacturer if not provided as a part of the bid evaluation and approval process.
- B. 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). Submit a sample of the temporary roof membrane if applicable Bid Alternate is selected.
- C. 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.
- D. Submit membrane manufacturer's application manuals, which describe completely the preparation of surfaces and application of specified materials.
- E. Submit a tapered insulation layout. Layout plan must show drain sumps, crickets at upslope side of curbed units, and shall be confirmed by the contractor prior to submittal to show actual intended installation and not be solely for the purpose of material take-off or ordering.
- F. Submit shop drawings showing detail, fabrication, and fastening devices for each condition encountered. (This includes, but is not limited to: perimeter and corner zone dimensions, insulation adhesive patterns, general sheet layout, metal fabrication shapes, fastener types and

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spacing, and other specific components, etc.) Due to site-specific conditions, some design details may have non-standard conditions and standard manufacturer's detail may not be applicable. Where non-standard conditions are present provide specific confirmation of acceptability by the warranting manufacturer.

- G. Submit a sample copy of the membrane 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.

#### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials, insulation, and accessories in manufacturer's original protective containers 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.
- C. Store flammable products 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.

#### 1.05 ENVIRONMENTAL REQUIREMENTS

- 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.

#### 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. Provide roof membrane system manufacturer's twenty-year non-prorated, full system warranty covering labor, materials and workmanship of the roofing system against leakage and material defects. The warranty will extend for a period of twenty (20) years from the date of Final Completion.
  - 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.

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3. The standard manufacturer's warranty shall not be voided by ponding or standing water.
  4. The manufacturer's warranty shall not require the signature of the Owner's representative to be valid.
  5. The Contractor must coordinate the number of site visits required by the manufacturer to issue the warranty.
  6. A minimum of four (4) 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.
- C. Manufacturer and Contractor warranties shall also state that the Owner has the right, at any time during the warranty period, to make emergency roofing repairs to protect the contents of the building or the building itself from damage due to leaking. Emergency repairs by the Owner shall be made in accordance with roofing industry standards for temporary repair but will not absolve the Owner of contacting the warranting Contractor or Manufacturer as required. If emergency repairs will not be allowed, the warranting entity must provide emergency response within the initial 12 hours for the Contractor Warranty and within 24 hours for the Manufacturer warranty following notification.

## PART 2 PRODUCTS

### 2.01 DECK REPAIR MATERIALS

- A. Cementitious Wood Fiber Deck Repair: Where isolated and minor surface damage to the existing gypsum deck is discovered within the top ½" – 1" of the deck surface but the remaining depth of deck is intact, repair by placing a gypsum repair fill, appropriate for proper repair of the existing deck. Repair grout or fill must be a quick set and capable of being feathered to allow for smooth transitions to adjacent sound deck. Acceptable product and manufacturer includes, but is not limited to: PYROFILL by United States Gypsum.
- B. Cementitious Wood Fiber Deck Replacement: If damaged area of deck is both larger than 12"x12" and extends deeper than 1", remove and replace the damaged section of deck with new cementitious wood fiber decking, with tongue and groove edges, thickness to match. Deck must be replaced in a section large enough to span from and be secured to adjacent structural members. Acceptable product and manufacturer includes, but is not limited to: TECTUM 1 Structural Acoustical Roof Deck by Armstrong Building Solutions.
- C. Metal Deck Restoration (Rust-Inhibitive Primer): Provide a solvent-free, moisture-tolerant product specifically formulated as an anti-corrosion coating. Provide primer as recommended by the manufacturer. Acceptable product and manufacturer includes, but is not limited to: Rust-Oleum Rusty Metal Primer.
- D. Metal Deck Replacement: Provide metal deck to match existing profile, gauge, type and meet ASTM A653 designation G90 galvanized and coated on both sides of sheet. Fasteners used to secure replacement deck shall be corrosion resistant, self-tapping hex head screws.

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- E. Wood Deck Replacement: Deteriorated or damaged areas greater than 12" square or diameter shall be repaired with wood deck. Remove the existing deteriorated deck to span 2 beams. Report deck to be replaced to Engineer/Owner. Secure new deck to structure at a minimum of 2 fasteners per beam.

## 2.02 VAPOR BARRIER AND THERMAL BARRIER

- A. Thermal Barrier: 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. 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'x8' for mechanically-fastened applications.
- B. Mechanical Fasteners for Thermal Barrier: Provide a corrosion-resistant metal or reinforced nylon fastener specifically designed for securement of rigid board material to existing cementitious wood fiber roof decks. The fastener should include a plate/cap (approx.. 2.0" diameter) with a maximum fastener length of 2" to provide a minimum 1.5" penetration into the deck. Selected fastener length must be confirmed on site to work with the deck thickness and must obtain adequate on-site fastener pull-out test values to resist design wind uplift loads at the required fastening patterns. Basis of Design is TL Fasteners by TruFast or equivalent product.
- C. Vapor Barrier/Temporary Roof Membrane: Provide a self-adhered modified bitumen membrane recommended by the manufacturer for application over new thermal barrier or existing concrete deck as a vapor barrier/retarder and temporary roof membrane. Membrane shall have facers that are compatible with urethane-based adhesives and shall have a minimum 31-mil thickness per ASTM D5147. Provide an accompanying asphaltic primer conforming to the requirements of ASTM D41, and lap mastic if required or recommended by the roof system manufacturer for use in their warranted system. Basis of design: FiberTite, VaporTite; Sarnafil, Vapor Retarder SA 31; IB Systems, Soprapap'r

## 2.03 ROOF INSULATION AND COVERBOARD

- A. General: Provide roofing insulation and cover 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. Flat and Tapered Board Insulation: Closed-cell polyisocyanurate rigid insulation with foam core and factory laminated fiberglass reinforced facers (ASTM C1289, Type II, Class 1) and acceptable for installation in an adhered system. Foam core shall have a flame spread of 25 or less per ASTM E-108 and shall have a minimum density of 2 pcf. Compressive strength shall be 20 psi minimum in accordance with ASTM D1621. Board insulation shall conform to ASTM 1289-02.
  - 1. Refer to the design drawings for roofing assemblies.
  - 2. Drain sumps minimum thickness shall be 1/2" thick and slope shall be as required to

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- accommodate the sump dimensions and existing drain component conditions.
3. Maximum board size shall be 4'x4' for adhered applications.
  4. Polyisocyanurate tapered edge strips that taper to 0" thick shall be provided along minimum edge of tapered insulation at crickets and saddles.
- C. Coverboard: 1/2" thick, high-density, closed-cell polyisocyanurate core manufactured with coated glass facers (all Roof Areas). Compressive strength shall be minimum 90 psi per D1621 with a minimum density of 4 pcf. For adhered installation, maximum board size is limited to 4'x4'. The coverboard must be either manufactured by or approved by the warranting roof system manufacturer.
- D. Fasteners and Plates: Shall be corrosion-resistant, 14-10 heavy duty all-purpose screw or nail-in fastener with low profile head and minimum 2.5" diameter galvanized steel, or AZ 55 galvalume stress plate. Fasteners shall be carbon steel, coated to resist corrosion in accordance with FM4470. Fastener and plate shall be Factory Mutual approved for use together. When membrane securement into the cementitious wood fiber deck is required, fasteners must be intended for securement of insulation into the cementitious wood fiber deck or into wood blocking that has been separately secured into the deck and be approved for use by the membrane system manufacturer. Fastener shall be of sufficient length to penetrate through the required layers of insulation/coverboard and into the top of the deck (or wood blocking if insulation thickness exceeds typical fastener lengths) a minimum of 1.5" unless otherwise required by the fastener manufacturer. Pre-drilling shall be performed if required by the fastener manufacturer for proper installation of the fastener into the deck. Pull out testing of the fastener into the deck will be required for final confirmation of fastener spacing and pattern.
- E. Adhesive for Insulation Attachment: Provide low-rise polyurethane adhesive specifically designed for bonding specified insulation to the vapor barrier, insulation to insulation, and coverboard to the insulation. Exact installation will be dependent upon securement method selected. Adhesive shall be pre-approved by the roof system manufacturer for use with the proposed system, insulation, and membrane. Adhesion testing will be required.

