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SPECIFICATIONS FOR
UNC MEMORIAL HALL
114 E CAMERON AVE
CHAPEL HILL, NORTH CAROLINA 27514
ROOF REPLACEMENT PROJECT
SCO ID NO. 22-25151-01A



THE UNIVERSITY
of **NORTH CAROLINA**
at **CHAPEL HILL**

Project No. FJ226041



**BID DOCUMENTS
NOT FOR CONSTRUCTION**

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ADVERTISEMENT FOR BIDS

Sealed bids will be received by the University of North Carolina Chapel Hill, UNC Facilities Construction Management, Giles Horney Building, Campus Box 1080, 103 Airport Drive, Chapel Hill, NC 27599 for the Roof Replacement Project at UNC Memorial Hall, 114 E. Cameron Avenue, Chapel Hill, North Carolina 27514, SCO ID No. 22-25151-01A, up to **March 6, 2024 at 2:00 p.m.** and immediately thereafter publicly opened at the Magnolia Conference Room 100A, at Giles Horney Building, and read aloud. Bids may be delivered earlier by hand delivery to the Bid Drop Box at: Jennifer Miller's office, UNC Facilities Construction Management, Room 211 Giles Horney Building, 103 Airport Drive, Chapel Hill, NC 27599.

Complete plans and specifications for this project can be obtained from Terracon Consultants, Inc., 2701 Westport Road, Charlotte, North Carolina 28208. Please contact Vicky Neal at Vicky.Neal@Terracon.com, for a link to the Specifications and Drawing. They will also be available for viewing at the following locations:

- Dodge: <https://planroom.construction.com>
- Construction Connect: <https://projects.constructconnect.com>
- NCIMED Plan & Resource Center:
<https://theinstitutenc.org/calendar/category/bid-opportunities>

A MANDATORY Prebid Meeting will be held at UNC Memorial Hall, 114 E. Cameron Avenue, Chapel Hill, North Carolina 27514, at 1:00 p.m. on Wednesday, February 21, 2024. Attendance is required by all Contractors who intend to bid this project. Meeting will begin at the north entrance to the building.

Qualified Minority-Owned Contractors are encouraged to bid.

Plan Deposit of \$100.00 is required for hard copies. There is no charge for electronic copies.

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

Signed: State of North Carolina through
University of North Carolina at Chapel Hill
(Owner)

NOTICE TO BIDDERS

Sealed bids will be received by the University of North Carolina Chapel Hill, UNC Facilities Construction Management, Giles Horney Building, Campus Box 1080, 103 Airport Drive, Chapel Hill, NC 27599, up to **March 6, 2024 at 2:00 p.m.** and immediately thereafter publicly opened at the **Magnolia Conference Room 100A**, at Giles Horney Building, 103 Airport Drive, Chapel Hill, NC 27599 and read aloud. Bids may be delivered earlier by hand delivery to the Bid Drop Box at: Jennifer Miller's office, UNC Facilities Construction Management, Room 211 Giles Horney Building, 103 Airport Drive, Chapel Hill, NC 27599. Bids are for the furnishing of labor, material and equipment for the construction of:

Memorial Hall Building
Roof Replacement Project
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina
SCO ID #22-25151-01A

Project generally consists of the low slope roof replacement of Areas 1, 2, and 7 which generally consists of the complete removal of all existing roofing membrane, insulation, flashings, metal wall panels, metal flashing, coping caps and the installation of a new PVC/KEE membrane, cover board, tapered (where indicated on plans) and base insulation, temporary roof membrane, gypsum underlayment, metal wall panels, flashings, metal flashings, fluid applied flashings, coping caps, new drain extensions where required, new lightning protection system, new fall protection systems and all associated miscellaneous work as specified herein. Steep slope roofing replacement (Area A) generally consists of the complete removal of all existing coated standing seam metal panels, asbestos containing built up felt and asphalt base sheet, flashings, metal flashing, and the installation of a new standing seam metal panels, high temperature underlayment over a pyrofill gypsum deck, flashings, metal flashings, and all associated miscellaneous work as specified herein. Alternate 1 generally consists of a similar scope of work as the low slope replacement of the base bid on Areas 3, 4, 5, 6, 8, and 9. Work under Alternate 2 generally consists of the installation of a new fluid applied coating system to the steep slope roof, and internal gutter of Area B.

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

Mandatory Pre-Bid Meeting

A Mandatory Pre-Bid Meeting will be held for all interested bidders on **February 21, 2024 at 1:00 p.m.** at UNC Memorial Hall, 114 E. Cameron Avenue, Chapel Hill, North Carolina. The meeting will address project specific questions, issues, bidding procedures and bid forms.

Complete plans, specifications and contract documents will be open for inspection in the offices of Terracon Consultants, Inc., University of North Carolina at Chapel Hill and in the plan rooms of:

- Dodge: <https://planroom.construction.com>
- Construction Connect: <https://projects.constructconnect.com>

and in Minority Plan and Resource Center at:

- NCIMED Plan & Resource Center:
<https://theinstitutenc.org/calendar/category/bid-opportunities>

or may be obtained by those qualified as prime bidders, 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. **Electronic version can be emailed at no expense.** Contact: Vicky.neal@terracon.com

If a contractor is bidding under the dual system both as a single prime contractor and as a separate prime contractor, he must submit the bids on separate forms and in separate envelopes. Bidders should clearly indicate on the outside of the bid envelope which contract(s) they are bidding.

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 Building Contractor.

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](#)

Plumbing, Mechanical and Electrical prime contractors are notified that General Statutes Chapter 87, Articles 2 & 4, will be observed in receiving and awarding plumbing, mechanical and electrical contracts.

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:

Terracon Consultants, Inc.
2401 Brentwood Road
Raleigh, NC 27604
919-873-2211

Owner:

University of North Carolina at Chapel Hill
Attention: Andrea Lynn Janusz
Giles Horney Building, 103 Airport Drive
Chapel Hill, NC 27599

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

STANDARD FORM FOR CONSTRUCTION PROJECTS

**UNIVERSITY OF NORTH CAROLINA
GENERAL ADMINISTRATION**

Fifth Edition – January 2015

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 bidders 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 with appropriate attachments to 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 the 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 owner.

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.
- 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 information may 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 of completed work. 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 University of North Carolina, and is distributed by, through and at the discretion of UNC - General Administration, Chapel Hill, 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 drawings 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 university attorney; 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 and designer and approved by the owner 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, and owner .
- 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 of 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.

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- 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 the approval of the 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 with 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 North Carolina Building Codes.
 - aa. **Beneficial Occupancy** is requested by the owner and is occupancy or partial occupancy of the building or project after all life safety items have been completed as determined by the State Construction Office. Life safety items include but are not limited to fire alarm, sprinkler, egress and exit lighting, fire rated walls, egress paths and security.
 - bb. **Final Acceptance** is the date on which the State Construction Office approves the project as complying with the North Carolina Building Codes and the owner accepts the construction as totally complete. This includes certification by the Designer that all punch list items are completed.

ARTICLE 2 - INTENT AND EXECUTION OF DOCUMENTS

a. The drawings and specifications are complementary, one to the other. 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.

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- 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 the 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 two (2) copies (one for the Designer, one for the owner) 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.

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- 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, the 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 State of North Carolina. 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 approve.

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

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- d. Projects involving local funding may be subject also to county and municipal building codes and inspection by local authorities. The Contractor shall pay the cost of these permits and inspections as noted in the specifications.

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 member 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.

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- 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 correction of 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 correction of damage caused by 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 the designer, special inspector and/or State Construction Office prior to being covered by the contractor. Contractor shall give a minimum notice of

two weeks unless otherwise agreed to by all parties. If inspection fails, after the first re-inspection all costs associated with additional inspections 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 and 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.

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- 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 project conference. The owner will determine the 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.
- g. 5. Recommend to the owner whether payment to a contractor shall be approved.
- h.
- i. 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:
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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 punch list(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 punch list(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.

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.

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- 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 biweekly 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 owner and other prime contractors. The designer shall determine the contractor(s) who caused the delays 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 expediter'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 time commitment of the project superintendent to the project shall be such as to insure satisfactory construction progress & coordination as determined by the project designer and owner and may be as stipulated in the Supplementary General Conditions.

ARTICLE 15 - SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS

- a. Public contracts may be delivered by the following construction 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 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 and to the owner 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, the designer shall submit his reasons for disapproval in writing to the owner for the owner's consideration with a copy to the contractor. If the owner concurs with the designer's recommendation, the contractor shall submit a substitute for approval. The designer 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.
- 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.

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- 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

eight 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. They 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 an approved change order or written field order from the designer, countersigned by the owner. No claim for adjustments of the contract price shall be valid unless this procedure is followed.

A field order, transmitted by fax 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 below under either c.1 or 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 and owner, the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed on 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 c.2. above, the allowances for overhead and profit combined shall be as follows: all contractors (the single contracting entity (prime), his subcontractors (first tier), or their subcontractors (second tier, third tier, etc.) shall be allowed a maximum of ten percent (10%) on work they each self-perform; the prime contractor shall be allowed a maximum of five percent (5%) on contracted work of his first tier subcontractor; first tier, second tier, third tier, etc. subcontractors shall be allowed a maximum of two and one-half percent (2.5%) on the contracted work of their subcontractors. Under c.1. no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under c.2. and 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; vehicles; 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 a lack of proper submittal by the contractor of all required supporting data shall not constitute grounds for a time extension or basis for 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 approval. The owner shall approve and execute the change order within seven (7) days of receipt. 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."

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- i. A change order, when issued, shall be full compensation, or credit, for the extra 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 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 the 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 c. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or having 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. 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 by the contractor that complies with the requirements of (a) above be denied by the designer or owner, and cannot be resolved by a representative of The University of North Carolina General Administration, the contractor may request a mediation in connection with G.S. 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 claims as a result of mediation, the contractor may pursue his claim in accordance with the provisions of G.S. 143-135.3 and the following:
 1. A contractor who has not completed a contract with an institution of The University of North Carolina and who has not received the amount he claims is due under the contract may submit a verified written claim to the Associate Vice President for Finance & University Property Officer of The University of North Carolina General Administration for the amount the contractor claims is due. If the claim remains unresolved after review by the Associate Vice President for Finance, the contractor may submit the 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.

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2. (a) A contractor who has completed a contract with an institution of University of North Carolina 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 Associate Vice President for Finance & University Property Officer of The University of North Carolina General Administration for the amount the contractor claims is due. If the claim remains unresolved after review by the Associate Vice President for Finance, the contractor may submit the 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 Associate Vice President'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 owner, 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, fires, 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 delay. 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 with copies to the owner within twenty (20) days following cause of delay. In case of continuing cause for delay, the contractor shall notify the designer in writing with copies to the owner of the delay within twenty (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 completion of the project.
- b. Should the owner request a utilization of the building or portion thereof, the designer shall perform a designer final inspection of the 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, 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 owner and State Construction Office, in such areas the following will be established:
 - 1. The beginning of guarantees and warranties period for the equipment necessary to provide support in the area.
 - 2. The owner assumes all responsibilities for utility costs for the entire building
 - 3. Contractor will obtain consent of surety.
 - 4. 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 owner and SCO final inspection. Prior to owner & 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, the owner and State Construction Office representatives shall make one of the following determinations:
 - 1. That the project is completed and accepted.
 - 2. That the project will be accepted subject to 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.
 - 3. 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.
- e. 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.
- f. Prior to issuance of final acceptance date, the contractor shall have his authorized representatives visit the project and give full instructions to the owner's designated personnel regarding operating, maintenance, care, and adjustment of all equipment and special construction elements. In addition, the contractor shall provide 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.

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- 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. The contractor shall correct or make good any defects due thereto and repair any damage resulting therefrom 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 ten (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 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 and the owner 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 and owner 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 and the owner 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. On projects requiring a Critical Path Method (CPM) construction schedule, the project expeditor will submit with each monthly pay application to the designer a current CPM schedule in a computerized precedence network format on a compact disc. The schedule will include all construction activities to be accomplished during the project to be properly sequenced and coordinated with elements of the work. The schedule shall be assembled from input presented and mutually coordinated by all the contractors (and/or subcontractors) and integrated into a single, overall schedule. The project expeditor will show all the scheduled work activities, including their subcontractors, and the sequence and interdependence (predecessors and successors) of the activities. The schedule shall show the total project duration including milestone dates. The critical path shall be clearly indicated. The schedule shall be in such a format that it can be read (imported) in Microsoft Project or Primavera P6. Failure to submit the construction schedule on compact disc media in an acceptable format will result in the pay application being denied.
- f. In the event of beneficial occupancy, retainage of funds due the contractor(s) may be reduced with the approval of the owner 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 are 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.
 3. Resolution of any final inspection discrepancies.
 4. 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 subcontractors 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 owner 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 owner 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 the contractor's general conditions costs set forth in the approved schedule of values if the contractor has failed to comply with: (1) a request to access its records by the owner's internal auditors pursuant to Article 52; (2) a request for a plan of action and/or recovery schedule under Article 14j; (3) a request to provide electronic copies of contractor's baseline schedule and/or updates with all logic used to create schedules in the original format of the scheduling software; and (4) contractor's failure to have its superintendent on the project as provided in Article 14.1 and/or as stipulated in the Supplementary General Conditions.
- 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 coverage 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 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.

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- 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 may be 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 unless stipulated otherwise in the project specifications. The 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 unless otherwise stipulated. 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 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 General Contractor 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 the 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 acceptance of work by the State Construction Office and owner, 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 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 General Contractor 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 General Contractor 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 General Contractor 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 General Contractor's bid.
- l. The General Contractor 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 General Contractor. The General Contractor 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 General Contractor shall broom clean the building as required to minimize dust and dirt accumulation.
- b. The General Contractor 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 therefrom, 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 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 contractors 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 business 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 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 General Statute 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, subcontractor, supplier, etc.) to make gifts or give favors to any State employee. This prohibition covers those vendors and contractors who: (1) have a contract with a government agency; or (2) have performed under such a contract during 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 General Statute 133-32.

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 employees that may have any involvement, influence, responsibilities, oversight, management and/or duties that pertain to and/or relate to the construction administration, financial administration and/or disposition of claims arising from and/or relating to the contract and/or the project.

ARTICLE 52 – AUDITING – ACCESS TO PERSONS AND RECORDS

In accordance with General Statute.147-64.7, the State Auditor shall have access to the contractor's officers, employees, agents and/or other persons in control of and/or responsible for the contractor's records that relate to this contract 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 lost 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 the owner and/or the owner's project representatives.

ARTICLE 53 – NORTH CAROLINA FALSE CLAIMS ACT

The North Carolina False Claims Act (NCFCA), General Statute 1-605 through 1-618, applies to this contract. The contractor should familiarize itself with the entire NCFCA and its applicability to any requests, demands and/or claims for payment submitted to the State through the contracting university or affiliate.

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 NCFCA may arise from, but not be 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 lost 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 for claims, and/or any other request for payment from the state through the contracting state agency, institution or university. 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 by 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©.)

Finally, the contracting university or affiliate 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

- a. The owner may, at any time and for any reason terminate the contractor's services and work at the owner's convenience. Upon receipt of such notice, the contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing orders for materials, facilities and supplies in connection with the performance of this agreement.
- b. Upon such termination, the 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 the contractor as are permitted by the prime contract and approved by the 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 the contractor prior to the date of the termination of this agreement. The contractor shall not be entitled to any claim or claim of lien against the owner for any additional compensation or damages in the event of such termination and payment.

UNC-CH GENERAL REQUIREMENTS

October 28, 2015

1. Owners' Representative

The UNC-CH Department of Construction Management represents the Owner in all matters pertaining to contract construction. The Department will designate a Construction Manager, who will be the single spokesperson for the University. All official contact, decisions, direction, problem resolution and coordination to/from the University will be through the assigned Construction Manager and the Designer. This does not alleviate any of the Designers' responsibilities as stated in the General Conditions.