## 2.04 ROOF MEMBRANE AND ACCESSORIES

- A. Membrane: 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 adhered applications. Membrane color will be confirmed during the pre-job submittal process. For the purpose of bidding, it is anticipated that the color selected will be a standard color such as white or off-white.
1. Acceptable manufacturers and products include:
    - a. Sarnafil (G410), 60 MIL minimum
    - b. Fibertite (SM), 45 MIL minimum
    - c. Soprema (Sentinel P150), 60 MIL minimum
    - d. IB Roof Systems, 60 MIL minimum

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2. The listed roof membrane manufacturers are provided as examples of manufacturers and products that typically meet the requirements of these specifications. The listed manufacturers are used to denote the quality standard of product desired and are acceptable only if they are able to meet the requirements of the specifications. Requests for substitution of another manufacturer or product must be submitted in writing to the Engineer for approval or disapproval no less than ten (10) days prior to the bid date. 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 in accordance with Section 016000.
3. The membrane properties shall meet or exceed the following minimum values:

**PVC**

a.	Breaking Strength	ASTM D751(Grab Method)	438x390
	Tensile Strength	ASTM D638	1600 psi
b.	Elongation at break	ASTM D751(Grab Method)	31%
		ASTM D638	150%
c.	Linear Dimensional Stability	ASTM D1204	.2%
d.	Tear Strength	ASTM D751	132x163 lbf
e.	Tear Resistance	ASTM D 1004	14 lbf
f.	Weight Change after immersion in water, % per		2.6
	ASTM D570		
g.	Static Puncture Resistance	ASTM D5602	33 lbf
h.	Dynamic Puncture Resistance, 7.3 ft-lbf per	D5635	Pass

**KEE**

a.	Thickness over Scrim		.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	99 lbf

- B. Membrane and Flashing Adhesives: Shall be solvent based adhesives as provided by the manufacturer unless otherwise requested and approved by the Designer.
- C. Use membrane sheet flashing materials, membrane and flashing adhesives, fasteners, plates, pre-molded pipe vent flashings, foam rods, metal termination bars, pre-fabricated inside and outside corners, sealants, mastics, solvents, hot-air welding equipment, separation sheets/tape and other materials specifically recommended/required by the membrane manufacturer and intended for use with the membrane specified, existing substrate conditions observed, and application methods specified. Minimum thickness of flashings shall match that of the specified membrane to which it will be applied (Refer to Paragraph 2.03 A.1). Products shall be approved for inclusion in the specified membrane manufacturer's warranty. ***Exposed flashings, sealants, and other products provided must match the color of the adjacent roof membrane on which they will be installed.***
- D. Clad-metal Flashings will be used on this project and are specified in Section 076200. Clad-metal must be provided by the membrane manufacturer warranting the overall system.

## 2.05 ADDITIONAL ROOF ACCESSORIES

- A. Walk Tread: Use manufacturer-provided slip-resistant walk tread in yellow or gray. Walk treads must be capable of being hot-air welded to the roof membrane. Minimum width of walk tread shall be 30". Walk tread material must be capable of being cut to size to accommodate existing roof conditions. The Owner may request additional walktread as part of estimated quantity work.
- B. Sealants (Exposed): For exposed sealants at locations not specifically provided or recommended by the roof system manufacturer.
- C. 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).
- D. Primer: Primers for masonry/coping, plywood, wood blocking, 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.
- E. Compressible Insulation and Sleeve (at Expansion Joints): Provide preformed unfaced glass fiber batt insulation conforming to the requirements of ASTM C-665 and ASTM E-136, thickness to allow for a snug friction fit, placed in a polyethylene sleeve, min. 6 mil thickness.
- F. Stainless steel clamp (at penetrations): Provide a min. 1/2" wide stainless steel plumbers clamp.
- G. Provide membrane clad-metal perimeter flashings, pre-finished sheetmetal flashings, trim, and counterflashings in accordance with Section 076200.
- H. Refer to Sections 077200 and 221423 for additional roof accessories. 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. Where thermal barrier will be installed over the cementitious wood fiber roof deck, perform pull fastener testing prior to beginning roof removal to test suitability of the planned fastener. A minimum of 5 tests per roof area are required unless otherwise agreed upon with the Designer.
- B. Where insulation and coverboard will be secured to the deck with adhesives, perform adhesion testing prior to the beginning of roof removal to test the suitability of the planned adhesive with the vapor barrier and the new vapor barrier with the existing deck/vapor barrier. Perform a minimum of 2 tests in the field and 2 within the perimeters. Perform additional testing if results contain significant variation unless otherwise recommended by the adhesive manufacturer. 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

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beginning installation of the insulation system and may allow for a reduction in the specified fastening spacing and patterns.

- C. Remove the existing roof system membrane and insulation, flashings, 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. If any fasteners into the deck remain, remove or trim level with the existing deck/vapor barrier to allow for proper installation of the new roof insulation.
- D. Prepare and clean roof substrate in areas to be completed that day in accordance with the roof membrane manufacturer's installation instructions. Remove areas of damaged or delaminated vapor barrier that would be inadequate for use as a substrate for the new roof installation. Inspect the substrate and note any damages or deterioration that may affect the proper installation of the new roof system. Roof application shall not proceed until the surface is sufficiently intact to receive roofing system.
- E. Metal Deck Restoration: Vacuum the flutes of the metal roof deck to remove loose debris and allow for inspection of the deck surface. Inspect the existing corrugated metal deck and identify areas with surface corrosion. Clean the surface of the corrosion with a wire brush to remove loose material and apply repair coating over surface corrosion. If pitting, holes, or other more severe damage to the deck is observed, notify the Designer to allow for review and alternate repair method.
- F. Metal Deck Replacement: Notify Designer of any areas requiring replacement. Deteriorated or damaged areas greater than 12" but less than 24" square or diameter shall be repaired with decking. Decking shall be sized to extend a minimum of 12" on all sides beyond the size of the deficient area. Nest new deck and secure to existing deck with fasteners, minimum 3 per side equally spaced and one in each flute.
- G. Metal Deck Replacement (Larger Areas): Notify Designer of any areas requiring replacement. Deteriorated or damaged areas greater than 24" square or diameter shall be repaired with metal deck. Replacement deck shall extend a minimum of three spans. Permanently anchor units to joist and fasten side laps by the end of each working day. At a minimum, fasten every other rib at all supports in the field and 12" o.c. along laps. At a minimum, fasten every rib at all supports and 6" o.c. along laps at perimeters and corners.
- H. Cementitious Wood Fiber Deck Repair: Inspect the existing deck and repair where substrate is wet, damaged, or deteriorated to the degree where covering with a mechanically-fastened thermal barrier will not be able to be properly performed:
  - 1. Deflections or irregularities that may affect proper roof system installation and will require repair include, but are not limited to: cracks and/or camber differentials greater than 3/16 inch, surface spalling or deterioration of a depth of more than 1/2" or over an area with both dimensions of greater than 60", and other surface irregularities that would create large voids or irregularities beneath the new thermal barrier.
  - 2. Remove wet or loose materials from the deteriorated/damaged area and repair defects and irregularities by using an appropriate repair fill. Perform surface preparations and repairs

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in accordance with the fill manufacturer's installation instructions. Feather the fill along edges to allow for a smooth transition with adjacent sound material.

3. If a repair area falls within a perimeter or corner area, as defined on the drawings, and covers an area of more than 5'x5', notify the Engineer to allow for review regarding potential supplemental fastening.
  4. If material must be removed to greater than a 1.0" depth and area is larger than 12"x12", the deck must be replaced to full depth unless otherwise agreed upon with the Designer.
  5. Roof application shall not proceed until the surface is sufficiently intact to receive roofing system.
- 
- I. Inspect drain bowls, clamping rings, and strainers and replace components that are significantly deteriorated or damaged. Adjust secondary drains so they will match the height of the new insulation (no sumping or shaving the insulation at the secondary drains).
  - J. Prepare vertical surfaces and other components that must be in place prior to insulation installation. Verify that elements penetrating the roof area solidly set and do not have visible damage. Raise all curbs and other penetrations to provide adequate vertical flashing heights.
  - K. Replace wood blocking and plywood at locations where existing materials are damaged, deteriorated, or do not meet the specified requirements in accordance with Section 061140. Install new wood blocking and plywood to raise existing equipment curbs, skylights.
  - L. 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.

### 3.02 BASE SHEET/THERMAL BARRIER AND VAPOR BARRIER INSTALLATION

- A. Thermal Barrier: Place the thermal barrier over the roof deck.
  1. The long dimension of boards shall be installed perpendicular to the planned layout of the membrane seams. Stagger end joints of adjacent boards a minimum of 24".
  2. Mechanically fasten the thermal barrier into the deck at a minimum rate of 16 fasteners per 4'x8' board in the field; 24 fasteners per 4'x8' board at the perimeter; and 32 fasteners per 4'x8' board in the corners.
  3. Fasteners shall be positioned no closer than 6" from the perimeter of the board for a 4'x8' board and no closer than 12" from the perimeter for a 4'x4' board, and shall follow insulation manufacturer's fastener patterns.
  4. Fasteners shall be installed as recommended by the manufacturer. Do not under drive or overdrive fasteners, avoid cupping of plates. Pre-drill if required for proper installation of the fasteners and plates.
- B. Priming: If recommended by the membrane manufacturer, prime fastener plates, wood, masonry, or other substrate surfaces with a uniform coating of the specified primer.
- C. Vapor Barrier/Temporary Roof Membrane: Installation: Roll out the vapor barrier membrane and allow to relax a minimum of 15 minutes prior to installation. Center base ply over drains or along the eave. Apply vapor barrier free of wrinkles, creases or fishmouths. Remove backing to allow membrane to adhere over the thermal barrier surface. Utilize a 100-pound roller to exert sufficient

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pressure on the roll during application to ensure prevention of air pockets and to seal laps. Utilize a minimum 3" side and 6" end laps. End laps shall be staggered a minimum of 12". Laps and leading edges shall be thoroughly examined for quality of adhesion. Prior to the end of each day's work, all laps should be checked and mastic applied at laps and penetrations as required by the manufacturer. Turn the vapor barrier up the vertical surface of penetrations a minimum of 2" and up and over the perimeter wood blocking to maintain a watertight condition.

- D. The installed vapor barrier may be used as a temporary roof system until installation of the completed new roof system. The Contractor may not have an exposed vapor barrier/temporary membrane on areas larger than one area and one-half of the adjacent area. The Contractor remains responsible for adequate temporary drainage and overall watertightness of the temporary roof membrane until installation of the completed new system occurs. Drain clamping rings and strainers must be reinstalled as a part of the temporary roof system to promote watertight temporary detailing at internal drains. Temporary retrofit roof drains may also be utilized as an alternate method. The vapor barrier may remain exposed prior to insulation installation no more than 21 days without inspection and approval from the material manufacturer.

### 3.03 INSULATION AND COVER BOARD 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. Adhered insulation and coverboard:
1. Stagger end joints of the coverboard a minimum of 24" from the insulation joints below and provide a maximum insulation and coverboard size to 4'x4'.
  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.
  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).
- C. 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. Cut holes in the insulation for round penetrations (do not install pieces). 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".

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- D. Stagger board joints a minimum of 24" throughout each layer and between layers.
- E. Tapered insulation including crickets, saddles, and drain sumps are shown on the drawings and should be provided to promote positive drainage. 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. Cover tapered insulation with specified coverboard.

### 3.04 MEMBRANE SYSTEM INSTALLATION

- A. Verify that coverboard surfaces to receive membrane are smooth, clean, dry and free from debris, projections, holes, etc. which may adversely affect the membrane application. Transitions between tapered insulation and crickets must have tapered edge strips to prevent bridging of membrane. Fill any voids with polyurethane foam adhesive and score smooth with the board surface.
- B. Position single-ply membrane over roof area without stretching. Allow membrane to relax prior to any fastening, adhering, or seaming. Shingle all laps in the direction of water flow with proper positioning of selvage (non-felt) edges, starting at the drain or low point and working upslope. Stagger the factory end seams to prevent adjacent end lap welds from falling on top of one another.
- C. Fully-Adhered Installation: Position the membrane to prepare for installation in the adhesive. Pre-cut/prepare membrane around penetrations, edges, etc. to avoid delay in placement or movement of membrane after placement in adhesive. Protect the membrane selvage edges to prevent contamination with adhesive. Apply the low-rise adhesive directly to the substrate in 3/4" wide wet beads using a ribbon pattern. Ribbon spacing shall be 12" maximum spacing in the field of the roof, 6" 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. (If manufacturer will only allow a "spatter pattern" for adhesive application, notify the Designer and apply adhesive in strict accordance with the manufacturer requirements for field, perimeter, and corners of the roof.) Allow the adhesive to begin rising and place the membrane into the adhesive before it has skinned over. Place membrane onto the substrate surface avoiding wrinkles and air pockets. Roll the membrane into the adhesive with a minimum 100 lb steel roller to ensure full contact between the membrane, adhesive and substrate.
  - 1. Adhesive is to be applied in accordance with the roof system manufacturer's requirements. The amount of membrane and substrate that can be properly adhered at one time must be determined by substrate, temperature, and number of workers available. Only apply adhesives to areas which can be completely covered with membrane within the same workday.
  - 2. For adjacent membrane rolls, provide a minimum 3-inch lap, maximum 6" lap, at subsequent, adjacent rolls of membrane. Do not allow adhesive to get onto the lap "seam" areas of the membrane that will be hot-air welded.
  - 3. Store and apply products at temperatures recommended by the manufacturer. Provide a hot box or heated storage if product must be stored or conditioned to a particular temperature prior to application.

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- D. Secure the perimeter of the membrane and around penetrations to the deck with a minimum of one plate and fastener.
- E. Once the membrane has been adhered to the substrate, clean the area of the two membrane sheets to be seamed with approved seam cleaner in accordance with the manufacturer's instructions. Allow cleaning solvents to fully dissipate and the seams to dry prior to initiating any field welding.
- F. Hot-air weld membrane seam using an automatic hot air welder to provide a continuous, homogeneous weld, a minimum of 1.5-inches in width; handheld welders to be used for small areas and repairs only with a minimum of 2-inch width heat-weld. 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.**
- G. Once seam area has cured, probe the entire length of lap edge with an approved seam-probing tool for voids or seam deficiencies. Repair deficiencies same day seam is probed. 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.
- H. For the new roof system, the wind uplift resistance of the system must meet, at minimum, the requirements of the NC State Building Code and edition of ASCE-7 referenced by the current building code version. The building is not insured by Factory Mutual. Submittals must include specific information from the manufacturer on perimeter and corner fastening enhancement. Widths of perimeter and corner zones must meet requirements of the building code. 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 in association with supplemental perimeter and corner attachment and shall include these work items within their bid.

### 3.05 FLASHINGS

- A. Install flashing membrane where shown on the drawing to provide watertight transitions at perimeter details, transitions, and at items penetrating 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. Secure the membrane at the base of expansion joints, wall transitions, curbs, etc. 8" on center, unless otherwise noted on the detail drawings or specified by the membrane manufacturer. Securement of the membrane perimeter to the deck is also acceptable.

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- D. Install “T” patches at all intersections. Install patches at all automatic welder “starts” and “stops” (locations should be marked as seaming is being performed).
- E. Clean all pipes, curbs, walls, and other existing substrates to remove debris and previous materials prior to installation of new flashings. Install new plywood and blocking where shown on the design details.
- 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 must either make modifications to the existing penetration to allow for proper vertical flashing height or shall obtain written approval of the variance from the manufacturer for review by the Engineer.
- 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.

### 3.06 MEMBRANE PATCHES

- A. Patches shall not be less than 6 inches by 6 inches. Patches shall be centered over damaged area and extend a minimum of 6 inches 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, at weld test cuts, and at welder starts and stops, the number of allowable patches due to weld issues or membrane damages shall be limited to 10 per 1,000 square feet on the main roof areas. If the number of patches exceeds this amount, the Owner or Designer will review the installation and the cause for patches and may require that the affected roof section be replaced in its entirety.

### 3.07 PIPE FLASHING

- A. Form and install new pipe flashing, vent pipe flashing, etc. in accordance with the detail drawings. Pre-fabricated boots for pipe penetrations, as supplied by the roof membrane manufacturer, shall be the preferred flashing and shall be used when possible for vent pipe flashing. When a boot installation is not feasible, field wrap the pipe penetration in accordance with the manufacturer's requirements.
- B. Flanges of pipe flashings shall be a minimum of 4 inches in width and shall be fully heat welded to the membrane. Provide securement of the membrane to the deck around pipe penetrations if/as required by the membrane manufacturer. Provide required separation tape, sealants, and other accessories for proper detail installation.
- C. For hot pipe/high-temperature penetration flashings, if applicable: If an existing sleeve is available and provides as acceptable substrate for the new flashing, it may be reused. If an adequate sleeve is not available, install a new metal sleeve as shown on the detail drawings.

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### 3.08 INSTALLATION OF ROOF ACCESSORIES

- A. Walk Tread: Place walk tread where shown on the roof plan. Determine location/path of additional walk tread in advance (Owner may determine path of additional walk tread as part of estimated quantity of work. 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.
- B. Sealants and Primers: Install gunnable and tape sealants, primers, and other accessory items in accordance with the recommendations of the warranting manufacturer.
- C. Install perimeter metal, membrane-clad metal, trim, and counterflashings in accordance with Section 076200.
- D. Install other roof system accessories as shown on the detail drawings or required by the membrane manufacturer in accordance with the manufacturer's instructions.

### 3.09 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 two 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.

### 3.10 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. Cut back a sacrificial section of membrane and

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insulation adjacent to and contaminated by the water-cut-off and dispose of off-site. Layout of insulation boards at nightly tie-ins must be planned to allow for staggering of the insulation boards across these joints.

- 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 over new membrane installations, provide minimum 1" thick rigid insulation board and ¾" thick plywood walkways to protect the new roof system.

### 3.11 TEMPORARY WATER CUT OFFS AND WATERTIGHTNESS 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 toothed installation of new insulation to prevent an in-line vertical gap at cut-off locations.
- B. The Contractor shall provide the on-site labor necessary to 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.
- C. 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.
- D. 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.
- E. 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.

- F. The Contractor may, at his option, provide after hours protection of interior materials (computers, books, etc.) 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 Facilities Management. 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.

### 3.12 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 075600

### FLUID APPLIED MEMBRANE

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Provide labor, materials, equipment, and supervision necessary for the preparation of surfaces, membrane distress repairs, and application of primer and urethane roof coating, in accordance with manufacturer's written instructions, and as required for coating the EPDM roof on Roof Areas C6, C7, and C9.
- B. Perform an infrared survey to identify any anomalies indicating suspected wet insulation and replace wet insulation prior to installation of the coating. Allowances for unit rate work in replacing wet insulation shall be in accordance with Section 012100. Insulation materials should be in accordance with the materials specified in Section 075400. Coordinate scheduling of the infrared survey with the Designer and the Owner's representative.

##### 1.02 QUALITY ASSURANCE

- A. Use adequate number of skilled workmen who are trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for proper performance of the work required by these specifications.
- B. The Manufacturer must perform a pre-installation inspection to confirm preparation of the surfaces, conditions requiring repair, repair methods required, and to complete adhesion testing.

##### 1.03 SUBMITTALS

- A. Submit manufacturer's technical information, including but not limited to, specifications for products used including surface preparation and installation instructions.
- B. Submit color samples illustrating range of colors available for each surface at exposed locations for Owner selection of color.

##### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in original, new, and unopened packages and in containers bearing coating manufacturer's name and label.
- B. Delivery, storage, and handling shall be in accordance with Section 016000.

##### 1.05 ENVIRONMENTAL REQUIREMENTS

- A. Do not proceed with exterior work on unprotected surfaces if it is raining or moisture from other sources is present or expected before applied materials can dry or attain proper cure. Allow surfaces wetted by rain or other moisture to dry and to attain temperatures and conditions specified before proceeding or continuing with coating applications.