2. Inspections and Testing

The University will arrange for independent testing agencies to make tests and conduct inspections of work in progress. The contractors will give reasonable notice of construction activities to be tested/inspected so that the testing agency may be present.

In addition to the normally-anticipated inspections, the University intends to conduct the following inspections, which contractors should allow for in their schedules: above-ceiling inspections, pre-final inspections, 100% test of fire protection systems, and final inspections. Any of these inspections which are not completed satisfactorily will be repeated at no cost to the owner and without time extension.

Above-Ceiling Inspections: The above-ceiling inspection will be conducted by the University after above-ceiling systems have been completed and verified by the Designer. The following general guidelines will apply to this inspection:

- a. All above ceiling systems will be completed including, but not limited to, controls, insulation, labeling of systems, wiring, light fixtures, diffusers, ductwork, piping, fire proofing, and sealing of wall penetrations through fire walls.
- b. Framing for hard ceiling will be completed and access door locations will be framed to assure accessibility to control valves, equipment requiring maintenance, etc. Ceiling grid will be in place and equipment (light fixtures, diffusers, etc.) will be in place in the grid.
- c. Under no circumstances will any ceiling area be covered up until this inspection is done by the owner. The contractor shall give the Designer and the University two weeks notice to assure owner personnel is available.

Fire Protection Systems: The installation contractor must conduct a 100% performance test, which shall be ensured by the designer/engineer. When this test is completed and deficiencies corrected, the owner will conduct a 100% test of the system, which shall be scheduled through the University's Construction Manager. At least three days prior to the owner's test; the contractor will furnish the completed NFPA Record of Completion, with a printout of the installed database and a floor plan with database information and room numbers. These documents shall be updated and reissued prior to each additional test and final inspection.

3. Construction Schedule

Tentative dates for interruption of utilities services and traffic disruptions shall be incorporated into the project schedule. The schedule will show UNC and State inspections, punch list correction,

cleanup, and final inspection, and shall anticipate 5-year-average weather delay and the extra restrictions required for University operations as outlined in SGC Paragraph 4 below.

The schedule will also include the time allotted for commissioning the MEP systems. Unless otherwise stipulated in the project construction documents the schedule will indicate 100% commissioning of the MEP systems. The schedule will include all necessary activities and contractor and subcontractor resources to support commissioning, as well as, time and resources for correction of contract required punchlist items generated by the commissioning agent.

4. Working Hours

The contractor may establish a work schedule of his own choosing. The contractor shall submit to the UNC Construction Manager and to the designer his regular daily work schedule, and shall notify the Construction Manager in advance of any deviations from the schedule. The University reserves the right to limit the contractors' activities when they conflict with University operations.

For most situations, the University will require the contractor to comply with the Town of Chapel Hill Noise Ordinance.

Extra restrictions will be enforced by the University during certain periods of the year. The contractors must allow for these restrictions in their project schedule. No time extensions will be granted for these restrictions. In general, these periods are:

- a. During examination periods, generally occurring in December and April for two weeks each, and June and August for four days each.
- b. Graduation, generally on a Sunday in mid-May and a Sunday in mid-December
- c. Approximately 15 home basketball games per year
- d. Approximately 7 home football games per year
- e. University Day, October 12
- f. Student move-in/move-out days, generally twice a year for one week each.

Examples of the extra restrictions include, but are not limited to:

- a. During examination periods the contractor will restrict noise-making activities to the hours of 8:00am - 5:00pm. If the project involves work in or near a residence hall or a building in which an examination is being conducted, the contractor will be required to restrict further those operations which are disturbing to students, to include stopping work if necessary.
- b. Work will not be permitted on Graduation Day, nor the preceding day (Saturday), nor on University Day. Extra cleanup and warning signs and barricades will be provided by the contractor.
- c. Work is normally permitted on the days of sporting events and concerts, but traffic is extremely heavy on those days, and contractors may have difficulty and experience delays getting to and from the job site.

- d. Work is normally permitted on student move-in/move-out days, but traffic is heavier than normal, parking is restricted, and some campus roads are temporarily closed or designated one-way.

5. Underground Utilities

Each contractor who does excavation work will be responsible for locating underground utilities prior to excavation. The contractor may obtain the services of a commercial utilities locator and/or call the various utility companies who may have lines in the area. In addition, they should notify UNC Facilities Services at least 5 days prior to excavation. The contractor will be responsible for utility interruptions caused by excavation.

The General Statutes of North Carolina requires contractors to notify NOCUTS at least two days but not more than 10 days prior to excavation on a public right of way.

6. Temporary Interruptions of Utilities and Traffic Movement

Procedures for making temporary disruptions to existing utilities, and roads and pedestrian walks shall be planned well in advance of the work and the work shall be executed in a manner to provide reasonably continuous service throughout the construction period. Connections shall be made only at times approved by the University. For interruption of service in major utility systems, the Contractor must submit to the UNC Construction Manager a step-by-step sequence of operations planned to accomplish the work. Outline must show tentative dates and times of day for shut-off and restoration of services. Upon approval of the planned operations, the Construction Manager will make arrangements with appropriate University personnel for interruption of services.

Road and sidewalk cuts shall be scheduled in advance, and made only after they have been approved by the University. Contractors shall plan and coordinate their work to minimize the duration of such disruptions. Appropriate detours shall be planned, subject to the approval of the University, giving consideration to the handicapped. Warning barricades and signs shall be installed by the contractor, as well as informational signs indicating detours. Neither service disruptions nor excavations may be made until barricades and signs are in place to protect the public. If the nature of the site does not allow barricades to be in place prior to excavation, the barricade materials must be physically present on site before excavation begins, in order that they may be erected as soon as it is possible to do so.

Barricades and signs must meet OSHA, NCDOT, and University approval, and be substantial enough to deter bypassing, vandalizing or theft. In addition to meeting all applicable codes and regulations, signs must be neat and legible at all times. Hand-made signs are not acceptable.

Caution to Bidders: Bidders are cautioned that the University will probably schedule interruption of services at times other than the contractors' normal working hours and that only designated University personnel are authorized to interrupt services. Frequently, outages are scheduled to reduce disruption of classes and special events.

Contractors are reminded of the presence on campus of handicapped students, staff, and faculty: particularly mobility impaired, visually impaired, and hearing impaired. All barricades, temporary walkways, excavation, and stockpiles of materials shall be formed in such a manner as to accommodate access, adequately warn and prevent injury to this segment of the University population.

7. **Temporary Utilities**

The Owner shall directly pay for all temporary and final utility consumption costs throughout the life of the project's construction and use. Owner will establish any accounts necessary to directly receive bills and shall pay for any metering devices, tap fees, or similar items as necessary. Therefore, any meters shall be listed in the Owner's name upon establishment of any temporary and permanent utility at the site and the Owner shall pay for consumption costs of utilities such as water, sewer, electricity, steam, chilled water, etc.

8. **Parking and Storage**

Parking is extremely limited at the University of North Carolina at Chapel Hill. Contractors must confine their parking and storage to that which they can accommodate within the limits of the construction site. There will be no parking spaces provided in the vicinity of the project for construction workers. Contractors are encouraged to locate fringe parking areas and shuttle their workers to and from the job site. If a construction fence has been erected the contractor may allow his employees to park inside the fence.

Parking for large storage trailers is limited to within the construction site.

9. **Cleanliness and Site Maintenance**

Campus streets, parking lots, walks and grounds connecting to the project area shall be protected from deposits of mud, sand, stone, litter, or debris in any form, and this protection shall be the responsibility of the Contractors. All mud collected on vehicle wheels must be cleaned off before leaving the construction area. Should any mud or debris collect on the streets from the construction project, this shall be removed immediately before becoming a traffic hazard or being carried into the surrounding buildings.

Where equipment must cross walks, lawns, and other transitional areas used by pedestrian and vehicular traffic, the Contractor shall provide minimum 3/4" thick plywood protective sheets for equipment to roll over.

The construction site including adjacent campus areas will be kept free of trash, litter or debris at all times. Trash cans/dumpsters shall be emptied and the contents removed from campus before they overflow.

Grass and other vegetation on the construction site shall be trimmed/mowed to maintain a neat appearance. A landscape protection area shall extend to at least the drip line of any trees or shrubs that are to remain. The landscape protection fence shall be installed prior to the initial stage of grading, excavation or tree removal. No storage, access or activity of any kind will be permitted in the landscape protection areas. The Contractor shall give the Designer two (2) weeks notification in advance for the Owner to remove trees and shrubs that will be retained by the Owner for use elsewhere.

10. **Request for Payment**

The first sentence only of Article 31a, General Conditions, is revised to read as follows: "Not later than the last day of the month, the contractors shall submit to the Designer a request for payment for work done through the 25th day of the month. The Owner will make payment by the end of the following calendar month, as described in Articles 31 through 33, General Conditions."

The financing arrangements on some projects require that pay applications from all vendors be submitted simultaneously and only once per calendar month. Therefore, failure to follow the above schedule may result in a contractor not being paid until the next pay application period. The only way to insure timely payment is to submit complete, accurate and timely pay applications with all supporting documents.

11. Stored Materials

Add the following sentence to Article 31d, General Conditions: "No payment may be made for stored materials which are stored outside the State of North Carolina."

12. Selection of Brick or Cast Panel for Exterior Walls

The manufacturers shall present samples to the designer for his selection from which sample patterns are to be erected or shown on the job site, after consultation with the Facilities Planning Office. The Construction Management Department will notify the architect's representative where to locate these panels. The University Buildings and Grounds Committee will review these panels and make the selection. At the time the brick panels are viewed by the committee, the contractor shall also have available samples of all significant exterior materials, including but not limited to pre-cast stone or limestone, window and door frames, glass and metal panels. The Construction Management Office will notify the designer of the final selection. In the case of cast stone panels, small samples may be submitted for selection purposes.

Completed panels must cure for at least three weeks before they are reviewed by the Building and Grounds and Committee. In addition, three weeks are required to schedule this review. Therefore the panels must be completed by the contractor a minimum of six weeks before the brick selection is needed.

13. Owner's Right To Do Work

Notwithstanding the notification requirements of the General Conditions, Article 28, should the contractor fail to respond within 24 hours, or such other time as may be prescribed by the designer or by the University's assigned Construction Manager (see paragraph 1 above), to correct a deficiency which the University determines to be endangering trees or other landscaping; or to correct any other defects where time is of the essence to prevent further damage or ensure personal safety; or to correct any impediment to University operations including access by handicapped, fire department, or operational personnel; then the owner may immediately take corrective action to prevent further endangerment or damage. The cost of the work performed by the owner shall be deducted from any amount due or to become due to the contractor, as provided for in GC, Article 28. Verbal notice shall be provided to the contractor's superintendent or project manager, followed by written confirmation.

14. Commissioning

Unless otherwise stated in the contract documents the project will include 100% commissioning of the MEP systems. The Owner will provide a third party commissioning agent for the oversight of the commissioning process. See contract documents for detailed commissioning requirements. See paragraph 3 above for scheduling requirements of the contractor for the executing the commissioning work.

15. Erosion Control Inspections for General Permit NCG010000 – Land Disturbing Activities

Where an erosion permit is required for the project the contractor will keep on file a record of the required inspection reports filled out two times a week (twice because UNC is on 303(d) listed

stream) or within 24 hours of a rain event or as the permit requires and provide one copy of each report to the Universities' EH&S (Geologist) representative (919-962-9752) in addition to the other agencies as the permit may require.

16. Construction Manager at Risk

The payment of the General Conditions costs to the Construction Manager at Risk will terminate 30 days after project completion and acceptance. During this 30 day period all punchlist items shall be completed and stipulated in Article 25 of the General Conditions of the contract. The time for completion and liquidating damages will be as stipulated in the Form of Construction Manager at Risk Contract and Supplementary General Conditions of the contract.

17. O&M Manuals

All required O&M manuals and attic stock shall be approved by the designer and submitted to the Owner before final inspection and acceptance of the project. Approved O&M manuals shall be available for use during the commissioning and training for the project.

18. No Smoking Policy

Contractors working for the University will be required to comply with The University's no smoking policy. A copy of the policy follows for your reference.

The University of North Carolina at Chapel Hill No Smoking Policy

I. POLICY STATEMENT

The University of North Carolina at Chapel Hill (the "University") is dedicated to maintaining a healthy work and learning environment. While the University already prohibits smoking inside its buildings and facilities, beginning January 1st, 2008, the policy will expand to prohibit smoking in State-owned vehicles and in the outdoor according to the map (see below).

Specifically, this policy is intended to eliminate the potential for exposure to secondhand smoke and the practical effect of this policy is that the campus is smoke free. The University supports employees' and students' efforts to quit smoking and offers resources for smoking cessation as indicated on both the Environmental Health & Safety website (<http://www.ehs.unc.edu>) and the Campus Health Services website (<http://campushealth.unc.edu>) .

II. APPLICABILITY

This policy applies to all University visitors, patients, students, and employees, including faculty, EPA non-faculty, staff, and student employees. It is the responsibility of every member of the University community to conduct himself/herself in compliance with this policy.

III. SIGNAGE

The University will post signs about the policy appropriately throughout campus. Additional information can be printed from the websites listed above and shared with anyone who has questions about this policy.

IV. ENFORCEMENT

Smoking must not occur within the no smoking areas designated by signage. All smoking materials must be disposed of in the appropriate receptacles.

Visitors, patients, and students who violate the no smoking policy should be reminded of the policy and asked to comply by putting out the lighted tobacco product. If a student refuses to comply with the policy, the Dean of Students' office should be contacted. That office will follow up with the student regarding the policy and available resources.

Any University employee who violates the no smoking policy should be reminded of the policy and asked to comply by putting out the lighted tobacco product. If an employee refuses to comply with the policy, the departmental representative will notify the immediate supervisor of the noncompliant employee. The immediate supervisor will follow-up with the employee to remind him/her about the policy and available resources. Continuing violations may also result in appropriate corrective action under the applicable disciplinary policy.

V. DEPARTMENTAL PROCEDURES

All University departments and work units must establish procedures that include identification of the employee(s) responsible for understanding the policy, being able to educate visitors, patients, students, and employees, and assisting in enforcement, as needed. The Office of Human Resources can assist departments in developing their procedures.

VI. EFFECTIVE DATE

This policy is effective January 1, 2008.

19. Cost of Work

All labor burden by the CM shall be charged at 40% applied to each employees total billable labor cost.

Items that are ordered from and billed to CM's main office for specific use at the project site shall be approved as valid reimbursable costs and shall be billed to line items in the CM's general conditions.

Builder's risk deductibles in the event of a loss on the project, due to no fault of the CM, shall be a reimbursable cost of the work.

UNC-CH SUPPLEMENTARY GENERAL CONDITIONS

1. SCOPE OF WORK

See attached Technical Specifications and Drawings for scope of work including UNC-CH General Requirements.

2. 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 the date specified in the Notice to Proceed. The following are the critical dates for the project: Anticipated Notice to Proceed: **May 6, 2024**; Site available for Work: **May 13, 2024**; Construction Completion: **July 27, 2024 (Base Bid)**.

For each day in excess of the above number of days, the Contractor(s) shall pay the Owner liquidated damages in the amount of \$500.00 per consecutive calendar day.

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.

3. CONSTRUCTION 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 the work shall be performed during the Owner's normal working hours, 8:00 AM to 8:00 PM. Requests by the Contractor to work outside normal working hours shall be made a minimum of one (1) week in advance to the Facilities 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 work 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 the work shall be performed during the Owner's normal working hours, 8:00 AM to 8:00 PM. Requests by the Contractor to work outside normal working hours shall be made a minimum of one (1) week in advance of 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.

4. UTILITIES

The Owner will provide water and electricity to the extent they are available at the project site.

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 for making temporary disruptions to existing utilities serving the building, and roads and pedestrian walks shall be planned well in advance of the work and the work shall be executed in a manner to provide reasonably continuous service throughout the construction period. Interruptions of service shall be coordinated with the Contract Administrator at least seven (7) days in advance.