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- B. Except as noted, do not proceed with application when temperatures on the surface or of the air in the vicinity of the painting work are below 50°F or below temperatures recommended by the manufacturer for the material type used.
- C. Should temporary heat be required for exterior work, maintain temporary heat to achieve temperatures above the specified minimum for 24 hours before and after coating application.

## 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. Provide the coating manufacturer's twenty-year (20) non-prorated, full system warranty covering labor, materials, and workmanship of the coating system against leakage and material defects. The warranty will extend for a period of twenty (20) years from the date of Substantial Completion.
  - 1. The manufacturer's warranty shall not require the signature of the Owner's representative to be valid.
  - 2. 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 contractor is solely responsible for scheduling site visits by the 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 Designer for review.
- C. Manufacturer and Contractor warranties shall also state that the Owner has the right, at any time during the warranty period, to make emergency roofing repairs to protect the contents of the building or the building itself from damage due to leaking. Emergency repairs by the Owner shall be made in accordance with roofing industry standards for temporary repair but will not absolve the Owner of contacting the warranting Contractor or Manufacturer as required. If emergency repairs will not be allowed, the warranting entity must provide emergency response within the initial 12 hours for the Contractor Warranty and within 24 hours for the Manufacturer warranty following notification.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Coating: Shall be a high performing silicone roof coating elastic, one component able to be applied over an existing EPDM membrane following requirements:

#### Single Component System

Elongation	ASTM D-2730	300%
Tearing Strength	ASTM D-624	32 lbf/in
Tensile Strength	ASTM D2370	200 psi

075600.2

Durometer Hardness Shore A	ASTM D2240	36
Approved Manufacturers:	GE – Enduris 3500	
	Inland Coatings – RC-1800	
	Polysil 2500 High Solids	

Color to be selected by Owner. Color may be special order. The contractor is responsible for confirming compatibility, performing adhesion testing, and reviewing existing roof areas to be coated with the coating manufacturer in advance of bidding.

- B. Reinforcement: Shall be provided by the manufacturer to meet the specified warranty requirements.
- C. Primer: Shall be provided by the manufacturer.
- D. Cleaner/Degreaser: As recommended by manufacturer. Must be environmentally friendly or must be reclaimed.
- E. Sealant: As provided by the manufacturer.
- F. EPDM Repair: Use materials provided by the membrane manufacturer and make repairs in accordance with the manufacturer's requirements

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Examine and field measure areas and conditions under which the work is to be installed.
- B. Perform a minimum of 2 adhesion tests on each area to be coated prior to starting work.
- C. Mask or otherwise protect surfaces not to be coated.
- D. Beginning of work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.
- E. Coordinate performance of the infrared survey with the Designer (Designer to perform infrared and mark anomalies). Areas of wet insulation must be removed by making a three-sided cut in the roof membrane to expose wet insulation, removing wet insulation and replacing with new insulation, replacing the roof membrane and mechanically-securing to the roof deck and repairing the cut with a layer of self-adhered flashing tape (Eternabond) and a three-course repair of liquid flashing, reinforcing fabric, and liquid flashing.

### 3.02 SURFACE PREPARATION

- A. The surface of the roof shall be pressure washed at the lowest pressure recommended by the manufacturer. Do not damage the roof membrane.
- B. Make repairs to the membrane and insulation to receive new coating system in accordance with the manufacturers repair procedures.

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- C. When possible, remove coping caps and curb caps and seal walls/curbs below with liquid flashing before reinstalling.
- D. Seal curbs, gaps, flashings, angle changes, and penetrations with minimum 40-mils of liquid applied flashing or seam sealant.
- E. Verify that surfaces are ready to receive coating materials as required by the product manufacturer's written instructions, latest edition.
- F. Verify proper substrates for membrane termination. Use tape lines to achieve straight edge details.

### 3.03 PROTECTION

- A. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from damaging other surfaces.
- B. Surfaces damaged by work of this Section shall be restored to the original conditions.
- C. Remove empty containers from site.

### 3.04 APPLICATION

- A. Apply specified primer to metal and masonry surfaces and allow to cure.
- B. For all horizontal-to-vertical transitions, provide a 3/4" x 3/4" sealant cant.
- C. Apply a liquid roofing/waterproofing membrane at all existing laps as required/recommended by the manufacturer. Install reinforcement as required by the manufacturer.
- D. Ensure any reinforcement is not in tension during embedment.
- E. Stir material prior to installation. Install an application of the coating at a minimum rate of 2.5 gallons per 100 square feet with a minimum final cured coating thickness of 36 mil. Coating may be applied by brush or roller. Minimize back rolling. May be applied in one application if allowed by the manufacturer. If multiple coats are applied, wait adequate time between each coating to cure before applying additional coating. Membrane temperature needs to be between 40°F and 120°F.
- F. Install all flashings in accordance with manufacturer's construction details.

### 3.05 CLEANING

- A. As Work proceeds, promptly remove coating where spilled, splashed or spattered.
- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.

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- C. Collect cotton waste, rags, and materials that may constitute a fire hazard, place in ventilated metal containers and remove daily from site.

END OF SECTION 075600

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## SECTION 076200

### FLASHING AND SHEET METAL

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Provide all labor, materials, equipment and supervision necessary for fabrication and installation of metal flashing, perimeter flashing, counterflashings, trim, scupper sleeves, faceplates, and accessories, as specified herein and as required by detail drawings.
- B. Coordinate work of this section with work of Sections 024110, 061140, 074100, 075400, and 075600.

##### 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 manufacture 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 or pre-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 of 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/sheetmetal 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.

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### 1.03 SUBMITTALS

- A. Submit product data, installation instructions, sample warranties, and SDS sheets for sheetmetal components to be installed.
  - 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. Submit color sample chart for pre-finished materials. Color sample chips may be requested to aid in final selection of color(s).
- C. Submit shop drawings clearly detailing shaping, jointing, length of sections, fastener type and spacing, gauge of materials, and installation details. This information may be incorporated into the overall roof system shop drawings.
- 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 edge metal, scuppers/faceplates, counterflashings, 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.
- 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.

### 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 roofing materials.

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- C. Sheet metal installations shall be scheduled such that roofing terminations will not be left unprotected longer than necessary.

## 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-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 Sheet Metal (Exposed Metal, Gutters, and Downspouts): Provide 24 gauge G-90 galvanized steel or galvalume, pre-finished in accordance 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 mil; bottom side shall be coated with a primer 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 2244 and ASTM D 659. Colors shall be selected by the Owner from the manufacturer's standard colors. The selection of up to three different colors shall be included within the Base Bid.
- B. Gutter Support Straps/Spacers: Shall be 3/16 inch x 1 inch, Type 304 stainless steel conforming to the requirements of ASTM BA480. Brackets shall be formed to match profile of gutter and shall have predrilled countersunk holes for flathead screws; two holes minimum per bracket. Neatly wrap bracket in pre-finished galvanized sheet metal (galvalume at standing seam metal system) to fully match color of the gutter. Joint in the bracket wrap must occur where non-visible. Gutter spacers shall be the same material, 1/16 inch x 1 inch in size but will not require wrapping in pre-finished metal.
- C. Membrane -Clad Metal (Overflow scupper sleeves, Raised Edge Cleat, Drip Edge): Provide 24-gauge **aluminum** substrate, coated/laminated with the membrane manufacturer's approved membrane material, 20 mil minimum thickness. Color to be selected from the membrane manufacturer's standard colors. 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.
- D. Stainless Steel (Masonry Wall Receivers and other locations marked on the drawings): Shall be type 316 stainless steel, cold rolled, annealed, with a 2B finish and conforming to the requirements of ASTM A480 and Federal Specification QQ-S-766C.

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- E. Cleats: Material to match associated flashing, one gauge larger/heavier than the material being cleated, unless otherwise noted.
- 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.

## 2.02 FASTENERS AND ACCESSORIES

- A. Metal-to-metal fasteners: Where not specifically provided as a part of the manufacturer assembly/system, provide self-tapping, self-drilling, no. 12 sheet metal screws. Use stainless steel fasteners. Provide EPDM washers with exposed fasteners and coat fasteners to match color of adjacent metal flashing. Fastener spacing: maximum 6" o.c. unless otherwise noted on drawings.
- B. Metal to wood: No. 10, stainless steel wood screws where not exposed. Minimum embedment shall be 1 1/2". Where exposed, screws must be stainless steel and have an EPDM washer. Fastener spacing: maximum 6" o.c. unless otherwise noted on drawings.
- C. Metal to masonry or concrete: Use 1/4" diameter stainless steel masonry anchors, Rawl "Tapcon" or approved substitute where not exposed. Do not use drive-pin or powder-actuated fasteners unless specifically approved by the Designer to allow for consideration of potential damage to substrates. Minimum embedment shall be 1". Where exposed, fasteners must be stainless steel and have EPDM washers. Exposed fasteners must be coated to match color of adjacent metal flashing. Fastener spacing: maximum 12" on center unless otherwise noted on drawings.
- D. Pop Rivets (Stainless Steel): Shall be minimum 3/16" diameter with stainless steel mandrels and washers. Where exposed, pre-finish rivets to match adjacent flashing material.
- E. Pipe Clamps: Shall be stainless steel.
- F. 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.
- G. Gunnable Sealant: For sealant in contact with metal, provide gun-grade butyl (concealed) or polyurethane-based sealants (exposed), colors to be selected based on location of use to match the flashing being sealed.
- H. Provide other flashing components and fasteners not specifically described, but required for a complete and proper installation of the work and subject to the approval of the Engineer and/or the Owner's representative.

## PART 3 EXECUTION

### 3.01 FABRICATION

- A. General: Fabricate sheet metal copings and flashings to comply with design details shown and general recommendations as provided in the latest editions of SMACNA.
- B. Form flashings to provide weathertight or watertight installations as specified. Allow for proper expansion and contraction. No exposed fasteners will be allowed unless specifically shown on the detail drawings.
- C. Confirm compatibility of flashing materials with those that will be flashed and in direct contact with such materials. Prevent contact between dissimilar metals to prevent galvanic action. If contact cannot be avoided, use preventive measures to provide adequate separation.
- D. Form flashings to profiles shown on approved shop drawing details. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance and performance.
- E. Form sections in maximum ten-foot lengths. Hem exposed edges of flashings 1/2" on underside. Fabricate corners so that joints near roof perimeter corners are at least 18 inches away from corner.
- F. At locations where new sheet metal sections abut walls or terminate, the metal flashing shall be fabricated to terminate with end sections of one-piece construction.

### 3.02 INSPECTION AND SURFACE PREPARATION

- A. Inspect parapet walls, perimeter blocking, curbed units, and other penetrations/surfaces to receive flashing, coping, or trim to ensure complete installation, proper securement, and that they are free of loose debris and excess sealant.
- B. Confirm that proper installation of thermoplastic membrane/flashings, in accordance with Section 075400 have been completed prior to installation of metal flashings.
- C. Where practical, address damages or other conditions that would negatively impact the sheetmetal flashing installation. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.03 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. All exposed edges of sheet metal shall be folded back, or "hemmed" 1/2", on concealed surfaces. Do not allow cut/sharp edge of flashings to come into direct contact with the membrane flashing in a manner that could cause damage.

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- 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.
- 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.
- F. Sheetmetal corners must be cleanly mitered (not bent around corner) so they fit tightly along face and hem. Do not split the hem at the corner – cut a miter in the hem also. Properly tab the sheetmetal to allow for securement. Use of sealant along cut edges or at corners/transitions is acceptable if it is minimal and neatly applied. Sealant should not be used to hide/cover poor workmanship.

#### 3.04 CLAD-METAL EDGE INSTALLATION (RAISED CLEAT AND DRIP EDGE)

- A. Install the clad-metal components in accordance with these specifications and the installation requirements of the membrane manufacturer. Clad-metal should be installed over membrane that turns the corner down the exterior face of the assembly.
- B. Where shown on the drawings, secure the flanges of edge metal with appropriate fasteners at a maximum of 3" o.c.. Fasteners shall be staggered in two rows with the first row positioned one inch from the leading edge of the flange; the second row shall be positioned one inch from the first row. Where clad-metal will be covered with a pre-finished cover flashing, install a fastener in the outside face of the clad-metal at 8" o.c.. Where clad-metal will result in the final flashing, (drip edge at scupper), do not install fasteners in the face.
- C. Leave a space between adjacent sections of clad-metal. Cover joint with aluminum tape and strip-in with a heat welded flashing to ensure watertightness of the clad-metal joint. Strip in the clad-metal flange with thermoplastic flashing heat-welded to the membrane and clad-metal surface. Leave a 1/4" gap between edge metal. Cover gap with aluminum tape if required by the manufacturer and a six-inch wide strip of thermoplastic membrane flashing.
- D. Install cover plate over raised outer leg of edge metal and secured by the edge metal acting as a cleat where shown on the design detail (raised edge detail).

#### 3.05 RECEIVER AND COUNTERFLASHING INSTALLATION

- A. The bottom of the counterflashing shall extend below the termination bar a minimum of 3", but shall in no case touch the surface of the roof membrane. If vertical flashing terminates, extend counterflashing 6" along wall or around corners as needed to properly cover termination flashings, unless otherwise agreed upon.
- B. Where shown on the design details, cut a new reglet in an existing mortar joint. Form and install new receiver into the reglet and secure with lead wedges at 24" o.c. and continuous sealant.
- C. Secure counterflashings to new cut reglet receivers, curbed penetrations, or at other locations as shown on the drawings.

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- D. Lap counterflashing joints a minimum of 3"; stagger joints in clamping/termination bar from counterflashing joint by 3' minimum.
- E. Apply sealant between flat surface of counterflashing and receivers, walls, curbs, etc. prior to securing.
- F. Provide metal closures at ends of receivers and counterflashing. Miter/lap corners so that counterflashing meets tightly at each corner and edge/end is not split.

### 3.05 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.
- C. Furnish gutter support brackets and spacers, spaced as shown on the details. Secure brackets to the substrate with screws; 2 screws per bracket minimum. Gutter shall be hung to prevent standing water and shall firmly fit with each bracket; adjust brackets as necessary. Gutter brackets are spaced beneath the gutter at 36" on center and separate gutter spacers staggered at 36" o.c.
- D. 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".
- E. 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.

### 3.06 CLEAN-UP

- A. Excess sealant, adhesives, and/or other materials must be cleaned from the sheetmetal surfaces.
- B. All handprints, smudges and other superficial stains that were placed on the sheet metal during fabrication and installation shall be removed.
- C. All factory-applied protective plastic films shall be removed.
- D. All abrasions, scratches, scrapes, etc. shall be touched up with paint furnished by the sheet metal manufacturer.

### 3.07 FIELD QUALITY CONTROL

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- 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 sheet metal components, avoidance of oil canning and irregularities in the metal finish, proper metal termination and securement.
- B. Do not install or force fit metal flashing components that do not fit properly due to errors during field measurement and fabrication. Oil canning of sheetmetal surfaces due to fabrication and/or installation may be considered cause for rejection.
- C. Correct defects and irregularities observed by Engineer or Owner's representative.
- D. Contractor shall plan sequence of work to prevent damages to the sheetmetal installations. Protect pre-finished flashings from exposure to mortar, concrete, and other cementitious materials.
- E. Abrasions, scratches, scrapes, etc. in pre-finished metals shall be touched up with paint furnished by the sheet metal manufacturer. Physical damage to flashings may result in rejection by the Designer, and require removal and replacement. 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.

### 3.08 JOB AND WEATHER CONDITIONS

- A. Suspend all application and installation activities during inclement weather.
- B. Protect adjacent building surfaces against damage.
- C. Remove debris from roof and site on a daily basis and dispose at an approved disposal site.
- D. Do not permit traffic over completed roof surfaces.

END OF SECTION 076200

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## SECTION 077200

### ROOF ACCESSORIES

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Provide all labor, materials, equipment and supervision necessary for the design, fabrication and installation of accessories as specified herein and as required to provide properly functioning and watertight details as shown on the drawings and specified in this section.
- B. Provide labor, equipment, materials, services, and supervision necessary to design, furnish, and install roof-mounted fall arrest anchor and cable systems for Roof Area A1 as shown on the drawings. Fall protection systems installed must provide safe execution of rooftop maintenance operations. After installation, each anchor must be tested and documented to meet OSHA Regulations 29 CFR 1926.502 and 29 CFR 1910.66, and ANSI/ASSE Z359.7-2011. Documented test results must be provided to the Owner and/or Owners representative.
  - 1. Coordinate structural framing locations with the new roof system to properly located fall protection anchors. At anchor locations, remove associated existing roofing materials (or new vapor barrier depending on work sequence) down to the deck, and cut through the cementitious wood fiber deck to expose the roof structure for securement of anchor post/plate. Anchor type may be a beam wrap anchor or may be mechanically secured to the structure. Refer to design drawings for design intent and general location.
  - 2. Horizontal lifeline systems will be provided; the system must provide simultaneous fall protection for a minimum of two workers.
  - 3. Cuts in the roof deck must be made as small as possible to allow for installation of the fall protection anchor. Following installation of the anchor, infill the cut opening with rigid insulation board and cementitious wood fiber board to match the thickness of the deck and cover with a metal closure plate.
  - 4. Installation and testing of new fall protection anchors must occur prior to installation of the new roof insulation and membrane. Install of horizontal lifelines and associated connections to tops of anchor posts should be performed once installation of new roof system membrane and flashings are complete.
  - 5. Install new roof flashings and sealants around anchor posts in accordance with the specifications and manufacturer's requirements. Building roof and interior spaces must always be kept in a watertight condition during construction.
  - 6. Provide and install other accessory or incidental components and make minor modifications to roof features/items not specifically listed but required for the complete and proper installation of the new anchors/horizontal lifeline fall protection system.
  - 7. It is the responsibility of the Contractor to examine the product specifications and the site, and become familiar with and verify the existing conditions, specified intent, and other conditions necessary for an accurate proposal and execution of the work.

##### 1.02 QUALITY ASSURANCE

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- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- B. Fall protection system manufacturer to have minimum 5 years documented experience in the design and fabrication of specific fall protection system types to be installed.
- C. Fall protection system installer, if not the manufacturer, must have a minimum of 5 years documented experience in the installation of rooftop and wall mounted fall protection anchorage systems.
- D. Welders involved in the installation of fall protection anchors must be certified in accordance with AWS D1.1. If field welds are required for installation, welds must be visually inspected by a Certified Welding Inspector (CWI) in accordance with AWS. A copy of the inspection report must be provided to the Designer. The cost of the welding inspection will be borne by the Contractor.
- E. Work must be performed by a fall protection installer that is acceptable to the Owner to perform work at their facilities. List the fall protection subcontractor anticipated for use on the Form of Proposal in the area provided.