5. **SECURITY**

Contractor shall coordinate security requirements with the UNC-CH Construction Manager.

6. **USE OF SITE**

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 (Saturday), or on University Day (October 12).

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 8:00 am and 4:00 pm. The contractor shall notify UNC's Facility 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 UNC's Facility 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 UNC's Facility 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 UNC's Facility 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 UNC's Facility Manager.

The work shall be performed during the Owner's normal working hours, 8:00 a.m., - 8:00 p.m., Monday – Friday. Requests by the Contractor to work outside normal working hours shall be made in advance to the UNC-CH Construction Manager. 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 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 increases costs due to Owner requirement for work outside normal hours not specified in the Contract Documents will be negotiated.

Contractors working for the University are required to comply with The University of North Carolina at Chapel Hill "No Smoking Policy", which is provided herein and hereby incorporated and made a part of this contract.

7. ALTERNATES

See Section 012300, "Alternates" for listing.

8. SUBCONTRACTS and SUBCONTRACTORS

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

9. SEDIMENTATION POLLUTION CONTROL ACTY OF 1973

Any land-disturbing activity performed by the Contractor 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).

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

The Contractor 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 section.

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Contract Administrator and the agents, consultants and employees of the Owner and Contract Administrator, 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 section.

10. SUBMITTAL DATA

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

Pre-Submittals:

- Electrical & Mechanical/Plumbing 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 Project Manager for review and approval. The submittal process is described in Section 5 of the General Terms and Conditions. Refer to "Technical Specifications" for required submittals. All Pre-Submittals shall be delivered to the Project Manager no later than the Preconstruction Meeting. The Project Manager shall receive all Post-Submittals within

30 (30) days of work completion. The final pay request shall be included with Post-Submittals.

11. DEFINITIONS

As defined in Article 1 of the General Conditions, the Supplementary General Conditions as well as the UNC-CH General Requirements are considered part of the contact documents.

The Owner is the State of North Carolina through the University of North Carolina at Chapel Hill.

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

SECTION 011000 – GENERAL SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and other Division 1 Specifications Sections, apply to this section.

1.2 INSTRUCTIONS TO BIDDERS

- A. "Form of Proposal" is provided herein.
- B. A form of Bid Bond is provided herein.
- C. Bidders must be licensed General Contractors for a minimum of five (5) years of the class required by North Carolina Statutes for executing the work being bid. Bidder's name, address, State license number, and the date of license must appear on the outside of the envelope containing Bidder's proposal.
- D. Prior to an award of contract, and upon request, submit to Engineer or Owner satisfactory evidence of current and appropriate license pursuant to the applicable provisions of that State's General Statutes governing the business of "General Contracting" and such other rules, regulations and/or ordinances as may be applicable to performance of the work specified herein. Failure to provide evidence of an appropriate license by any bidder as described herein shall result in that bid, quotation or proposals not being considered.
- E. All experience must have been acquired by bidding contractor named on the form of proposal. Firms using aliases, or who have changed names during the five (5) year period are subject to disqualification at the discretion of the Owner.
- F. The roofing contractor shall submit certification from the roofing materials manufacturer that he is a contractor who is qualified and certified by the materials manufacturer to install the roofing system specified and issue the warranty required.
- G. Bidder, by submitting a bid for this project, certifies that the bidding contractor is acceptable to the roofing system manufacturer as an installer of the manufacturer's system in all regards and no warranties required by the contract documents will be withheld by the manufacturer solely as a result of the bidder's qualifications to perform the work.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project generally consists of roof replacement of low slope Roof Areas 1-9 and roof replacement of the steep slope Area A on the Memorial Hall Building on the campus of The University of North Carolina at Chapel Hill. The project also generally consists of the installation of fluid applied coatings to internal gutters, flashing penetrations, and steep slope area B, replacement of coping caps, replacement of counterflashing, and all other miscellaneous work associated herein.

- 1. Project location: 114 E Cameron Ave, Chapel Hill, NC 27514
- 2. Owner: University of North Carolina at Chapel Hill
- 3. Refer to Roof Plan.

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- B. The Owner has elected to designate Terracon Consultants, Inc., Raleigh, North Carolina, as Engineer for this Project.
 - C. The terms "Architect" and "Engineer" used in the contract documents are that individual, partnership, or corporation engaged by the Owner for the preparation of certain of the Contract Documents and referred to in the Contract Documents. The "Architect" or "Engineer" may, however, be an Architect, Architect-Engineer, Engineer or other design professional authorized by the Owner to perform such functions and the terms are interchangeable.
 - D. The work under the Base Bid is as follows. Refer to Roof Plans.
 - 1. Low Slope Roofing Replacement: Work on the Memorial Hall building generally consists of the following:
 - a. Areas 1, 2, and 7 generally consists of the complete removal of all existing roofing membrane, insulation, flashings, metal wall panels, metal flashing, coping caps and the installation of a new PVC/KEE membrane, cover board, tapered (where indicated on plans) and base insulation, temporary roof membrane, gypsum underlayment, metal wall panels, flashings, metal flashings, fluid applied flashings, coping caps, new fluid applied coating within existing internal drains, new drain extensions where required, new lightning protection system, new fall protection systems, new guardrails at existing hatches and all associated miscellaneous work as specified herein.
 - b. Area A generally consists of the complete removal of all existing coated standing seam metal panels, asbestos containing built up felt and asphalt base sheet, flashings, metal flashing, and the installation of a new standing seam metal panels, high temperature underlayment adhered to a pyrofill gypsum deck, flashings, metal flashings, new roof hatch with guardrails and stairs, and all associated miscellaneous work as specified herein.
 - E. Work under Alternate No. 1 is on Areas 3, 4, 5, 6, 8 and 9 generally consists of the complete removal of all existing roofing membrane, insulation, flashings, metal flashing, coping caps and the installation of a new PVC/KEE membrane, cover board, tapered (where indicated on plans) and base insulation, temporary roof membrane, gypsum underlayment, flashings, metal flashings, fluid applied flashings, coping caps, new drain extensions where required, and all associated miscellaneous work as specified herein.
 - F. Work under Alternate No. 2 is on Area B and the internal gutters, which generally consists of the installation of a new fluid applied coating system, and all associated miscellaneous work as specified herein.

1.4 DESCRIPTION OF EXISTING SYSTEM

- A. Information in this Section is provided only to establish general description and is not necessarily accurate. The Contractor is responsible for visiting the site and becoming satisfied as to the existing conditions, size of roof areas, etc. before preparation and submission of bid. Receipt of bid will be considered evidence Contractor has inspected roof or otherwise become satisfied on all details relating to the work.
- B. Existing Systems:
 - 1. **Area 1:** Approximately 7,800 square feet barrel roof sloped on either side to internal gutters with drains. Composed of fully adhered single ply membrane adhered over two layers of 2-inch polyisocyanurate insulation in low rise foam adhesive over a 2-inch pyrofill gypsum deck, over wood fiber board forms, supported by bulb tees and steel trusses.
 - 2. **Area 2:** Approximately 610 square feet low slope roof, structurally sloped to a draining edge to the roof area below. Composed of fully adhered single ply membrane adhered over two layers of 2-inch polyisocyanurate insulation fastened to a metal deck.
 - 3. **Area 3:** Approximately 900 square feet low slope roof, utilizing tapered insulation to slope to internal roof drains. Composed of fully adhered single ply membrane adhered over

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- tapered and base polyisocyanurate insulation adhered to a 5.25" composite concrete deck. Asbestos containing flashing was identified in the parapet wall shared with the internal gutter.
4. **Area 4:** Approximately 700 square feet low slope roof, utilizing tapered insulation to slope to internal roof drains. Composed of fully adhered single ply membrane adhered over tapered and base polyisocyanurate insulation adhered to a 5.25" composite concrete deck.
 5. **Area 5:** Approximately 730 square feet low slope roof, structurally sloped to a draining edge to the roof area below. Composed of mechanically attached single ply membrane adhered over two layers polyisocyanurate insulation fastened to a metal deck.
 6. **Area 6:** Approximately 1100 square feet low slope roof, utilizing tapered insulation to slope to internal roof drains. Composed of fully adhered single ply membrane adhered over tapered and base polyisocyanurate insulation adhered to a 5.25" composite concrete deck.
 7. **Area 7:** Approximately 4,650 square feet low slope roof, structurally sloped to one side where a cricket diverts water to two internal drains. Composed of fully adhered single ply membrane adhered over two layers of 2-inch polyisocyanurate insulation in low rise foam adhesive over a 5.25" composite concrete deck.
 8. **Area 8:** Approximately 1,670 square feet low slope roof, structurally sloped to one side where a cricket diverts water to two internal drains. Composed of fully adhered single ply membrane adhered over two layers of 2-inch polyisocyanurate insulation in low rise foam adhesive over a 5.25" composite concrete deck.
 9. **Area 9:** Approximately 565 square feet low slope roof with minimal slope to two roof drains. Composed of coated asphalt and felt built up membrane over ¾-inch plywood fastened to wooden support beams, supported on either side by the concrete deck below. Asbestos was detected in the white caulk on the balustrade and in the built up roof membrane.
 10. **Area A:** Approximately 1,970 square feet steep slope roofing. Water drains to area 1 and to internal gutters with drains. Composed of coated standing seam metal panels over asbestos containing built up felt and asphalt base sheet over pyrofill gypsum deck. Batt insulation with liner is suspended below the deck.
 11. **Area B:** Approximately 1,970 square feet steep slope roofing. Water drains to internal gutters with drains. Composed of standing seam metal roof over plywood sheathing over insulation fastened over a metal deck.
 12. **Internal Gutters:** Generally consists of a copper liner over asbestos containing felts over pyrofill gypsum deck. In some cases, a coating is present over the copper liner.
- C. Asbestos:
1. **Area 3:** Asbestos is present on top of the parapet walls and continues under the internal gutter flashing. It is not anticipated that this material will be affected and should be left in place. Should it be necessary to disturb this material, stop work and notify Engineer.
 2. **Area 9:** Asbestos is present in the white caulk on the balustrade and in the built-up roof membrane. All asbestos containing materials are to be abated and legally discarded.
 3. **Area A:** Asbestos containing built up felt and asphalt base sheet over the pyrofill gypsum deck was observed under the metal roof panels. All asbestos containing materials are to be abated and legally discarded.
- D. Low side of barrel roof Area 1, and Area 2-4 are approximately 45 feet above grade. Area 5 is approximately 40 feet above grade. Area 6 is approximately 14 feet above grade. Area 7 is approximately 82 feet above grade. Area 8 is approximately 39 feet above grade. Area 9 is approximately 29 feet above grade.
- E. Contractor shall be responsible to document all existing damage to facility prior to beginning work and producing documentation acceptable to Engineer prior to starting work. Damage discovered during the project, which was not documented, and which is not clearly the responsibility of others, may be presumed by the Engineer or Owner as the responsibility of the contractor. Documentation may be in the form of written statements and/or drawings but must also be supported with photographs and/or video tape supplied by contractor.

1.5 START AND COMPLETION

- A. Refer to General Conditions, Article 23 – Time of Completion, Delays, Extension of Time.
- B. After Contracts are fully executed, a Notice to Proceed will follow within thirty (30) calendar days.
- C. Work on the project under the Base Bid is to be complete within Seventy-Five (75) calendar days.
- D. Work on the project may begin immediately after Contracts are signed. Actual physical work may begin within two weeks of the date given in the Notice to Proceed.
- E. Materials may be delivered to the site prior to the start of physical work upon approval by the Owner. Material staging will be made available in the parking lot identified on the plans.
- F. All time limits stated in the Contract are of the essence with respect to Contractor's obligations hereunder.
- G. Pework Conference: Prior to start of work there shall be a conference attended by the Contractor, the representative of the Owner, roofing manufacturer's representative, and other parties who may be designated by the Owner, to be convened at the work site for the purpose of reviewing the specifications and job conditions and resolving any questions then arising. Contractor shall advise the office of the Owner of date and time at least one week before the date to allow proper notification of parties.
- H. Refer to General Conditions, Article 25 – Final Inspection, Acceptance, and Project Closeout

1.6 LIQUIDATED DAMAGES

- A. Liquidated damages will apply starting the first calendar day after the date established for final completion and will be assessed at a rate of \$500.00 per day for each calendar day, until such time as all construction is complete and has been accepted by the Owner.
- B. Contractor, by submitting a bid for this project, attests and agrees that the value of liquidated damages as stated are a fair and equitable representation of damages to the Owner in the event project is not completed within the allotted time.
- C. In the event the project extends beyond the contract period (including any extensions to contract, approved by Owner), Owner will back charge the contractor for fees and expenses attributable to additional services by Owner's consultants which are provided solely as a result of the project being extended beyond the contract period. Owner may withhold monies attributable to these fees and expenses from contractor's requests for payment. Where liquidated damages are imposed as a result of the contract between the Owner and Contractor, these fees and expenses will be funded from the liquidated damage payments by the contractor. Owner may withhold monies attributable to these fees and expenses from contractor's request for payment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012100 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
 - 1. Unit-cost lump sums
- C. Related Sections include the following:
 - 1. Division 1 Section "Unit Prices" for procedures for using unit prices.

1.3 ALLOWANCE PROCEDURES

- A. Prior to the conclusion of the project, credit the amount of unused allowance to Owner by Change Order.
- B. Deductive amounts of unit price work included in the Contract Sum will be calculated at 100% of the quoted unit price.

1.4 CONTINGENCY ALLOWANCE

- A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.
- B. Funds will be drawn from the Contingency Allowance only by Change Order.
- C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 UNIT PRICE ALLOWANCES SCHEDULE

- A. Include the following unit price allowances in the Contract Sum.
 - 1. Allowance No. 1 – Wire brush and paint 500 square feet of deteriorated metal decking.

-
2. Allowance No. 2 – Wire brush, paint and plate 250 square feet of deteriorated metal decking.
 3. Allowance No. 3 – Replace 100 square feet of deteriorated metal decking.
 4. Allowance No. 4 – Replace 250 board feet of damaged deteriorated wood blocking.
 5. Allowance No. 5 – Install 100 fasteners at loose metal deck side laps.
 6. Allowance No. 6 – Install 100 fasteners to secure loose metal deck to existing framing members.
 7. Allowance No. 7 – Repair 250 square feet of damaged or deteriorated pyrofill gypsum/structural concrete.
 8. Allowance No. 8 – Install Plywood over steep slope pyrofill deck at Area A with fasteners and at rates as determined from pull tests.

END OF SECTION 012100

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems or installation methods described in the Contract Documents.
- B. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Add Alternate No. 1:
 - 1. Replace Roof Areas 3, 4, 5, 6, 8 and 9 as noted herein.
 - 2. In the event Alternate No. 1 is accepted, the contract time will be increased by forty-five (45) calendar days.
- B. Add Alternate No. 2:
 - 1. Install fluid applied coating Area B and the internal gutter below as noted herein.
 - 2. In the event Alternate No. 2 is accepted, the contract time will be increased by fourteen (14) calendar days.