#### 1.03 SUBMITTALS

- A. Drain Strainer
  - 1. Submit product data, material descriptions, dimensions, profiles, and finishes.
  - 2. Provide shop drawings coordinating the location of components. The Contractor shall verify existing field conditions.
- B. Clamping Rings – Bolted and Sergeant Clamps
  - 1. Submit product data, material descriptions, dimensions, profiles, and finishes.
  - 2. Provide shop drawings coordinating the location of components. The Contractor shall verify existing field conditions.
- C. Fall Protection System – Anchors and Horizontal Lifeline
  - 1. Prior to starting work, submit manufacturer's written product data, specifications, including load ratings, agency approvals, and installation instructions for materials and products to be installed to confirm conformance with project requirements. Submit to the Owner or Engineer for approval unless otherwise notified.
  - 2. Submit shop drawings sealed by a North Carolina registered professional engineer showing fall protection system design including: a layout drawing showing location and spacing of roof anchors and horizontal lifeline system, drawings of fall protection system components showing attachment to structure and anchor post flashing, details of concrete deck or other substructure, materials grades and part count/quantities indicated on drawings, and certification that anchor connections to the existing roof structure will not cause overload.
  - 3. Provide letter from the system manufacturer indicating review and approval of the installer's shop drawings (if different from the manufacturer/fabricator), and acceptance of design intent and details if not produced by the manufacturer.
  - 4. Provide letter from the system manufacturer stating intent to issue the specified material warranty. Letter shall be project specific and shall include the type and duration of warranty, any

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- manufacturer's additional requirements, and a sample copy of actual warranty, including materials, workmanship, and weather tightness.
  - 5. Submit welder certificates, if applicable.
  - 6. Upon completion of project, provide Owner with Logbook for mandatory annual inspection, and signed copies of required warranties. Provide Owner with installation load test verification results. Provide signage to be installed at entrance point to roof stating the system load ratings, inspection dates, operating requirements, and warnings. Provide manufacturer's user instructions.
- D. Snowguard
- 1. Submit product data, material descriptions, dimensions, profiles, and finishes.
  - 2. Provide shop drawings coordinating the location of components. The Contractor shall verify existing field conditions.
- E. Skylights
- 1. Submit product data, material descriptions, dimensions, profiles, and finishes.
  - 2. Provide shop drawings coordinating the location of components. The Contractor shall verify existing field conditions.

#### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store products in the manufacturer's unopened packaging until ready for installation. Follow the manufacturer's requirements regarding any storage exposure limits such as temperature or humidity ranges, or ventilation conditions, to prevent damage to components and materials.
- B. Storage and handling shall not protect the component finishes. Confirm that condition of components and finishes are undamaged prior to in-place installation of the materials.

#### 1.05 SCHEDULING

- A. The Contractor shall coordinate with roofing installation to ensure that fall protection anchors, drain components, etc. are present on site and ready for installation.

#### 1.06 WARRANTY

- A. Provide fall protection system manufacturer's standard warranty against defects of materials and workmanship if it extends past the Contractor's Two-Year Warranty. The manufacturer's warranty shall not replace or void the Contractor's Two-Year Warranty for installed work.
- B. Provide a Two (2) year Installer warranty against defects in workmanship, materials, and weather tightness for fall protection work completed as part of this project. Effective date of warranties: Owner's date of final acceptance.

### PART 2 PRODUCTS

#### 2.01 DRAIN STRAINER

- A. New drain strainer shall be metal (no plastic) and be the profile and size to provide the correct fit and match existing. Refer to Section 221423 for additional information regarding roof drains.

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## 2.02 CLAMPING RING

- A. Provide a new clamping ring to match existing drain bowl material, brand, and size. New clamping ring bolts shall be stainless steel. Isolated clamping rings with sergeant clamps are existing on Reid Building. Refer to Section 221423 for additional information regarding roof drains.

## 2.03 FALL PROTECTION SYSTEM – ROOF ANCHORS, CABLES, AND HARDWARE

- A. Roof anchor post: Type 304 stainless steel eye with, hollow type 304 stainless steel post (HSS) with a minimum 1/4" wall thickness, minimum 4" diameter and anticipated 16"-20" height, welded to an approximate 5/8"x18"x18" type 304 stainless steel base plate. Plate size and shape may need to be adjusted in the shop drawings to best fit existing conditions and as required to adequately transfer loads. For anchors that wrap existing structure, provide additional bottom base plates, 5/8" threaded rod/bolt, and associated locking nuts and washers. Provide accessory structural components in accordance with Paragraph B of this section. Access holes are required during fabrication to insulate the anchors with an expandable spray foam insulation to prevent condensation. Access holes should be located through the base plate or low on the post to ensure it will be covered by the new roof insulation and flashing. Exact height of posts must be field verified to accommodate roof system thickness and flashing height. Refer to drawings for specific conditions. Any labeled dimensions of fall protection system components provided above and on the design drawings shall be considered minimum requirements provided to communicate design intent. It is the responsibility of the professional engineer employed by the system manufacturer/installer to determine and select the exact components and sizes required to provide the specified system performance requirements and allow for proper installation and to confirm such information on a set of sealed shop drawings.
- B. Accessory Structural Components: Provide additional steel plates, gussets, web-stiffeners, bolts, distribution beams, neoprene isolation pads, and other accessories required for proper installation of fall protection components. Exact sizes, profiles, and materials shall be as determined by the fall protection system manufacturer/installer on their sealed shop drawings to be necessary to withstand required system loads and transfer them safely to the existing structural member(s).
- C. Lifeline Cable and Accessories: Type 304 stainless steel cable, min. 3/8" (10 mm) diameter or larger as required to meet cable strength, sag, and deflection criteria. Provide stainless steel fittings with swaged ends, energy absorber, double-locking carabiner, end tensioner, intermediate brackets and corner pieces and required for proper system installation.
- D. System Performance Requirements: the new fall arrest anchorage system must conform to the following:
  - 1. OSHA 29 CFR 1926.502 and 29 CFR 1910.23, OSHA 1926.500, Subpart M (Fall Protection).
  - 2. Anchors and cable must be pre-manufactured and must be capable of supporting a working load of 1,800 lbs (minimum) and shall resist without fracture a minimum pullout force of 5,000 lbs. when applied in the most adverse direction.

## 2.04 SNOWGUARD

- A. Refer to Section 074100 for information regarding snowguard products.

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## 2.05 SKYLIGHTS

- A. Skylight Performance Criteria: Skylight must meet the following performance criteria.
  - a. Air Infiltration: Skylight must meet the requirements of ASTM E283 that allows a maximum air infiltration of 0.06 cfm/sq.ft at 6.24 lbf/sq.ft.
  - b. Water Penetration (Static Pressure): Skylight must meet the requirements of ASTM E331 by exhibiting no water leakage when tested at the larger of 6.24 lbf/sq.ft., or 20% of the positive wind load design pressure.
  - c. Water Penetration (Dynamic Pressure): Skylight must meet the requirements of AAMA 501.1 by exhibiting no uncontrolled water leakage when tested at the larger of 12 lbf/sq.ft or 20% of the positive wind load design pressure.
  - d. U-value of the skylight shall be approximately 0.5, but in no case shall exceed the maximum allowed by the current edition of the NC State Building Code.
  - e. Skylight should be load-rated to withstand impact.
- B. Size: Exact skylight size, type, and shape must be field verified with side dimensions to generally match the size of the existing skylight curb.
- C. Frame Material and Finish: Curb mounted frame shall be fabricated from 6063-T5/T6 aluminum extrusion with a minimum thickness of 0.040" with a thermal break to reduce thermal transfer and reduce condensation on interior of frame. Frames should include condensation control to collect and dispose of condensation to the exterior. Connections shall be fully welded to provide a watertight detail. Frame materials shall have the manufacturer's mill finish.
- D. Accessories: Provide gaskets and sealants/tapes as required to form bonds between the curb and inner glazing, inner and outer glazing, and between outer glazing and aluminum curb/frame. Provide fasteners to secure skylight frame components to the field-built curb. Fasteners shall be the same metal as those being fastened, a nonmagnetic stainless steel, or other non-corroding material as recommended by the manufacturer and approved by the Designer.

## PART 3 EXECUTION

### 3.01 DRAIN COMPONENTS – STRAINERS AND CLAMPING RINGS

- A. Refer to Section 221423 for installation guidelines regarding roof drain components.

### 3.02 FALL PROTECTION SYSTEM

- A. Field verify the information provided in the design documents for the roof structure associated with support of the roof anchors. Locate the roof structural members from the interior. Mark locations on roof where new fall protection anchor posts will be installed.
- B. Coordinate with the applicable Roofing Contractor prior to any cutting of the existing roof system or vapor barrier to ensure that proper interior protection and protection of the surrounding roof system have been provided in accordance with Section 024110. Openings made in the roof system will require repair to return the system to a watertight condition prior to the end of the workday or before inclement weather.