END OF SECTION 012300

SECTION 012700 – UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.
 - 2. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. Unit price is an amount proposed by Bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Include in unit prices all necessary material, plus cost of delivery, installation, insurance, taxes, overhead and profit.
- B. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- C. List of Unit Prices: A list of unit prices if included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.
- D. Contractor shall maintain a daily log showing dates, location and exact quantities of unit price work. Contractor is responsible for providing photographic evidence of unit price work installed. Copies of log and appropriate change order forms shall be submitted with each application for payment unless no unit price work is accomplished during the period covered by the application.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Unit Price No. 1 – Wire brush and paint metal deck.
 - 1. Description: Wire brush and paint rusted metal decking according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per square foot.
- B. Unit Price No. 2 – Wire brush, paint and plate metal deck.
 - 1. Description: Wire brush, paint and plate deteriorated metal deck according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per square foot.
- C. Unit Price No. 3 – Replace steel deck.
 - 1. Description: Replace damaged/deteriorated metal deck according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per square foot.
- D. Unit Price No. 4 – Replace damaged or deteriorated wood blocking.
 - 1. Description: Replace damaged or deteriorated wood blocking according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per board foot.
- E. Unit Price No. 5 – Secure metal deck side laps.
 - 1. Description: Secure existing metal deck side laps according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per fastener.
- F. Unit Price No. 6 – Resecure metal deck.
 - 1. Description: Resecure existing metal deck to existing structural members according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per fastener.
- G. Unit Price No. 7 – Repair Pyrofill Deck.
 - 1. Description: Repair damaged and deteriorated Pyrofill decking according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per square foot.
- H. Unit Price No. 8 – Install Plywood over Pyrofill deck on area A.
 - 1. Description: Install Plywood over steep slope pyrofill deck at Area A with fasteners and at rates as determined from pull tests according to Division 7 Section "Roofing Preparation."
 - 2. Unit of Measurement: Per Unit.

END OF SECTION 012700

SECTION 012900 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.
 - 2. Division 1 Section "Unit Prices" for procedures for using unit prices.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Prior to start of any work, Contractor must submit to Owner a Schedule of Values on a copy of AIA Document G703 listing each phase of the work and its scheduled value. Contractor must be prepared to verify all material costs by producing supplier invoices, bills of lading, etc. upon request by Owner.
 - 2. Schedule of Values, shall include labor and material line items for all material components with a material value of more than \$2,000.00 or 5% of the contract amount (whichever is least). The schedule of values must include, as a minimum, line items for any of the following which are applicable to this project including separate labor and material line items where applicable.
 - a. Mobilization
 - b. Roof Access
 - c. Performance and Payment Bonds
 - d. Demolition
 - e. Wood Blocking
 - f. Underlayment
 - g. Cover Board
 - h. Single-Ply Membrane
 - i. Insulation
 - j. Base Flashing
 - k. Sheet Metal Flashing and Trim
 - l. Metal Wall Panels
 - m. Drains
 - n. Scuppers
 - o. Site Cleanup
 - p. Manufacturer's Inspections
 - q. Unit Price Work
 - r. Guarantee

3. Schedule Updating: Update and resubmit the Schedule of Values before the next Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.
4. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
5. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

1.4 APPLICATIONS FOR PAYMENT

- A. Monthly pay estimates shall be submitted to Engineer by email on AIA Document G702 and AIA Document G703.
- B. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- C. Applications for payment requesting payment for materials will not be certified or approved unless accompanied with Manufacturer's Certificates of Compliance for those materials. It is suggested that Contractor request material certificates of compliance from material suppliers at the time materials are ordered.
- D. Include a retainage amount of five percent (5%) for the value of materials stored at the site and work executed.
- E. A payment or payments made to Contractor for work performed shall not constitute acceptance or approval of the work and shall in no way relieve Contractor from the requirements of the Contract.
- F. All sums received by Contractor for any part or parts of the work furnished or performed by a Subcontractor shall be paid promptly to the latter by Contractor, and while in the hands of Contractor, shall constitute trust funds held for the use and benefit of Owner.
- G. If payments are to be made on account of materials or equipment not incorporated in the work but delivered and suitably stored at the Site, or at such other location agreed upon in writing, such payments shall be conditioned upon submission by Contractor of bills of sale or other documents satisfactory to Owner establishing Owner's title to such materials or equipment or otherwise protecting Owner's interest therein including the prepayment of applicable insurance and transportation charges to the Site.
- H. Contractor warrants and guarantees the title to all work, materials and equipment covered by an invoice, whether or not incorporated in the work, will pass to Owner upon Contractor's receipt of the payment covering such work, materials and equipment, free and clear of all liens or other similar or dissimilar encumbrances in any way affecting Owner's title thereto.
- I. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

-
- J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. Schedule of Values.
 - 3. Contractor's Construction Schedule (preliminary if not final).
 - 4. List of Contractor's staff assignments.
 - 5. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 - 6. Initial progress report.
 - 7. Report of preconstruction conference.
 - 8. Certificates of insurance and insurance policies.

 - K. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 - 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

 - L. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 - 1. Evidence of completion of Project closeout requirements.
 - 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 - 3. Updated final statement, accounting for final changes to the Contract Sum.
 - 4. Affidavit of Payment of Debts and Claims.
 - 5. Affidavit of Release of Liens.
 - 6. Consent of Surety to Final Payment.
 - 7. Completion Agreement Form.

1.5 FINAL PAYMENT APPLICATION

- A. Refer to Section 014000 – QUALITY REQUIREMENTS, Paragraph 1.5, Inspection of Work for Final Inspection Requirements and related provisions for final payment and closeout documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012900

SECTION 013300 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples and other miscellaneous submittals.
 - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 7 Section for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Shop Drawings: Drawings, diagrams, illustrations, schedules, performance charts, brochures and other data prepared by Contractor or any Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor which illustrate some portion of the work.
- B. Samples: Physical examples furnished by Contractor to illustrate materials, equipment or workmanship and establish standards of work.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate the schedule for submittal of shop drawings and samples with progress schedule and the requirements of the Contract. Failure to schedule and submit shop drawings and samples in ample time for checking, correction and rechecking will not justify any delay in the timely performance of the work.
- B. Submittal Schedule: Within two weeks after award of Contract, provide a schedule of the dates for submission of each shop drawing and sample required by the Contract.
- C. Processing Time: Allow sufficient time for an orderly review with reasonable time for checking, correction and rechecking corrections, as well as returning the approved or rejected shop drawings and samples to Contractor and, in turn, any Subcontractor.
- D. Allow a minimum of 10 working days from the date submittal is received until the date the submittal is required to be returned to the Contractor.
- E. If a submittal contains more than 10 shop drawings, indicate which drawings must be returned within the period of 10 working days, and, in such event, allow an additional 10 working days for return of the balance of the submittal.
- F. Identification: Provide each submittal with the following information:
 - 1. Owner's and Engineer's respective project numbers.
 - 2. Date of submittal.
 - 3. Submittal number.

4. Title of project.
 5. Name of Contractor and date of Contractor's approval.
 6. Name of Subcontractor or supplier and date of submittal to Contractor.
 7. Reference to Specification Section and Paragraph and/or Drawing Number.
 8. The specific location of that portion of the work covered by the submission.
 9. Any qualification, departure or deviation from the requirements of the Contract.
 10. Any additional information required by the Specifications for the particular material being furnished.
- G. Provide a space on each shop drawing for the approval stamps of Contractor, Engineer and Engineer's sub-consultants, if any.
- H. Transmittal Form: Use form of transmittal contained at the end of this Section, or a similar form containing the same information.
- I. Numbering: Number each submittal. Retain numbering system throughout all revisions.
- J. Submit all associated shop drawings relating to a complete assembly at the same time, where possible, so that each may be checked in relation to the entire proposed assembly.
- K. Prepare composite shop drawings and installation layouts, when required, to depict proposed solutions for tight field conditions. Coordinate composite shop drawings and field installation layouts in the field with Subcontractors for proper relationship to the work of all other trades involved in the work.
- L. Prior to submission, review, affix a stamp on, and indicate approval of all shop drawings and samples. Determine and verify field measurements and availability of the material, and coordinate each shop drawing and sample with requirements of the Contract.
- M. All submittals are to be submitted electronically to the Engineer.
- N. Engineer will review Shop Drawings and Samples to determine conformance with the design concept of the Project and with the information given in the Contract. Engineer's approval of a separate item shall not be construed to mean approval of the assembly of which such item is a part.
- O. Engineer's approval of Shop Drawings or Samples shall not relieve Contractor of responsibility for any deviation from the requirements of the Contract unless Contractor has informed Engineer in writing of such deviation at the time of submission and Engineer has given written approval to the specific deviation, nor shall Engineer's approval relieve Contractor from responsibility for errors or omissions in the shop drawings or samples.
- P. Make corrections required by Engineer and resubmit corrected copies of shop drawings or new samples until approved. Direct specific attention in writing, or on resubmitted shop drawings, to revisions other than the corrections required by Engineer. The number and distribution of copies shall be the same as in Contractor's first submission.
- Q. In the event that Engineer shall mark shop drawings "approved" or "approved as noted," make such corrections, if any, as may be noted. Correction shall be made on, and prints for final distribution shall be made from, the drawings bearing Engineer's notations and impress stamps. Final distribution of prints shall be made by Contractor.
- R. Do not commence any portion of the work requiring a shop drawing or sample until the submission has been approved by the Engineer. All such portions of the work shall be in accordance with approved shop drawings and samples.
- S. Do not commence any work which will result in structural changes in walls, steel, floors and masonry prior to Engineer's written approval. Fully describe all details of methods, shoring and bracing in submission for such work.

- T. Contractor shall submit a copy of building permit prior to beginning work.

1.5 LIST OF PROJECT SUBMITTALS

- A. Refer to Project Document Checklist at the end of this Section for submittals that will be required from contractor and approved by Engineer prior to start of work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

SUBMITTAL TRANSMITTAL

Date: _____

From: _____ To: Terracon Consultants, Inc.

2401 Brentwood Road, Suite 107

Raleigh, NC 27604

Project Name: _____ UNC Memorial Hall Roof Replacement

Owner: _____ University of North Carolina at Chapel Hill, Chapel Hill, NC

Owner's Project Number: _____ 22-25151-01A

Terracon Consultants, Inc. Project Number: _____ FJ226041

Submittal Number: _____ No. of Copies: _____

Specification Section and Paragraph Reference(s): _____

Drawing/Detail Reference(s): _____

Location of Work: _____

Product Manufacturer: _____

Supplier/Subcontractor: _____

Date submitted to Contractor: _____

Qualifications/Deviations From Specifications: _____

CONTRACTOR'S APPROVAL

THIS SUBMITTAL HAS BEEN PREPARED BY THE CONTRACTOR OR THOROUGHLY REVIEWED BY THE CONTRACTOR AND IS A CONTRACTOR APPROVED SUBMITTAL SUBJECT TO ANY QUALIFICATIONS MADE HEREON OR ON THE ATTACHMENTS.

SIGNED: _____ DATE: _____
NAME: _____

ENGINEER'S APPROVAL

APPROVED _____; APPROVED AS NOTED _____; NOT APPROVED - RESUBMIT _____;
REVIEWED _____; APPROVED FOR CONSTRUCTION ACCORDING TO NOTATIONS.
REVISE AND RESUBMIT _____; REFER TO APPROVAL STAMP ON ATTACHMENT _____

Checking by Engineer is only for conformance with the design concept of the project and compliance with the information given in the contract documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

SIGNED: _____ DATE: _____

PROJECT DOCUMENT CHECKLIST

SUBMITTALS

- Materials List
- Materials Data Sheets
 - Lumber
 - Prefinished Galvalume
 - Sealant
 - Membrane
 - Gypsum Underlayment Board
 - Temporary membrane
 - Polyisocyanurate Insulation
 - Gypsum Cover Board
 - Base Flashing
 - Coping Cap
 - Wood Fiber Tapered Edge Strips
 - Self-adhering Underlayment
- Manufacturer's Application Procedures
- Copies of Authorizations and Licenses from Authorities having jurisdiction
- AIA Document G703, Schedule of Values
- Material Safety Data Sheets
- Schedule for Removal and Installation
- Written Safety Procedures
- Underwriter's Laboratories, Inc. Class A Roof Covering Certificate from Roofing System Manufacturer
- Shop Drawings
- Metal Samples
- Color Chart
- Documentation of Existing Conditions
- Certification from Manufacturer that Contractor is an Approved Installer
- List of Subcontractors
- List of Contractor Staff Assignments and Qualifications
- Tapered Insulation Shop Drawings
- Metal Shop Drawings
- Asbestos Abatement Permit and License
- Building Permit

END OF SECTION 013300

SECTION 014000 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and other Division 1 Specifications Sections, apply to this section.

1.2 SUMMARY

- A. This section includes administrative and procedural requirements for quality assurance and quality control.

1.3 SUPERINTENDENT

- A. For the purpose of these Specifications the designation "superintendent" is hereby defined as the individual present on the job site at all times work is being performed.
- B. The superintendent shall not be changed except with the consent of the Owner and Engineer, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employment.
- C. The superintendent shall be in attendance at the project site at all times during the progress of the work and his duties as superintendent shall be limited to this project only. The superintendent shall supervise and instruct workmen. Should the superintendent be absent temporarily from the project at any time, he shall designate a competent foreman to assume his duties.
- D. The superintendent shall have had a minimum of five (5) years continuous experience as a job superintendent.
- E. Only the project superintendent (or the designated foreman in the superintendent's absence) will be permitted inside the facility, except when accompanied by the superintendent to perform work or in cases of emergency.
- F. The Contractor shall provide the Owner, in writing, the name of the proposed project manager, job superintendent and foreman for approval no later than seven (7) days prior to the prework conference. Also include chronological listing of superintendent's experience by project name, type system, size and required warranty.
- G. Once approved, neither the project manager nor the superintendent will be changed except with the consent of the Owner unless either proves to be unsatisfactory to the Owner or Contractor, or ceases to be in the Contractor's employment.
- H. Promotion or reorganization within the company will not be an acceptable cause for reassignment of project manager or superintendent.
- I. It shall be the superintendent's responsibility to communicate all matters pertaining to the Work with the Owner and/or Engineer. In case of emergency or safety, superintendent shall communicate directly with the Owner or Owner's representative, and, immediately thereafter, notify the Owner and/or Engineer. No decisions regarding changes in the Work will be made without the Owner's knowledge.

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- J. Each day before work begins, superintendent shall indicate on the Roof Plan the area to be reroofed that day. Color markers are appropriate for this purpose. If changes in the work schedule occur, the Owner shall be notified accordingly.
 - K. The job superintendent will have a local contact phone number.

1.4 INSPECTION OF WORK

- A. Work found to be in violation of specifications or not in accordance with established workmanship practices and standards will be subject to complete removal and proper replacement with new materials at Contractor's expense.
- B. Owner will provide inspection during the work. Such inspection may be periodic or daily.
- C. The words "supervise" and "inspect" wherever used herein in connection with the duties or activity of the Owner shall in no way, expressed or implied, relieve the contractor from his responsibilities for the safety of the workmen, the preservation of the work or proper performance under this contract. The Owner shall not be responsible for the safety of the workmen, the safeguarding of the work, or the proper performance of the Contractor.
- D. No Inspector shall have the power to waive the obligations resting upon the Contractor to furnish good material and do good work as herein prescribed. Any failure or omission on the part of any Inspector or the Engineer to observe, object to or condemn any defective material or work shall not release the Contractor from the obligation to at once tear out, remove, and properly replace or rebuild the same at any time upon discovery of the defect and upon notice from the Owner or Engineer to do so.
- E. Materials stored on site which are marked by the Inspector, Engineer or Owner as not meeting the requirements of the contract documents are to be removed from the site by the contractor immediately.
- F. Top surfacing will be judged by sight. If Inspector's decision is not acceptable to the Contractor he may, at his own expense, take samples and make tests by methods to which both parties agree.
- G. Failure of Owner or Engineer to discover or reject defective work, or work not in accordance with the Contract, shall not be deemed an acceptance thereof, nor a waiver of Owner's rights to Contractor's compliance with the Contract or performance of the work, or any part thereof. No partial or final payment, or partial or entire occupancy, by Owner shall be deemed to be an acceptance of work or of material which is not strictly in accordance with the Contract, nor shall it be deemed to be a waiver by Owner of any of Owner's rights pursuant to this Contract or otherwise.
- H. Designer Final Completion Inspection shall be conducted as follows:
 - 1. When Engineer has certified completion, Contractor shall complete all work under the contract, including any outstanding punch list items established at the Designer Final Completion; any required submittals, including warranties, release of liens, unit price logs, consents of surety, final pay request, etc.
 - 2. Designer Final Completion is defined for this project as the successful installation of every component required under the contract documents to be installed for this project. A punch list may be issued by the Engineer for work complete at this time.
- I. Final Inspection shall be conducted as follows:
 - 1. Upon final completion, Contractor must notify Engineer and Owner in writing requesting a final inspection.
 - 2. The Engineer and Owner will conduct a final inspection of all work included in the contract as soon as possible after receiving written notification by the Contractor that the work is complete and ready for inspection.
 - 3. The final inspection report shall be prepared by the Engineer and Owner listing observed deficiencies and furnished to the Contractor.

4. Upon satisfactory completion of all deficiencies, Contractor shall initial each item on the report certifying his compliance and return to the Engineer.
5. No portion of the final payment will be made until all items have been satisfactorily corrected and the project closeout documents submitted to the Architect/Engineer.
6. All project completion documents are to be submitted within thirty (30) days following acceptance by the Owner.

1.5 PERMITS

- A. Contractor is responsible for obtaining all necessary licenses and permits required by law in order to accomplish the work. Satisfactory evidence that all licenses and permits have been issued must be submitted to Owner prior to starting work.
- B. Contractor must provide all protective structures, barriers, or other means of protection necessary to assure the public safety and to fulfill all requirements by governmental authorities.
- C. Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority having jurisdiction of Contractor's performance of the work or any part thereof. If Contractor knows, or should know, that any requirement of these Specifications is at variance with any such laws, ordinances, rules, regulations or orders in any respect, Contractor shall promptly notify Engineer in writing and obtain written instructions before proceeding with the portion of the work thereby affected. If Contractor performs any work which is contrary to such laws, ordinances, rules and regulations without receiving Engineer's instructions, Contractor shall assume full responsibility therefor and shall bear all penalties and costs of remedying the work attributable thereto. However, this section shall not be construed to require Contractor to perform detailed engineering calculations normally performed by Engineer except when specifically provided.

1.6 SUBCONTRACTORS

- A. Use of Subcontractors to accomplish such miscellaneous or associated work as structural modifications, plumbing, relocation of conduit, service piping and/or HVAC equipment, etc. is permitted. Do not subcontract any part of the roofing work specified herein without the prior written consent of the Owner.

1.7 PRE-CONSTRUCTION CONFERENCE

- A. Prior to the start of work there shall be a conference attended by the Contractor, the representative of the Owner, and other parties who may be designated by the Owner, to be convened at the work site for the purpose of reviewing the specifications and job conditions and resolving any questions then arising.

1.8 MANUFACTURER'S INSPECTIONS

- A. A technical representative of the roof system manufacturer shall conduct periodic inspections throughout the course of the work. The representative shall prepare a written report for each inspection and shall promptly provide a copy of each report to the Owner, Contractor and Engineer. Each report shall note any deficiencies the representative observes which require correction. A minimum of three (3) inspections is required for this project including a final inspection after contractor has completed installation of all roof system components.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 014000

SECTION 015000 – TEMPORARY FACILITIES, CONTROLS AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities, controls, protection and disconnects.

1.3 SUBMITTALS

- A. Submit plans for work for approval prior to starting work so that, if necessary, inside operations can be coordinated with the work.

1.4 TEMPORARY UTILITIES

- A. Water Service: Use water from Owner's existing water system without metering and without payment of use charges.
- B. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities and drinking-water fixtures. Locate at sites approved by the Owner. Facilities in existing buildings are off-limits.
- D. Lunchroom Facilities: On-site facilities are not available to Contractor personnel.

1.5 TOBACCO AND VAPORIZING PRODUCTS

- A. Tobacco and vaporizing products will not be allowed on site at any time. Enforce the tobacco and vaporizing policy of the Owner with regard to Contractor's personnel. Non-compliance by any of Contractor's personnel will be justification for removal of those individuals from this project.

1.6 SCAFFOLDING AND PLATFORMS

- A. Contractor shall provide all necessary platforms and scaffolds of ample strength. Inclusive are all hoisting machinery, all appliances and materials such as ladders, planks, ropes, wedges, centers and other tools and materials including the carriage thereof to and from the buildings as required for proper handling and installation and/or erection of materials and equipment included in the work.
- B. Prior to starting work, Contractor shall obtain approval of the Owner for locations of work operations at ground level such as material storage, hoisting, dumping, etc. Work will be restricted to approved locations.

-
- C. Access to the roof will be by external means only. Access by ladder or scaffolding will be the responsibility of the Contractor.
 - 1. Ladders must be taken down daily and locked in storage or removed from site.
 - 2. Scaffolding must be barricaded to deter unauthorized usage by the public.
 - 3. Contractor is to provide sealed engineered shop drawings for any scaffolding used for access.

1.7 TEMPORARY PROTECTION

- A. Temporary measures shall be provided and maintained by the Contractor to protect the building and its contents from weather and construction related damages. Damaged or disturbed buildings or grounds to be corrected to the Owner's satisfaction prior to final payment.
- B. Protect the existing building, roof, equipment, and grounds from flying or falling debris during the demolition process. Protect so as not to disrupt building operations or cause damage to the building and its contents during construction.
- C. Protection of Pedestrians shall be provided during construction. Protection measures shall be in accordance with 3306 of the 2018 NC Building Code.

1.8 PROTECTION OF BUILDINGS AND PROPERTY

- A. Note that building will remain occupied during work. Take all precautions necessary to protect building, contents and personnel from damage or injury from operations and from water entry into the building during construction. Keep dust and dirt to a minimum.
- B. At conclusion of each day's work, carefully inspect work including temporary daily tie-offs to ensure system is completely water-tight, all stored materials are suitably protected from the weather and all equipment is stored in such a manner as not to interfere with facility operations.
- C. On normal workdays when no work is accomplished due to inclement weather or other reasons, visit the site no later than normal start time and verify that the system is completely water-tight, all stored materials are suitably protected from the weather and all equipment is stored in such a manner as not to interfere with facility operations. Be prepared to implement emergency repairs as necessary to prevent leakage into the facility.
- D. Prior to starting work, obtain approval from Owner for locations of work operations at ground level, such as material storage, hoisting, dumping, etc. Restrict work to approved locations
- E. Prevent any work which could reasonable be deemed to be hazardous from taking place over or adjacent to occupied areas. Coordinate with the Owner the vacating of such affected areas of all occupants and give the Owner adequate notice to allow time to comply. Post a watchman inside the building in the affected area(s) at all times during the work to ensure no one enters or remains in the affected area(s).
- F. Contractor shall protect adjacent existing and new roof areas from damage. In the event roofing is damaged, Contractor is to restore to the original condition at no cost to the Owner.
- G. Remove debris and other material from the site in a timely manner to minimize accumulation.
- H. Owner reserves the right to judge whether or not debris is being removed in a timely manner. In the event debris is not removed from the site as required to maintain the site in a manner acceptable to the Owner, the Owner reserves the right to engage other contractor(s) or its own forces to clean the areas and deduct costs of such operations from this Contract.
- I. Protect grounds and landscaping from damage. In the event of damage, restore damaged property to a condition equivalent to that at time of start of operations.

-
- J. Document all existing damage to facility prior to beginning work and produce documentation acceptable to Engineer/Owner prior to starting work. Damage discovered during the project which was not documented and which is not clearly the responsibility of others may be presumed by the Engineer/Owner as the responsibility of the Contractor. Documentation may be in the form of written statements and/or drawings but must also be supported with photographs and/or video tape supplied by the Contractor.
 - K. Isolate equipment from non-Contractor personnel by whatever means necessary, including the construction of a six-foot tall chain link fence (which completely surrounds the equipment, bitumen storage and personnel necessary to maintain the equipment) with integral lockable gate. Owner reserves the right to judge adequacy of Contractor's methods to isolate equipment and may, at any time, demand construction of the fence as compliance with this requirement. Should the Owner demand the construction of the fence, such shall be accomplished at no additional cost to the Owner.
 - L. Implement related safety provisions imposed by local fire marshals, etc. Determine what procedures will be acceptable prior to submitting a bid or proposal.
 - M. Initiate, maintain and supervise all safety precautions and programs in connection with the work. Take all necessary precautions for the safety of, and provide the necessary precaution to prevent damage, injury or loss to:
 - 1. All employees on the work and other persons who may be affected thereby.
 - 2. All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site.
 - 3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
 - 4. Comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. Erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety and protection. Remedy all damage, injury or loss to any property caused, directly or indirectly in whole or in part, by the Contractor, and Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

1.9 DISCONNECTS

- A. In the event it is necessary to disconnect any electrical wiring or connections, plumbing lines or other building services, notify the Owner. Do not disconnect or connect services unless authorized in writing by Owner.
- B. Include in Base Bid all costs required for modification of existing service piping, wiring and duct work required in connection with the lifting, removal or relocation of roof-mounted equipment.
- C. All associated work is to be accomplished by appropriately licensed personnel in accordance with all applicable codes and regulations.
- D. Review roof-top equipment usage with Owner and facility user at beginning of project. Disable equipment determined to be essential to the operations of the facility only at those times prescribed by the Owner. This may require work to be done at other than normal operating hours.

1.10 USE OF PREMISES

- A. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

-
1. Owner Occupancy: Allow for Owner occupancy of Project site and use by the public.
 2. Driveways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Use of Existing Building: Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.11 OWNER'S OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period as this school is on a year round calendar. The construction schedule has been developed around the recess periods for the students. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.
1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 2. Owner Occupancy of Completed Areas of Construction: Owner will occupy the building, before Substantial Completion, as provided in the construction schedule.

1.12 GROUNDS RESTORATION

- A. Upon completion of required work, contractor is to restore grounds to a level equivalent to the condition prior to the start of the project. This includes but is not limited to:
1. Cleaning grounds of trash and debris.
 2. Smoothing ruts and discontinuities in the soil.
 3. Reseeding grass.
 4. Pavement restoration.
 5. Concrete restoration.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 015000

SECTION 017320 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Removals.
- B. Related Sections include the following:
 - 1. Division 1 Section "Unit Prices and Allowances."
 - 2. Division 7 Section "Roofing Preparation."

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REMOVALS

- A. Remove all single ply membrane, insulation, flashings and metal flashings, and discard.
 - 1. Existing metal liners in the internal gutters are to remain in place.
- B. Lift or remove all existing equipment so that existing flashings can be totally removed, and new flashings installed.
- C. Carefully relocate all electrical, co-axial, telephone, fiber optic, security camera, lightning protection, intercom and miscellaneous wires, cables, etc. as required to accomplish work specified herein. Accomplish such relocation without interrupting the service provided by these lines except as specifically authorized by the Owner.
- D. Remove or correct any obstruction which might interfere with the proper application of new materials.
- E. Remove, maintain, and reinstall hatches (all but on Area A), door, and louver components. Remove and discard the hatch on Area A.

END OF SECTION 017320

SECTION 017330 – ASBESTOS PRODUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements relating to asbestos-containing materials.
- B. Related Sections include the following:
 - 1. Division 7 Section 070000 - "Roofing Preparation."

1.3 PROCEDURES

- A. It is the intention of these Specifications that no asbestos-containing materials be incorporated into the work and that, unless specifically designated to remain, no existing asbestos-containing materials incorporated in the existing roof system will remain subsequent to completion of the work. In the event additional hidden or unanticipated asbestos-containing materials are present in the existing roof system, stop all work in the affected area, notify the Engineer and provide temporary protection as required. Costs incurred, if any, due to the presence of hidden and/or unanticipated asbestos-containing materials will be resolved by Change Order to this Contract.
- B. Products containing asbestos fibers are present on roof areas on which work is specified. Attached to this section you can find the asbestos testing results.

1.4 WARRANTY

- A. Upon completion of the work, and before final payment and/or release of retainage, submit, and obtain from each subcontractor, material supplier and equipment manufacturer and submit, a properly executed Asbestos Free Warranty. Provide Warranty in the form included herein. Ensure forms are signed by a responsible officer of the Contractor, subcontractor, material supplier and equipment manufacturer and are notarized.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

ASBESTOS FREE WARRANTY
(on Contractor's standard letterhead)

Owner: _____ University of North Carolina at Chapel Hill

Location of Building: _____ Chapel Hill, North Carolina

Name of Building: _____ Memorial Building

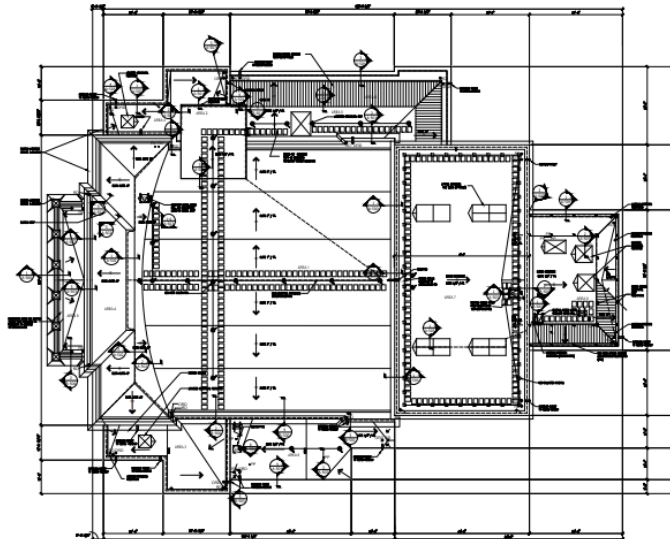
Know all men by these presents that we, _____
(Contractor, Subcontractor, Material Supplier or Equipment

having furnished labor, materials, equipment and/or supplies; removed roofing, roof insulation, vapor retarder, flashings and/or miscellaneous roof system components; accomplished certain repairs to existing roof system; installed new roofing, roof insulation vapor retarder, flashing and/or miscellaneous roof system components;

from, to and/or on _____ as shown on the roof plan below under
(Buildings, Roof Areas, etc.)

contract between _____ and _____
(Owner and Contractor) (Contractor and/or Subcontractor, Material Supplier or Equipment Supplier)

warrant to Owner with respect to said work that no materials containing asbestos fibers were incorporated into the work, and that, to our knowledge and belief, no materials containing asbestos remain in or are covered by the work.



Exceptions: _____
If there are no exceptions, state "No Exceptions" here

IN WITNESS WHEREOF, we have caused this instrument to be duly executed, this _____ day of _____ 20 _____

WITNESS:

Company

By

Notary Public

ASBESTOS REPORT



2401 Brentwood Road, Suite 107
Raleigh, North Carolina 27604
P (919) 873-2211
Terracon.com

November 30, 2022

University of North Carolina
Chapel Hill, North Carolina

Attn: Andrea Janusz
Facilities Architect
UNC Facilities Planning and Design
E: andrea.janusz@facilities.unc.edu

Re: Limited Asbestos Inspection Report
University of North Carolina at Chapel Hill – Memorial Hall Roofs
114 East Cameron Avenue
Chapel Hill, North Carolina 27514
Terracon Project No. FJ226041


Dear Ms. Janusz:


Terracon Consultants, Inc. (Terracon) is pleased to submit this limited asbestos inspection report to the University of North Carolina at Chapel Hill (Client) for the planned roof replacement project at Memorial Hall, located at 114 East Cameron Avenue in Chapel Hill, North Carolina. The inspection was performed on October 20, 2022, in accordance with Terracon Proposal No. FJ226041, dated September 9, 2022. The scope of the limited asbestos inspection included sampling of suspect asbestos-containing materials (ACM) on the roofs of the subject building.

ACM was identified in samples collected from the inspected roofs at UNC Memorial Hall in Chapel Hill. Please note that this inspection was limited to the intended areas of roof replacement. Please refer to the attached report for details.

Terracon appreciates the opportunity to provide this service to the University of North Carolina at Chapel Hill. If you have questions regarding this report, please contact the undersigned at (919) 873-2211.

Sincerely,
Terracon Consultants, Inc.