077200.5

- C. Install anchors or equipment in accordance with the product manufacturer's printed installation instructions, detailed shop drawings, specifications, and referenced standards.
- D. For anchors secured to existing roof structure: Cut the existing roof deck to expose the existing structural members. Install supplemental strengtheners to the existing structure such as web stiffeners, gusset plates, or distribution beams as applicable. Install anchors and plates neatly and level with threaded bolts with washers, nuts, and other components to provide a snug fit. When bolting, no fewer than two threads shall be exposed and the nut is to be positively locked by deforming threads, welding, pinning or equivalent method. Fully tighten bolts to manufacturer's torque requirements. If field welding will be necessary for installation of components, notify the Designer in advance to determine required submittals for protection of interior spaces, hot work permits, weld inspections, and other safety precautions prior to proceeding with work. Install insulation and gypsum board to match the thickness of the cut formboard and deck and metal closure plates to repair/cover openings in the roof decking and install new anchor flashing. Coordinate with roof installation and repairs to ensure watertight penetration flashings.
- E. Install the cable system and accessories after the installation of the new roof membrane and flashings is complete.
- F. Roof anchors shall be inspected by a qualified testing agency (coordinated and paid for by the Contractor), or by the installer if qualified to do so. Inspection shall include a static load test. Documented test results must be provided to the Designer and Owner's representative.
- G. Static load test shall impose a minimum of 1800 lbs. on termination anchors, and 900 lbs for intermediate anchors. Load shall be applied to eye of anchor in the direction of intended loading. Exact load and test method may be modified if recommended by the anchor manufacturer/supplier. If manufacturer does not have test methods, discuss planned test loads and methods with the Designer to obtain approval.
- H. Testing of the new anchors must be completed prior to or in direct conjunction with installation of the roof system. Anchors that fail during testing must be replaced immediately by the contractor at no cost to the Owner. If additional supplemental framing is required (in excess of that shown on the design details and installer shop drawings) for the anchor to meet testing requirements, provide and install such framing at no cost to the Owner.
- I. Maintain copies of testing procedures and test results for submittal to the Designer prior to final acceptance. Provide all system documentation required for project closeout.

### 3.03 SNOWGUARD

- A. Refer to Section 074100 for installation guidelines regarding snowguard components.

### 3.04 SKYLIGHTS

- A. Refer to manufacturer's requirements for installation of skylight components.

### 3.05 FIELD QUALITY CONTROL

077200.6

- 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 measurements for fabrication, substrate preparation, and installation of accessory components.
- B. Correct defects and irregularities as directed by Designer or Owner's representative.
- C. Contractor shall plan sequence of work to prevent damages to existing materials to remain interior components, or new replacement roof system.

### 3.06 JOB AND WEATHER CONDITIONS

- A. Suspend all application and installation activities during inclement weather.
- B. Protect adjacent building surfaces against damage.
- C. Remove debris from roof and site on a daily basis and dispose at an approved disposal site.
- D. Limit traffic over completed roof surfaces and provide protection from equipment, worker traffic, and materials during installation.

END OF SECTION 077200

077200.7

## SECTION 099113

### PAINTING

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Provide labor, materials, equipment, and supervision necessary for cleaning and painting existing and new components, and other items as shown on the drawings and specified herein.
- B. Scope of work included in this Section is as follows:
  - 1. Clean and coat existing drain components to be reused.
  - 2. Clean and coat other isolated items as noted on the drawings.

##### 1.02 QUALITY ASSURANCE

- A. Qualifications of manufacturer: Products used in this work shall be produced by manufacturers regularly engaged in the manufacture of similar items and with a history of successful production acceptable to the Designer.
- B. In acceptance or rejection of the work of this section, the Owner will make no allowance for lack of skill on the part of the workmen.

##### 1.03 SUBMITTALS

- A. Submit manufacturer's latest literature, SDS sheets, and specifications for products used including surface preparation and installation instructions.
- B. Submit sample samples of paint color(s) for Owner selection of color.

##### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver paint materials and accessories in manufacturer's original protective containers with labels intact and legible. Comply with manufacturer's published instructions for storage and handling.
- B. Store materials in dry protected areas. Store flammable products away from sparks or open flames.
- C. Maintain temperature and humidity ranges required by the manufacturer for each product.

##### 1.05 ENVIRONMENTAL REQUIREMENTS

- A. Do not proceed with installation of coatings when weather conditions (temperature, humidity) are outside the manufacturer's recommended limitations for application.

##### 1.06 WARRANTY

099113.1

- A. Provide the coating manufacturer's standard warranty against defects of materials and workmanship. The manufacturer's warranty shall not replace or void the Contractor's Two-Year Warranty for installed work.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Rust-Inhibitive Primer: Provide a solvent-free, moisture-tolerant product specifically formulated as an anti-corrosion coating, 2 coats, 20 mils total dry film thickness minimum. Provide surface preparation cleaners as recommended by the manufacturer.
- B. Coating for Non-galvanized steel: 2 coats, 2 mils dry film thickness per coat. Provide primers as recommended by the manufacturer. Colors to be approved by the Owner. The manufacturer must offer reasonable ability to match color of existing painted components. Acceptable products and manufacturers include, but are not limited to: 9100 High Performance Epoxy, by RustOleum Corporation; Super Spec HP D.T.M. Acrylic Low Lustre P25, by Benjamin Moore and Co., and Ironclad Latex Low Lustre Metal and Wood Enamel 363, by Benjamin Moore and Co.
- C. Other Substrates: Provide primers and finish coatings as recommended by the coating manufacturer for substrate.

### 2.02 OTHER MATERIALS

- A. Provide other materials such as plastic sheeting, asking tape, brushes, rollers, wire brushes, and other items not specifically described but required for a complete and proper installation, as selected by the Contractor subject to review of the Engineer.

## PART 3 EXECUTION

### 3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

### 3.02 MATERIALS PREPARATION

- A. Mix and prepare materials in accordance with the manufacturer's recommendations. When materials are not in use, store in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.
- B. Stir materials before application, producing a mixture of uniform density.

### 3.03 SURFACE PREPARATION

- A. Perform preparation and cleaning procedures in accordance with the manufacturer's recommendations. Provide protection for adjacent items and finishes that are not receiving coating.

- B. Wire brush to remove any rust, loose adjacent coatings, and/or surface corrosion prior to cleaning. Clean each surface to be painted to remove previous roof system materials (sealants, flashing, mastic, etc.). Schedule so that dust and other contaminants from construction will not fall onto wet or newly coated surfaces.
- C. If removal of existing paint or grinding of shop primed surfaces are required, the contractor is responsible for treating the existing paint as a lead containing material and removing and disposing of the material to meet WCU requirements. The Contractor may elect to have the existing paint tested for lead and may waive the requirements for removal and disposal if paint is confirmed by an accredited inspector and testing results to not contain lead.

#### 3.04 FIELD TEST APPLICATION

- A. Provide a test application of primer and finish coat on sample prior to proceeding with coating work to verify adhesion. If recommended by the manufacturer, perform adhesion testing.
- B. Obtain approval from Engineer and Owner prior to proceeding with coating work.

#### 3.05 INSTALLATION

- A. General: Apply in accordance with manufacturer's installation instructions, latest edition.
- B. Drying: Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit adverse weather conditions.
- C. Brush out and work the brush coats onto the surface in an even film.
- D. Cloudiness, spotting, holidays, laps, brush marks, runs, sags and other surface imperfections will not be acceptable.

END OF SECTION 099113

099113.3

## SECTION 221423

### ROOF DRAINS

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Install a new 6" diameter secondary drain on Roof Area C3. Do not sump or shave insulation around overflow drain. The new overflow drain should be set on wood blocking on the existing metal deck. Core the existing roof deck to allow for installation of a new 6" I.D. vertical drain line, and transition to a 6" I.D. horizontal drain line within the existing space above suspended ceiling in the hallway between Reid Building and the Campus Recreation Center. The new horizontal drain line will tie into an existing overflow drain line that runs through the space above the suspended ceiling. Modify the existing overflow outlet, an existing lamb's tongue located above an exterior doorway, by installing a conductor head, a short section of horizontal downspout with positive slope, and vertical downspout to re-route any overflow drainage to the side of the exterior doorway. Vertical downspout shall discharge with a 45-degree kick at grade level.
- B. Test all drains/underground drainage for free flow prior to beginning of work. Clogged or blocked drains/pipes shall be reported to the Owner.
- C. Adjust the existing drain heights and add extensions as necessary to provide proper installation of the new roof system on all roof areas containing roof drains.

##### 1.02 ENVIRONMENTAL CONDITIONS

- A. Materials installation shall proceed only when weather conditions are in compliance with the applicable manufacturer's recommendations for installation and no precipitation is imminent. Materials installed during adverse weather conditions shall be subject to rejection including removal and replacement.

##### 1.03 SUBMITTALS

- A. Submit manufacturer information on drains, CPVC or cast-iron piping, elbows, connections and accessories.
- B. Submit shop drawings for pipe routes and connections.

#### PART 2 PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS

- A. Josam Manufacturing Company; Zurn Industries, and JR Smith.
- B. Substitutions: Items of the same function and performance are acceptable in accordance with Section 016000.