For: Christian Borrel, MS
North Carolina Asbestos Inspector


Alicia Coley, CIH
Authorized Project Reviewer

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Limited Asbestos Inspection Report

University of North Carolina at Chapel Hill
Memorial Hall – Roofs
114 East Cameron Avenue
Chapel Hill, North Carolina

Terracon Project No. FJ226041
November 30, 2022



Prepared for:

University of North Carolina at Chapel Hill
Facilities Planning and Design
Chapel Hill, North Carolina 27514

Prepared by:

Terracon Consultants, Inc.
2401 Brentwood Road, Suite 107
Raleigh, North Carolina 27604

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LIMITED ASBESTOS INSPECTION REPORT
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
MEMORIAL HALL – ROOFS
114 E CAMERON AVE, CHAPEL HILL, NORTH CAROLINA 27514
Terracon Project No. FJ226041
November 30, 2022

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted a limited asbestos inspection of the roofs of the Memorial Hall building, located at the University of North Carolina in Chapel Hill, North Carolina. The inspection was performed on October 20, 2022, in accordance with Terracon Proposal No. FJ226041, dated September 9, 2022.

The inspection detailed herein was limited to suspect asbestos-containing materials (ACM) anticipated to be disturbed by the planned replacement of the Memorial Hall roof. Please note that additional suspect ACM may exist at the property outside the scope of the inspection that have not been identified or sampled.

Suspect ACM samples were collected in general accordance with the sampling protocols outlined in Environmental Protection Agency (EPA) regulation 40 CFR 763 (Asbestos Hazard Emergency Response Act, AHERA). Samples were then delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

We understand this limited asbestos inspection was requested due to the planned roof replacement project. EPA regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers to the atmosphere during renovation or demolition activities. The asbestos NESHAP requires that potentially regulated asbestos-containing building materials be identified classified and quantified prior to planned disturbances, renovation, or demolition activities.

2.0 ROOF DESCRIPTION

A total of eight roof areas were identified at the Memorial Hall building, as detailed below:

- **Roof #1:** The main roof is a barrel roof, consisting of a fully adhered single-ply Thermoplastic Polyolefin (TPO) membrane roofing system, on top of 2" lightweight concrete deck, with two layers of polyisocyanurate insulation.
- **Roof #2:** Located on the northeast side of the building, it consists of a fully adhered single-ply TPO membrane roofing system, on top of metal decking. Insulation includes two layers of polyisocyanurate.
- **Roof #3E and #3W:** These lower side roofs, located at the northeast and northwest sides of the Memorial Hall, consist in a fully adhered single-ply TPO membrane roofing system on top of a concrete substrate, with two layers of polyisocyanurate insulation.
- **Roof #4:** This roof is a standing seam metal roof over built-up roofing base sheet and concrete substrate, without any insulation observed. The top of the pitched metal roof appears to be flat, with no slope.

Limited Asbestos Inspection Report

UNC Memorial Hall ■ Chapel Hill, North Carolina
November 30, 2022 ■ Terracon Project No. FJ226041



- **Roof #5:** The porte-cochere roof, located on the north side of the building, consists of an asphaltic layer applied over plywood substrate, mounted on wooden support beams, itself attached to a concrete substrate. The balcony also includes a stone balustrade.
- **Roof #6:** The high roof is a low slope, single-ply TPO membrane roof system, with roughly two layers of tapered polyisocyanurate insulation. This insulation is adhered to the lightweight concrete substrate.
- **Roof #7:** This low roof with metal screen wall is located on the south/south-east side of the building. It is a low slope, single-ply TPO membrane roof system with roughly 3.5 inches of tapered polyisocyanurate insulation. Existing insulation is adhered to a lightweight concrete substrate.
- **Roof #8:** This lower roof, located between the Memorial Hall and the Curtis Media Building, consists in a low slope, single-ply TPO membrane roof system, with roughly 5.5 inches of tapered polyisocyanurate insulation, over wooden deck.

3.0 FIELD ACTIVITIES

The limited asbestos inspection was performed on October 20, 2022, by Terracon representative Christian Borrel (North Carolina Accredited Inspector No. 13007). The inspection was conducted in general accordance with the sample collection protocols established in EPA regulation 40 CFR 763 (AHERA). A copy of the inspector's accreditation is included in Appendix F.

Our inspection activities began with visual observations within the roof replacement areas to identify homogeneous areas of suspect ACM. A homogeneous area consists of building materials that appear similar throughout in terms of color, texture and date of application. Building materials identified as concrete, glass, wood, masonry, metal or rubber are not considered suspect ACM. The visual assessment included suspect materials anticipated to be disturbed by the planned roof replacement project. Therefore, additional suspect ACM may exist at the property outside the scope of the inspection that have not been identified or sampled.

A physical assessment of each homogeneous area of suspect ACM within our scope of work was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material, which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with AHERA sampling protocols. Random samples of suspect materials were collected from each homogeneous area. The sample team member collected bulk samples using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker. Terracon collected a total of 105 bulk samples from 35 homogeneous areas (HAs) of suspect ACM for a total 141 distinct layers. A summary of suspect ACM samples collected during the inspection is included as Appendix B.

Bulk samples were submitted under chain of custody to EMSL of Morrisville, North Carolina for analysis by Polarized Light Microscopy (PLM) with dispersion staining techniques per EPA methodology (40 CFR 763, Subpart F). The percentage of asbestos, where applicable, was determined by microscopic visual estimation. EMSL is accredited under the National Voluntary Laboratory Accreditation Program NVLAP (Accreditation Number 200671-0). The asbestos laboratory analytical report is provided in Appendix C.

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Limited Asbestos Inspection Report

UNC Memorial Hall ■ Chapel Hill, North Carolina
November 30, 2022 ■ Terracon Project No. FJ226041



4.0 REGULATORY OVERVIEW

The following sections provide a general overview to the applicable asbestos regulations. Please refer to the complete current regulation in order to verify compliance before any actions are initiated on an ACM.

4.1 NESHAP

The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition or renovation activities. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Category I non-friable ACM includes packings, gaskets, resilient floor coverings and asphalt roofing products containing more than 1% asbestos. Category II non-friable ACM are any non-friable materials other than Category I materials that contain more than 1% asbestos.

Friable ACM, Category I and Category II non-friable ACM that is in poor condition and has become friable, or will be subjected to drilling, sanding, grinding, cutting or abrading, and could be crushed or pulverized during anticipated renovation or demolition activities, are considered regulated ACM (RACM).

4.2 North Carolina State Regulations

In the state of North Carolina, asbestos activities are regulated by the North Carolina Department of Health and Human Services, Health Hazards Control Unit (HHCU) under 10A NCAC 41C Section .0600 – Asbestos Hazard Management Program (AHMP). The AHMP requires that any asbestos-related activity conducted in a public building be performed by personnel accredited by the HHCU.

Asbestos abatement must be conducted under the direct supervision of a North Carolina accredited supervisor, except that permitted removals of roofing products may be conducted under the direct supervision of a North Carolina accredited roofing supervisor. An asbestos abatement design must be prepared by a North Carolina accredited abatement designer for each individually permitted removal of more than 3,000 square feet (281 square meters), 1,500 linear feet (462 meters) or 656 cubic feet (18 cubic meters), of regulated asbestos containing materials conducted in public areas. Third-party air monitoring must be conducted during the abatement activities in accordance with AHMP requirements.

AHMP requires that no person remove more than 35 cubic feet (1 cubic meter), 160 square feet (15 square meters), or 260 linear feet (80 linear meters) of regulated asbestos containing material, without a permit issued by the HHCU. Applications must be postmarked or received by the HHCU at least 10 working days prior to the scheduled removal start date.

4.3 OSHA

OSHA's general industry asbestos standard (29 CFR 1910.1001) requires employers to exercise due diligence in complying with the requirements to inform their employees and affected contractors working in the facility about the presence and location of both ACM and materials assumed to contain asbestos.

The OSHA Asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos during construction and maintenance activities. The standard classifies construction and

Limited Asbestos Inspection Report

UNC Memorial Hall ■ Chapel Hill, North Carolina
November 30, 2022 ■ Terracon Project No. FJ226041



maintenance activities which could disturb ACM and specifies work practices and precautions which employers must follow when engaging in each class of regulated work. States which administer their own federally-approved state OSHA programs may require additional precautions.

A full copy of the OSHA asbestos standard for general and construction industry may be found at OSHA's website (www.osha.gov) and should be referenced for specific information.

5.0 FINDINGS AND RECOMMENDATIONS

Based on the results of laboratory analysis, asbestos was identified in the following building materials sampled:

- Black tar paper, associated with the north metal roof (roof 4).
- Black parapet material, at the parapet surrounding the barrel roof (roofs 1, 2, and 3).
- White caulk on the north balcony balustrade (roof 5).
- Black tar material underneath the roof plywood (roof 5).

A summary of the classification and condition of the identified ACM is presented in Appendix A. Photographs of the identified ACM are included in Appendix D. A figure identifying general roof section locations is included in Appendix E.

The above identified asbestos-containing materials are considered NESHAP Category I non-friable ACM. The materials were observed in good condition. Terracon recommends this material be removed by a state of North Carolina licensed asbestos abatement contractor prior to roof replacement activities.

Please note that suspect ACM other than those identified during the inspection may exist within the building. Should suspect ACM other than those which were identified during this inspection be uncovered prior to or during renovation or demolition activities, those materials should be assumed asbestos-containing until sampling and analysis can confirm or deny their asbestos content.

6.0 GENERAL COMMENTS

This limited asbestos inspection was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our inspection of the building.

This report has been prepared on behalf of and exclusively for use by the University of North Carolina at Chapel Hill for specific application to their project as discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information, which may have been used in the preparation of this report. No warranty, express or implied, is made.

APPENDIX A
IDENTIFIED ASBESTOS-CONTAINING MATERIALS

Appendix A

ASBESTOS INSPECTION SAMPLE SUMMARY
University of North Carolina at Chapel Hill - Memorial Hall Roofs
111 East Cameron Street
Chapel Hill, North Carolina
Terracon Project No. FJ226041

MATERIALS CONTAINING GREATER THAN 1% ASBESTOS

HA	Material Description	Material Location	Percent / Type Asbestos	NESHAP Classification	Condition	Estimated Quantity ¹
6	Black Tar Paper	North Metal Roof (Roof 4)	45% Chrysotile	Category I Non-friable	Good	3,400 SF
14	Black Parapet Material	Parapet between Lower Flat Roofs and Barrel Roof (Roofs 1, 2, and 3)	5% Chrysotile	Category I Non-friable	Good	450 SF
21	White Caulk on Balustrade	North Front Balcony / Porte-Cochere Roof (Roof 5)	15% Chrysotile	Category I Non-friable	Good	150 SF
24	Black Tar Paper/Material underneath Plywood	North Front Balcony / Porte-Cochere Roof (Roof 5)	45% Chrysotile	Category I Non-friable	Good	550 SF

HA = Homogenous area

SF = square feet

Category I Non-friable ACM is any nonfriable resilient floor covering, asphalt roofing product, packings, and gaskets that contain more than 1% asbestos

Category II Non-friable ACM are any nonfriable materials other than Category I materials that contain more than 1% asbestos

RACM = Regulated asbestos-containing materials

¹ Quantities are estimates and should be verified by the asbestos contractor

APPENDIX B

ASBESTOS INSPECTION SAMPLE SUMMARY

Appendix B

ASBESTOS INSPECTION SAMPLE SUMMARY
University of North Carolina at Chapel Hill - Memorial Hall Roofs
111 East Cameron Street
Chapel Hill, North Carolina
Terracon Project No. FJ226041

HA	Sample Number	Description	Roof Number	Sample Location	Lab Results
1	UNCMH-1	Black Felt Paper/Insulation/Vapor Barrier	2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Flat Roof	Insulation: None Detected Vapor Barrier: None Detected Felt: None Detected
1	UNCMH-2	Black Felt Paper/Insulation/Vapor Barrier	2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Flat Roof	Insulation: None Detected Vapor Barrier: None Detected Felt: None Detected
1	UNCMH-3	Black Felt Paper/Insulation/Vapor Barrier	2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Flat Roof	Insulation: None Detected Vapor Barrier: None Detected Felt: None Detected
2	UNCMH-4	Black Felt Paper/Insulation/Vapor Barrier	1	Transition at Barrel Roof/Flat Roof (Northeast Side) - Flat Roof	Felt: None Detected Insulation: None Detected Mastic: None Detected
2	UNCMH-5	Black Felt Paper/Insulation/Vapor Barrier	1	Transition at Barrel Roof/Flat Roof (Northeast Side) - Flat Roof	Felt: None Detected Insulation: None Detected Mastic: None Detected
2	UNCMH-6	Black Felt Paper/Insulation/Vapor Barrier	1	Transition at Barrel Roof/Flat Roof (Northeast Side) - Flat Roof	Felt: None Detected Insulation: None Detected
3	UNCMH-7	Gray Light Concrete	1 / 2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Barrel Roof and Flat Roof	None Detected
3	UNCMH-8	Gray Light Concrete	1 / 2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Barrel Roof and Flat Roof	None Detected
3	UNCMH-9	Gray Light Concrete	1 / 2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Barrel Roof and Flat Roof	None Detected
4	UNCMH-10	Sheetrock	1 / 2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Barrel Roof and Flat Roof	None Detected
4	UNCMH-11	Sheetrock	1 / 2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Barrel Roof and Flat Roof	None Detected
4	UNCMH-12	Sheetrock	1 / 2	Transition at Barrel Roof/Flat Roof (Northeast Side) - Barrel Roof and Flat Roof	None Detected
5	UNCMH-13	Black Felt Paper/Insulation/Vapor Barrier	1 / 4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	Felt: None Detected Insulation: None Detected Mastic: None Detected
5	UNCMH-14	Black Felt Paper/Insulation/Vapor Barrier	1 / 4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	Felt: None Detected Insulation: None Detected Mastic: None Detected
5	UNCMH-15	Black Felt Paper/Insulation/Vapor Barrier	1 / 4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	Felt: None Detected Insulation: None Detected Mastic: None Detected
6	UNCMH-16	Black Tar Paper	4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	45% Chrysotile
6	UNCMH-17	Black Tar Paper	4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	Positive Stop (Not Analyzed)
6	UNCMH-18	Black Tar Paper	4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	Positive Stop (Not Analyzed)
7	UNCMH-19	Light Concrete Substrate	1 / 4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	None Detected
7	UNCMH-20	Light Concrete Substrate	1 / 4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	None Detected
7	UNCMH-21	Light Concrete Substrate	1 / 4	Transition/Flashing at Barrel Roof/Metal Roof (North Side)	None Detected
8	UNCMH-22	Tan Coating/Paint	4	North Side Metal Roof	None Detected
8	UNCMH-23	Tan Coating/Paint	4	North Side Metal Roof	None Detected
8	UNCMH-24	Tan Coating/Paint	4	North Side Metal Roof	None Detected
9	UNCMH-25	Caulk on Metal Roof Nails	4	North Side Metal Roof	None Detected

Appendix B

ASBESTOS INSPECTION SAMPLE SUMMARY
University of North Carolina at Chapel Hill - Memorial Hall Roofs
111 East Cameron Street
Chapel Hill, North Carolina
Terracon Project No. FJ226041