221423.1

## 2.02 MATERIALS – ROOF DRAIN AND PIPE REPLACEMENT

- A. Overflow Drains: Shall be similar or approved equal to Zurn Z108 coated cast iron roof drain and steel deck clamp. Size shall be 6".
- B. Drainage Pipe: Pipe shall be CPVC wrapped with fire rated insulation or Cast Iron. Provide straight pipe, elbows/sweeps, fittings, etc. as needed. Size as noted on the drawings.
- C. Pipe Hangers: Shall consist of a steel clevis, beam clamp and continuous threaded 3/8" diameter rod.
- D. Pipe Strap Fasteners: Shall be 1/4" stainless steel hex head sleeve anchors such as 304SS as manufactured by Hilti.
- E. Pipe Clamps: Shall be similar to B3148 Offset Pipe Clamp manufactured by Cooper. Clamps are to be painted to match the existing wall color.
- F. Pipe insulation shall be fiberglass insulation with a vapor retarder facing. All new pipes shall be insulated unless otherwise approved by the Designer.
- G. Structural Steel: Shall conform to ASTM A-36 and the American Institute of Steel Construction (AISC).
- H. Bolts: Shall conform to ASTM A-325.
- I. Fire Rated Sealant: Shall be a fire rated sealant to meet UL requirement to maintain existing firewall rating. Similar to AC-20 FTR as manufactured by Pecora. To be used in conjunction with fire blocking material.
- J. Miscellaneous: Cast iron drain extension rings, domes, clamping rings.

## PART 3 EXECUTION

### 3.01 INSTALLATION-GENERAL

- A. Frame the deck opening for the new drain.
- B. Core the existing roof deck to allow for installation of a new 6" I.D. vertical drain line, and transition to a 6" I.D. horizontal drain line within the existing space above suspended ceiling in the hallway between Reid Building and the Campus Recreation Center. The new horizontal drain line will tie into an existing overflow drain line that runs through the space above the suspended ceiling. Modify the existing overflow outlet, an existing lamb's tongue located above an exterior doorway, by installing a conductor head, a short section of horizontal downspout with positive slope, and vertical downspout to re-route any overflow drainage to the side of the exterior doorway. Vertical downspout shall discharge with a 45-degree kick at grade level.

- C. Contractor shall install pipes and accessories (Install drain bowl as required). Contractor shall be responsible for cutting and repairing deck or ceiling.
- D. Dimensions and locations on plans are approximations and should be field-verified by the Contractor before proceeding with work.
- E. Install new pipe and drains in accordance with membrane manufacturer's recommendations and detail drawings.
- F. Obtain hot work permit as applicable.

### 3.02 DRAINS AND PIPE

- A. Install new pipes at locations shown on the drawings.
- B. If required, install new steel angle to support drain bowl in accordance with the American Institute of Steel Construction (AISC) Specification for the Design, Fabrication and Erection of Structural Steel for Buildings and Bridges (latest edition), hereinafter referred to as the AISC Specification, and the AISC Code of Standard Practice for Steel Buildings and Bridges (latest edition) shall govern the work. Welding shall be in accordance with American Welding Society (AWS) Structural Welding Code - Steel, D1.1-84, hereinafter referred to as the AWS Code. High-strength bolting shall be in accordance with Research Council on Structural Connections (RCSC) Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts (latest edition).
- C. Support drain piping with pipe hangers spaced at 10 feet maximum; provide minimum of two hangers per length of pipe. All piping shall be installed to provide required minimum positive slope for drainage.
- D. All ceilings and walls breached as a result of installing new drains and piping shall be repaired with like materials. Maintain current 2-hour firewall standards and rated penetration UL fire. See UL System No. W-L-3082 for wall assembly and penetration.
- E. New interior pipe shall be insulated.
- F. At locations where piping is designated to breach exterior walls, provide appropriate sleeves and fittings.

END OF SECTION 221423

221423.3

## 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, of existing rooftop mechanical systems including but not limited to: conduit, duct work, electrical, and/or mechanical components/services ***associated with raising existing equipment curbs and/or lifting equipment caps to accommodate new roof system installation.*** 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.

##### 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 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.

##### 1.03 SUBMITTALS

- A. Include review of the mechanical/electrical rooftop equipment, as a part of the Pre-Job Damage Survey (required by Section 024110) that includes documentation of existing roof-top equipment condition of units/services including whether they are in working condition prior to the start of roofing work.
- B. Upon completion of work to disconnect and reconnect electrical, mechanical, and/or communication components or services, provide certification from the licensed Contractor or Sub-contractor confirming that the work is in conformance with the applicable standards.

230800.1

#### 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 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, piping/conduit and other services.
- B. Inspect and test equipment that may require modification, disconnection and/or relocation or may be in an area where contact/disruption or exposure to debris or other construction activities is likely 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, HVAC, 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 and associated components shown on the drawings. Where removing HVAC equipment and disconnecting electrical circuits, remove unused wiring back to source. Label unused circuit breakers as spare. Provide new typed panel directories for electrical panels modified by this project. Remove associated unused accessible conduit including unused conduit above accessible ceilings.
- 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 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 survey.

230800.2

- 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

230800.3

# FORM OF PROPOSAL

Reid Building Roof Replacement

Contract: Roof Replacement

Western Carolina University

Bidder: \_\_\_\_\_

SCO ID: 22-24547-01A

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 **State of North Carolina through Western Carolina University** 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 **Reid Building 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 **Western Carolina University, 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:

Other:

\_\_\_\_\_ Lic \_\_\_\_\_

\_\_\_\_\_ Lic \_\_\_\_\_

Other:

Other:

\_\_\_\_\_ Lic \_\_\_\_\_

\_\_\_\_\_ 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:** Roof Replacement of Roof Areas B1 and B2.

(Add) ~~(Deduct)~~ \_\_\_\_\_ Dollars(\$)

**Bid Alternate 02:** Roof Replacement of Roof Areas E1, E2, E3, and E5.

(Add) ~~(Deduct)~~ \_\_\_\_\_ Dollars(\$)

**Bid Alternate 03:** Roof Replacement of Roof Areas C6 and C7.

(Add) ~~(Deduct)~~ \_\_\_\_\_ Dollars(\$)

**Bid Alternate 04:** Removal and Disposal of existing sunshade along the south elevation of Roof Area A1.

(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 1.03 of the Project Manual.

<u>Item:</u>	<u>Unit:</u>	<u>Unit Price:</u>
1. Wood Blocking Replacement ( <i>bd.ft.</i> )		Unit Price (\$)
2. Cementitious Wood Fiber Deck Repair ( <i>cu.ft.</i> )		Unit Price (\$)
3. Cementitious Wood Fiber Deck Replacement ( <i>sq.ft.</i> )		Unit Price (\$)
4. Metal Deck Restoration ( <i>sq.ft.</i> )		Unit Price (\$)
5. Metal Deck Replacement ( <i>sq.ft.</i> )		Unit Price (\$)
6. Wood Deck Replacement ( <i>sq.ft.</i> )		Unit Price (\$)
7. Walk Tread Installation ( <i>lft.</i> )		Unit Price (\$)
8. Drain Strainer		Unit Price (\$)
9. Clamping Rings (bolted)		Unit Price (\$)
10. Clamping Rings (sergeant clamps)		Unit Price (\$)
11. Skylight Replacement		Unit Price (\$)
12. Replacing Wet Insulation at Coating Areas		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 Supplementary General Conditions Article 23. Applicable liquidated damages amount is also stated in the Supplementary General Conditions Article 23.

## **MINORITY BUSINESS PARTICIPATION REQUIREMENTS**

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*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

Reid Building Roof Replacement (SCO# 22-24547-01A)

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:

\_\_\_\_\_  
(Proprietorship or Partnership)

By: \_\_\_\_\_  
Signature

Name: \_\_\_\_\_  
Print or type

Title \_\_\_\_\_  
(Owner/Partner/Pres./V.Pres)

Address \_\_\_\_\_

ATTEST:

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Corp. Sec. or Asst. Sec. only)

License No. \_\_\_\_\_

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 \_\_\_\_\_

# 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.

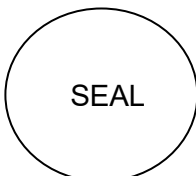
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure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



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

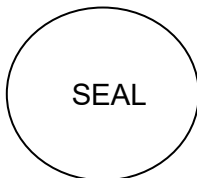
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

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: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

## 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)

Witness:

\_\_\_\_\_

Countersigned:

\_\_\_\_\_

\_\_\_\_\_  
(N.C. Licensed Resident Agent)

\_\_\_\_\_

\_\_\_\_\_  
Name and Address-Surety Agency

\_\_\_\_\_

\_\_\_\_\_  
Surety Company Name and N.C.  
Regional or Branch Office Address

\_\_\_\_\_  
Contractor: (Trade or Corporate Name)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Owner, Partner, or Corp. Pres. or Vice  
Pres. only)

\_\_\_\_\_  
(Surety Company)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Attorney in Fact)

(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:

\_\_\_\_\_  
(Proprietorship or Partnership)

Attest: (Corporation)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Corp. Sec. or Asst. Sec.. only)

(Corporate Seal)

Witness:

\_\_\_\_\_

Countersigned:

\_\_\_\_\_

\_\_\_\_\_  
(N.C. Licensed Resident Agent)

\_\_\_\_\_

\_\_\_\_\_  
Name and Address-Surety Agency

\_\_\_\_\_

\_\_\_\_\_  
Surety Company Name and N.C.  
Regional or Branch Office Address

\_\_\_\_\_  
Contractor: (Trade or Corporate Name)

By: \_\_\_\_\_

Title \_\_\_\_\_  
(Owner, Partner, or Corp. Pres. or Vice  
Pres. only)

\_\_\_\_\_  
(Surety Company)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Attorney in Fact)

(Surety Corporate Seal)

## 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