HA	Sample Number	Description	Roof Number	Sample Location	Lab Results
9	UNCMH-26	Caulk on Metal Roof Nails	4	North Side Metal Roof	None Detected
9	UNCMH-27	Caulk on Metal Roof Nails	4	North Side Metal Roof	None Detected
10	UNCMH-28	White Caulk along Top of Flashing	4	North Side Metal Roof	None Detected
10	UNCMH-29	White Caulk along Top of Flashing	4	North Side Metal Roof	None Detected
10	UNCMH-30	White Caulk along Top of Flashing	4	North Side Metal Roof	None Detected
11	UNCMH-31	Brown Caulk along Top of Flashing	1	Transition/Flashing at High Building/Barrel Roof	None Detected
11	UNCMH-32	Brown Caulk along Top of Flashing	1	Transition/Flashing at High Building/Barrel Roof	None Detected
11	UNCMH-33	Brown Caulk along Top of Flashing	1	Transition/Flashing at High Building/Barrel Roof	None Detected
12	UNCMH-34	Pink/Red Caulk	1 / 3W	Parapet between Barrel Roof and Northwest Lower Flat Roof	None Detected
12	UNCMH-35	Pink/Red Caulk	1 / 3W	Parapet between Barrel Roof and Northwest Lower Flat Roof	None Detected
12	UNCMH-36	Pink/Red Caulk	1 / 3W	Parapet between Barrel Roof and Northwest Lower Flat Roof	None Detected
13	UNCMH-37	Yellow Glue on TPO Membrane	3W	Northwest Flat Roof Parapet	None Detected
13	UNCMH-38	Yellow Glue on TPO Membrane	3W	Northwest Flat Roof Parapet	None Detected
13	UNCMH-39	Yellow Glue on TPO Membrane	3W	Northwest Flat Roof Parapet	None Detected
14	UNCMH-40	Black Parapet Material	1 / 3W	Parapet between Northwest Lower Flat Roof and Barrel Roof	5% Chrysotile
14	UNCMH-41	Black Parapet Material	1 / 3W	Parapet between Northwest Lower Flat Roof and Barrel Roof	Positive Stop (Not Analyzed)
14	UNCMH-42	Black Parapet Material	1 / 3W	Parapet between Northwest Lower Flat Roof and Barrel Roof	Positive Stop (Not Analyzed)
15	UNCMH-43	Green Coating	3W / 4	Gutter between Northwest Lower Flat Roof and Barrel Roof	None Detected
15	UNCMH-44	Green Coating	3W / 4	Gutter between Northwest Lower Flat Roof and Barrel Roof	None Detected
15	UNCMH-45	Green Coating	3W / 4	Gutter between Northwest Lower Flat Roof and Barrel Roof	None Detected
16	UNCMH-46	White Caulk on Cap	1 / 3E	Parapet between Northeast Lower Flat Roof and Barrel Roof	None Detected
16	UNCMH-47	White Caulk on Cap	1 / 3E	Parapet between Northeast Lower Flat Roof and Barrel Roof	None Detected
16	UNCMH-48	White Caulk on Cap	1 / 3E	Parapet between Northeast Lower Flat Roof and Barrel Roof	None Detected
17	UNCMH-49	Sealant at Panels Seams	4	Metal Roof at Northeast	None Detected
17	UNCMH-50	Sealant at Panels Seams	4	Metal Roof at Northeast	None Detected
17	UNCMH-51	Sealant at Panels Seams	4	Metal Roof at Northeast	None Detected
18	UNCMH-52	Black Felt Paper/Insulation/Vapor Barrier	3E	Northeast Lower Flat Roof	Felt Paper: None Detected Insulation: None Detected Vapor Barrier: None Detected
18	UNCMH-53	Black Felt Paper/Insulation/Vapor Barrier	3E	Northeast Lower Flat Roof	Felt Paper: None Detected Insulation: None Detected Vapor Barrier: None Detected
18	UNCMH-54	Black Felt Paper/Insulation/Vapor Barrier	3E	Northeast Lower Flat Roof	Felt Paper: None Detected Insulation: None Detected Vapor Barrier: None Detected
19	UNCMH-55	Light Concrete Substrate	3E	Northeast Lower Flat Roof	None Detected
19	UNCMH-56	Light Concrete Substrate	3E	Northeast Lower Flat Roof	None Detected
19	UNCMH-57	Light Concrete Substrate	3E	Northeast Lower Flat Roof	None Detected
20	UNCMH-58	Light Concrete Panels	-	Attic Ceiling	None Detected
20	UNCMH-59	Light Concrete Panels	-	Attic Ceiling	None Detected

Appendix B

ASBESTOS INSPECTION SAMPLE SUMMARY
University of North Carolina at Chapel Hill - Memorial Hall Roofs
111 East Cameron Street
Chapel Hill, North Carolina
Terracon Project No. FJ226041

HA	Sample Number	Description	Roof Number	Sample Location	Lab Results
20	UNCMH-60	Light Concrete Panels	-	Attic Ceiling	None Detected
21	UNCMH-61	White Caulk on Balustrade	5	North Front Balcony	15% Chrysotile
21	UNCMH-62	White Caulk on Balustrade	5	North Front Balcony	Positive Stop (Not Analyzed)
21	UNCMH-63	White Caulk on Balustrade	5	North Front Balcony	Positive Stop (Not Analyzed)
22	UNCMH-64	Gray Caulk on Top of metal Flashing	5	North Front Balcony	None Detected
22	UNCMH-65	Gray Caulk on Top of metal Flashing	5	North Front Balcony	None Detected
22	UNCMH-66	Gray Caulk on Top of metal Flashing	5	North Front Balcony	None Detected
23	UNCMH-67	Black Tar Paper on Plywood - Layer 1	5	North Front Balcony	Layer 1: None Detected Layer 2: None Detected
23	UNCMH-68	Black Tar Paper on Plywood - Layer 1	5	North Front Balcony	Layer 1: None Detected Layer 2: None Detected
23	UNCMH-69	Black Tar Paper on Plywood - Layer 1	5	North Front Balcony	Layer 1: None Detected Layer 2: None Detected
24	UNCMH-70	Black Tar Paper on Wood underneath Plywood	5	North Front Balcony	45% Chrysotile
24	UNCMH-71	Black Tar Paper on Wood underneath Plywood	5	North Front Balcony	Positive Stop (Not Analyzed)
24	UNCMH-72	Black Tar Paper on Wood underneath Plywood	5	North Front Balcony	Positive Stop (Not Analyzed)
25	UNCMH-73	Black/Gray Caulk on Parapet Cap	5	North Front Balcony	None Detected
25	UNCMH-74	Black/Gray Caulk on Parapet Cap	5	North Front Balcony	None Detected
25	UNCMH-75	Black/Gray Caulk on Parapet Cap	5	North Front Balcony	None Detected
26	UNCMH-76	Yellow Glue Associated with Rubber Membrane	6	High Flat Roof	None Detected
26	UNCMH-77	Yellow Glue Associated with Rubber Membrane	6	High Flat Roof	None Detected
26	UNCMH-78	Yellow Glue Associated with Rubber Membrane	6	High Flat Roof	None Detected
27	UNCMH-79	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	6	High Flat Roof	Felt Paper: None Detected Tar: None Detected
27	UNCMH-80	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	6	High Flat Roof	Felt Paper: None Detected Tar: None Detected
27	UNCMH-81	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	6	High Flat Roof	Felt Paper: None Detected Tar: None Detected
28	UNCMH-82	Off-White Caulk on Metal Boxes	6	High Flat Roof	None Detected
28	UNCMH-83	Off-White Caulk on Metal Boxes	6	High Flat Roof	None Detected
28	UNCMH-84	Off-White Caulk on Metal Boxes	6	High Flat Roof	None Detected
29	UNCMH-85	Yellow Glue on TPO Membrane	7	South Flat Roof with Metal Panels	None Detected
29	UNCMH-86	Yellow Glue on TPO Membrane	7	South Flat Roof with Metal Panels	None Detected
29	UNCMH-87	Yellow Glue on TPO Membrane	7	South Flat Roof with Metal Panels	None Detected
30	UNCMH-88	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	7	South Flat Roof with Metal Panels	Felt Paper: None Detected Tar: None Detected
30	UNCMH-89	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	7	South Flat Roof with Metal Panels	Felt Paper: None Detected Tar: None Detected
30	UNCMH-90	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	7	South Flat Roof with Metal Panels	Felt Paper: None Detected Tar: None Detected
31	UNCMH-91	Gray Caulk along Top of Metal Flashing	7	South Flat Roof with Metal Panels	None Detected
31	UNCMH-92	Gray Caulk along Top of Metal Flashing	7	South Flat Roof with Metal Panels	None Detected
31	UNCMH-93	Gray Caulk along Top of Metal Flashing	7	South Flat Roof with Metal Panels	None Detected
32	UNCMH-94	Gray/White/Brown Caulk on Steel Frame	7	South Flat Roof with Metal Panels	None Detected
32	UNCMH-95	Gray/White/Brown Caulk on Steel Frame	7	South Flat Roof with Metal Panels	None Detected

Appendix B

ASBESTOS INSPECTION SAMPLE SUMMARY
 University of North Carolina at Chapel Hill - Memorial Hall Roofs
 111 East Cameron Street
 Chapel Hill, North Carolina
 Terracon Project No. FJ226041

HA	Sample Number	Description	Roof Number	Sample Location	Lab Results
32	UNCMH-96	Gray/White/Brown Caulk on Steel Frame	7	South Flat Roof with Metal Panels	None Detected
33	UNCMH-97	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	8	West Lower Flat Roof	Felt Paper: None Detected Tar: None Detected
33	UNCMH-98	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	8	West Lower Flat Roof	Felt Paper: None Detected Tar: None Detected
33	UNCMH-99	Black Felt Paper/Tar Paper/Insulation/Vapor Barrier	8	West Lower Flat Roof	Felt Paper: None Detected Tar: None Detected
34	UNCMH-100	Gray/Brown Caulk at Metal Flashing Top	8	West Lower Flat Roof	None Detected
34	UNCMH-101	Gray/Brown Caulk at Metal Flashing Top	8	West Lower Flat Roof	None Detected
34	UNCMH-102	Gray/Brown Caulk at Metal Flashing Top	8	West Lower Flat Roof	None Detected
35	UNCMH-103	Beige Caulk at Former Flashing	8	West Lower Flat Roof	None Detected
35	UNCMH-104	Beige Caulk at Former Flashing	8	West Lower Flat Roof	None Detected
35	UNCMH-105	Beige Caulk at Former Flashing	8	West Lower Flat Roof	None Detected

*Highlighted and bolded samples indicate materials with >1% asbestos.

*Bolded samples indicate materials with <1% asbestos.

APPENDIX C
ASBESTOS LABORATORY ANALYTICAL REPORT



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EMSL Order: 292209288
Customer ID: TITA51
Customer PO:
Project ID:

Attention: Christian Borrell
Terracon Consultants, Inc.
2401 Brentwood Road
Suite 107
Raleigh, NC 27604
Project: FJ226041

Phone: (919) 873-2211
Fax: (919) 873-9555
Received Date: 10/24/2022 8:30 AM
Analysis Date: 10/25/2022
Collected Date: 10/20/2022

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
UNCMH-1-Insulation 292209288-0001	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-1-Vapor Barrier 292209288-0001A	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Brown Fibrous Homogeneous	10% Cellulose	10% Ca Carbonate 80% Non-fibrous (Other)	None Detected
UNCMH-1-Felt 292209288-0001B	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Brown/Gray Fibrous Homogeneous	60% Cellulose 10% Glass	30% Non-fibrous (Other)	None Detected
UNCMH-2-Insulation 292209288-0002	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-2-Vapor Barrier 292209288-0002A	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Brown Fibrous Homogeneous	10% Cellulose 2% Glass	10% Ca Carbonate 78% Non-fibrous (Other)	None Detected
UNCMH-2-Felt 292209288-0002B	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Brown/Gray Fibrous Homogeneous	60% Cellulose 10% Glass	30% Non-fibrous (Other)	None Detected
UNCMH-3-Insulation 292209288-0003	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-3-Vapor Barrier 292209288-0003A	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Black Fibrous Homogeneous	25% Cellulose 10% Glass	65% Non-fibrous (Other)	None Detected

Initial report from: 10/26/2022 16:27:56



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EMSL Order: 292209288
Customer ID: TITA51
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
UNCMH-3-Felt 292209288-0003B	Transition Barrel Roof/Flat Roof (NE Side) Flat Roof - (Insulation/Vapor Barrier) Black Felt Paper	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-4-Felt 292209288-0004	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	65% Cellulose 20% Glass	15% Non-fibrous (Other)	None Detected
UNCMH-4-Insulation 292209288-0004A	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-4-Mastic 292209288-0004B	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	Yellow Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-5-Felt 292209288-0005	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	65% Cellulose 20% Glass	15% Non-fibrous (Other)	None Detected
UNCMH-5-Insulation 292209288-0005A	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-5-Mastic 292209288-0005B	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-6-Felt 292209288-0006	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-6-Insulation 292209288-0006A	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)	Yellow Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-6-Mastic 292209288-0006B	Transition Barrel Roof/(NE Side) Barrel Roof - Black Felt Paper (Insulation/Vapor Barrier)				Layer Not Present

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EMSL Order: 292209288
Customer ID: TITA51
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
UNCMH-7 292209288-0007	Transition Barrel Roof/(NE Side) Barrel & Flat Roof Roof - Light Gray Concrete	Gray Fibrous Homogeneous	5% Cellulose	55% Ca Carbonate 40% Non-fibrous (Other)	None Detected
UNCMH-8 292209288-0008	Transition Barrel Roof/(NE Side) Barrel & Flat Roof Roof - Light Gray Concrete	Gray Fibrous Homogeneous	5% Cellulose	55% Ca Carbonate 40% Non-fibrous (Other)	None Detected
UNCMH-9 292209288-0009	Transition Barrel Roof/(NE Side) Barrel & Flat Roof Roof - Light Gray Concrete	Gray Fibrous Homogeneous	5% Cellulose	20% Ca Carbonate 20% Gypsum 55% Non-fibrous (Other)	None Detected
UNCMH-10 292209288-0010	Transition Barrel Roof/(NE Side) Barrel & Flat Roof Roof - Sheetrock	Brown/Gray Fibrous Homogeneous	20% Cellulose	40% Ca Carbonate 30% Gypsum 10% Non-fibrous (Other)	None Detected
UNCMH-11 292209288-0011	Transition Barrel Roof/(NE Side) Barrel & Flat Roof Roof - Sheetrock	Brown/Gray Fibrous Homogeneous	20% Cellulose	40% Ca Carbonate 30% Gypsum 10% Non-fibrous (Other)	None Detected
UNCMH-12 292209288-0012	Transition Barrel Roof/(NE Side) Barrel & Flat Roof Roof - Sheetrock	Brown/Gray Fibrous Homogeneous	15% Cellulose	50% Gypsum 35% Non-fibrous (Other)	None Detected
UNCMH-13-Felt 292209288-0013	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Felt Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	65% Cellulose 20% Glass	15% Non-fibrous (Other)	None Detected
UNCMH-13-Insulation 292209288-0013A	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Felt Paper (Insulation/Vapor Barrier)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-13-Mastic 292209288-0013B	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Felt Paper (Insulation/Vapor Barrier)	Yellow Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-14-Felt 292209288-0014	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Felt Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	65% Cellulose 20% Glass	15% Non-fibrous (Other)	None Detected
UNCMH-14-Insulation 292209288-0014A	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Felt Paper (Insulation/Vapor Barrier)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 292209288
Customer ID: TITA51
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
UNCMH-14-Mastic 292209288-0014B	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Felt Paper (Insulation/Vapor Barrier)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-15-Felt 292209288-0015	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Tar Paper	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-15-Insulation 292209288-0015A	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Tar Paper	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-15-Mastic 292209288-0015B	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Tar Paper	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-16 292209288-0016	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Tar Paper	Brown/Black Fibrous Homogeneous	2% Hair	20% Ca Carbonate 33% Non-fibrous (Other)	45% Chrysotile
UNCMH-17 292209288-0017	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Tar Paper				Positive Stop (Not Analyzed)
UNCMH-18 292209288-0018	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Black Tar Paper				Positive Stop (Not Analyzed)
UNCMH-19 292209288-0019	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Light Concrete Substrate	White Fibrous Homogeneous	2% Cellulose	10% Ca Carbonate 50% Gypsum 38% Non-fibrous (Other)	None Detected
UNCMH-20 292209288-0020	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Light Concrete Substrate	White Fibrous Homogeneous	2% Cellulose	10% Ca Carbonate 50% Gypsum 38% Non-fibrous (Other)	None Detected
UNCMH-21 292209288-0021	Barrel Roof/Metal Roof Transition/Flashing (N Side) - Light Concrete Substrate	White Fibrous Homogeneous	2% Cellulose	55% Ca Carbonate 43% Non-fibrous (Other)	None Detected
UNCMH-22 292209288-0022	North Side Metal Roof - Coating/Paint	Brown/Gray Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
UNCMH-23 292209288-0023	North Side Metal Roof - Coating/Paint	Brown/Gray Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected

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EMSL Order: 292209288
Customer ID: TITA51
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
UNCMH-24 292209288-0024	North Side Metal Roof - Coating/Paint	Brown/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-25 292209288-0025	North Side Metal Roof - Caulk on Metal Roof Nails	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
UNCMH-26 292209288-0026	North Side Metal Roof - Caulk on Metal Roof Nails	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-27 292209288-0027	North Side Metal Roof - Caulk on Metal Roof Nails	Brown Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-28 292209288-0028	North Side Metal Roof - Caulk Along Top of Flashing	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-29 292209288-0029	North Side Metal Roof - Caulk Along Top of Flashing	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-30 292209288-0030	North Side Metal Roof - Caulk Along Top of Flashing	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-31 292209288-0031	Transition Flashing at High Building/Barrel Roof - Brown Caulk Along Top of Flashing	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-32 292209288-0032	Transition Flashing at High Building/Barrel Roof - Brown Caulk Along Top of Flashing	Gray Non-Fibrous Homogeneous	<1% Cellulose	5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-33 292209288-0033	Transition Flashing at High Building/Barrel Roof - Brown Caulk Along Top of Flashing	Brown Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-34 292209288-0034	Parapet Between Barrel Roof & NW Flat Roof - Pink/Red Caulk	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-35 292209288-0035	Parapet Between Barrel Roof & NW Flat Roof - Pink/Red Caulk	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-36 292209288-0036	Parapet Between Barrel Roof & NW Flat Roof - Pink/Red Caulk	Pink Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-37 292209288-0037	NW Flat Roof Parapet - Yellow Glue Dot Membrane	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
UNCMH-38 292209288-0038	NW Flat Roof Parapet - Yellow Glue Dot Membrane	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
UNCMH-39 292209288-0039	NW Flat Roof Parapet - Yellow Glue Dot Membrane	Tan/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-40 292209288-0040	Parapet Between NW Flat Roof and Barrel Roof - Black Parapet Material	Black Fibrous Homogeneous		10% Ca Carbonate 85% Non-fibrous (Other)	5% Chrysotile

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			% Fibrous	% Non-Fibrous	% Type
UNCMH-41 292209288-0041	Parapet Between NW Flat Roof and Barrel Roof - Black Parapet Material				Positive Stop (Not Analyzed)
UNCMH-42 292209288-0042	Parapet Between NW Flat Roof and Barrel Roof - Black Parapet Material				Positive Stop (Not Analyzed)
UNCMH-43 292209288-0043	Gutter Between NW Flat Roof and Barrel Roof - Green Coating	Gray/Black Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-44 292209288-0044	Gutter Between NW Flat Roof and Barrel Roof - Green Coating	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-45 292209288-0045	Gutter Between NW Flat Roof and Barrel Roof - Green Coating	Gray/Green Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-46 292209288-0046	Parapet Between NE Flat Roof and Barrel Roof - White Caulk on Cap	White Non-Fibrous Homogeneous		5% Ca Carbonate 5% Gypsum 90% Non-fibrous (Other)	None Detected
UNCMH-47 292209288-0047	Parapet Between NE Flat Roof and Barrel Roof - White Caulk on Cap	White Non-Fibrous Homogeneous		5% Ca Carbonate 5% Gypsum 90% Non-fibrous (Other)	None Detected
UNCMH-48 292209288-0048	Parapet Between NE Flat Roof and Barrel Roof - White Caulk on Cap	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-49 292209288-0049	Metal Roof at NE - Sealant at Metal Panel Seams	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-50 292209288-0050	Metal Roof at NE - Sealant at Metal Panel Seams	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-51 292209288-0051	Metal Roof at NE - Sealant at Metal Panel Seams	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-52-Felt 292209288-0052	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
UNCMH-52-Insulation 292209288-0052A	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-52-Vapor Barrier 292209288-0052B	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	Brown/Gray Fibrous Homogeneous	60% Cellulose 15% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-53-Felt 292209288-0053	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
UNCMH-53-Insulation 292209288-0053A	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
UNCMH-53-Vapor Barrier 292209288-0053B	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	Brown/Gray Fibrous Homogeneous	60% Cellulose 15% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-54-Felt 292209288-0054	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
UNCMH-54-Insulation 292209288-0054A	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-54-Vapor Barrier 292209288-0054B	NE Flat Roof - Black Felt Paper (Insulation/Vapor Barrier)	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-55 292209288-0055	NE Flat Roof - Light Concrete Substrate	Gray Non-Fibrous Homogeneous		25% Quartz 10% Ca Carbonate 65% Non-fibrous (Other)	None Detected
UNCMH-56 292209288-0056	NE Flat Roof - Light Concrete Substrate	Gray Non-Fibrous Homogeneous		25% Quartz 10% Ca Carbonate 65% Non-fibrous (Other)	None Detected
UNCMH-57 292209288-0057	NE Flat Roof - Light Concrete Substrate	Gray Non-Fibrous Homogeneous		10% Quartz 20% Ca Carbonate 70% Non-fibrous (Other)	None Detected
UNCMH-58 292209288-0058	Attic Ceiling - Light Concrete Panels	Gray Fibrous Homogeneous	5% Cellulose	55% Ca Carbonate 40% Non-fibrous (Other)	None Detected
UNCMH-59 292209288-0059	Attic Ceiling - Light Concrete Panels	Gray Fibrous Homogeneous	5% Cellulose	55% Ca Carbonate 40% Non-fibrous (Other)	None Detected
UNCMH-60 292209288-0060	Attic Ceiling - Light Concrete Panels	Brown/Gray Fibrous Homogeneous	5% Cellulose	20% Ca Carbonate 30% Gypsum 45% Non-fibrous (Other)	None Detected
UNCMH-61 292209288-0061	Front North Balcony - White Caulk on Balustrade	White Fibrous Homogeneous	5% Wollastonite 2% Fibrous (Other)	20% Ca Carbonate 58% Non-fibrous (Other)	15% Chrysotile
UNCMH-62 292209288-0062	Front North Balcony - White Caulk on Balustrade				Positive Stop (Not Analyzed)
UNCMH-63 292209288-0063	Front North Balcony - White Caulk on Balustrade				Positive Stop (Not Analyzed)
UNCMH-64 292209288-0064	Front North Balcony - Gray Caulk on Top of Metal Flashing	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-65 292209288-0065	Front North Balcony - Gray Caulk on Top of Metal Flashing	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-66 292209288-0066	Front North Balcony - Gray Caulk on Top of Metal Flashing	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-67-Layer 1 292209288-0067	Front North Balcony - Black Tar Paper on Plywood	Black Fibrous Homogeneous	40% Glass	60% Non-fibrous (Other)	None Detected
UNCMH-67-Layer 2 292209288-0067A	Front North Balcony - Black Tar Paper on Plywood	Black/Silver Fibrous Homogeneous	5% Cellulose 2% Wollastonite 2% Fibrous (Other)	15% Ca Carbonate 76% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
UNCMH-68-Layer 1 292209288-0068	Front North Balcony - Black Tar Paper on Plywood	Black Fibrous Homogeneous	40% Glass	60% Non-fibrous (Other)	None Detected
UNCMH-68-Layer 2 292209288-0068A	Front North Balcony - Black Tar Paper on Plywood	Black/Silver Fibrous Homogeneous	5% Cellulose 2% Wollastonite 2% Fibrous (Other)	10% Ca Carbonate 81% Non-fibrous (Other)	None Detected
UNCMH-69-Layer 1 292209288-0069	Front North Balcony - Black Tar Paper on Plywood	Black Fibrous Homogeneous	15% Glass	85% Non-fibrous (Other)	None Detected
UNCMH-69-Layer 2 292209288-0069A	Front North Balcony - Black Tar Paper on Plywood	Black/Silver Fibrous Homogeneous	<1% Cellulose 2% Wollastonite	98% Non-fibrous (Other)	None Detected
UNCMH-70 292209288-0070	Front North Balcony - Black Tar Paper on Wood Underneath Plywood	Black Fibrous Homogeneous		55% Non-fibrous (Other)	45% Chrysotile
UNCMH-71 292209288-0071	Front North Balcony - Black Tar Paper on Wood Underneath Plywood				Positive Stop (Not Analyzed)
UNCMH-72 292209288-0072	Front North Balcony - Black Tar Paper on Wood Underneath Plywood				Positive Stop (Not Analyzed)
UNCMH-73 292209288-0073	Front North Balcony - Black/Gray Caulk on Parapet Cap	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-74 292209288-0074	Front North Balcony - Black/Gray Caulk on Parapet Cap	Brown Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-75 292209288-0075	Front North Balcony - Black/Gray Caulk on Parapet Cap	Brown Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-76 292209288-0076	High Building Flat Roof - Yellow Glue Associated w/ Membrane	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-77 292209288-0077	High Building Flat Roof - Yellow Glue Associated w/ Membrane	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-78 292209288-0078	High Building Flat Roof - Yellow Glue Associated w/ Membrane	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-79-Felt Paper 292209288-0079	High Building Flat Roof - Black Felt Paper/Tar Paper (Insulation-Vapor Barrier)	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-79-Tar 292209288-0079A	High Building Flat Roof - Black Felt Paper/Tar Paper (Insulation-Vapor Barrier)	Black Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
UNCMH-80-Felt Paper 292209288-0080	High Building Flat Roof - Black Felt Paper/Tar Paper (Insulation-Vapor Barrier)	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-80-Tar 292209288-0080A	High Building Flat Roof - Black Felt Paper/Tar Paper (Insulation-Vapor Barrier)	Black Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
UNCMH-81-Felt Paper 292209288-0081	High Building Flat Roof - Black Felt Paper/Tar Paper (Insulation-Vapor Barrier)	Brown/Gray Fibrous Homogeneous	60% Cellulose 15% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-81-Tar 292209288-0081A	High Building Flat Roof - Black Felt Paper/Tar Paper (Insulation-Vapor Barrier)	Brown/Red Fibrous Homogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
UNCMH-82 292209288-0082	High Building Flat Roof - Off-White Caulk on Metal Boxes	Gray/White/Red Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-83 292209288-0083	High Building Flat Roof - Off-White Caulk on Metal Boxes	Gray/White/Red Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-84 292209288-0084	High Building Flat Roof - Off-White Caulk on Metal Boxes	Beige Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-85 292209288-0085	South Flat Roof & Metal Panels - Yellow Glue on Membrane	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-86 292209288-0086	South Flat Roof & Metal Panels - Yellow Glue on Membrane	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-87 292209288-0087	South Flat Roof & Metal Panels - Yellow Glue on Membrane	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
UNCMH-88-Felt Paper 292209288-0088	South Flat Roof & Metal Panels - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-88-Tar 292209288-0088A	South Flat Roof & Metal Panels - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Black/Yellow Fibrous Homogeneous	10% Cellulose 15% Glass	75% Non-fibrous (Other)	None Detected
UNCMH-89-Felt Paper 292209288-0089	South Flat Roof & Metal Panels - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Brown Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-89-Tar 292209288-0089A	South Flat Roof & Metal Panels - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Black/Yellow Fibrous Homogeneous	10% Cellulose 15% Glass	75% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
UNCMH-90-Felt Paper 292209288-0090	South Flat Roof & Metal Panels - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Brown/Gray Fibrous Homogeneous	60% Cellulose 15% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-90-Tar 292209288-0090A	South Flat Roof & Metal Panels - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Yellow Fibrous Homogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
UNCMH-91 292209288-0091	South Flat Roof & Metal Panels - Gray Caulk Along Top of Metal Flashing	Gray/Black Non-Fibrous Homogeneous	<1% Cellulose	5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-92 292209288-0092	South Flat Roof & Metal Panels - Gray Caulk Along Top of Metal Flashing	Gray/Black Non-Fibrous Homogeneous	<1% Cellulose	5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-93 292209288-0093	South Flat Roof & Metal Panels - Gray Caulk Along Top of Metal Flashing	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-94 292209288-0094	South Flat Roof & Metal Panels - Gray/White/Brown Caulk on Steel Frame	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-95 292209288-0095	South Flat Roof & Metal Panels - Gray/White/Brown Caulk on Steel Frame	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-96 292209288-0096	South Flat Roof & Metal Panels - Gray/White/Brown Caulk on Steel Frame	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-97-Felt Paper 292209288-0097	West Lower Flat Roof - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-97-Tar 292209288-0097A	West Lower Flat Roof - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Black/Yellow Fibrous Homogeneous	10% Cellulose 15% Glass	75% Non-fibrous (Other)	None Detected
UNCMH-98-Felt Paper 292209288-0098	West Lower Flat Roof - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	55% Cellulose 20% Glass	25% Non-fibrous (Other)	None Detected
UNCMH-98-Tar 292209288-0098A	West Lower Flat Roof - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Black/Yellow Fibrous Homogeneous	10% Cellulose 15% Glass	75% Non-fibrous (Other)	None Detected
UNCMH-99-Felt Paper 292209288-0099	West Lower Flat Roof - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Black Fibrous Homogeneous	60% Cellulose 15% Glass	25% Non-fibrous (Other)	None Detected

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UNCMH-99-Tar 292209288-0099A	West Lower Flat Roof - Black Felt Paper/Tar Paper (Insulation/Vapor Barrier)	Yellow Fibrous Homogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
UNCMH-100 292209288-0100	West Lower Flat Roof - Gray/White/Brown Caulk at Metal Flashing Top	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-101 292209288-0101	West Lower Flat Roof - Gray/White/Brown Caulk at Metal Flashing Top	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
UNCMH-102 292209288-0102	West Lower Flat Roof - Gray/White/Brown Caulk at Metal Flashing Top	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
UNCMH-103 292209288-0103	West Lower Flat Roof - Old Beige Caulk at Former Flashing	Gray Fibrous Homogeneous	<1% Cellulose 2% Wollastonite	10% Ca Carbonate 88% Non-fibrous (Other)	None Detected
UNCMH-104 292209288-0104	West Lower Flat Roof - Old Beige Caulk at Former Flashing	Gray Fibrous Homogeneous	<1% Cellulose 2% Wollastonite	10% Ca Carbonate 88% Non-fibrous (Other)	None Detected
UNCMH-105 292209288-0105	West Lower Flat Roof - Old Beige Caulk at Former Flashing	Gray Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected

Analyst(s)

Joshua Moorman (64)
Roxsee Stover (68)

Billy Barnes, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Morrisville, NC NVLAP Lab Code 200671-0, VA 3333 000278, WVA LT000296

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OrderID: 292209288



Client: Terracon Consultants, Inc. Test: PLM
Order: 292209288 Project: FJ226041
Disposition: Discard after 11/23/2022

EMSL Analytical, Inc.

#Samples: 105 7

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TESTING LABS • PRODUCTS

Customer ID:		Billing ID: CAME	
Company Name: TERRACON CONSULTANTS, INC.		Company Name:	
Contact Name: CINDY ANN BORNEL		Billing Contact:	
Street Address: 2401 BRENTWOOD DR. - SUITE 107		Street Address:	
City, State, Zip: 27604 RALEIGH, NC		City, State, Zip:	
Phone: 919-964-5013		Phone:	
Email(s) for Report: CINDY.ANN.BORNEL@TERRACON.COM		Email(s) for Invoice:	
Project Information			
Project Name/No: FJ226041		Purchase Order:	
EMSL LIMS Project ID: (if applicable, EMSL will provide)		US State where samples collected: NC	
		State of Connecticut (CT) must select project location: <input type="checkbox"/> Commercial (Taxable) <input type="checkbox"/> Residential (Non-Taxable)	
Sampled By Name: C. BORNEL		Date Sampled: 10/16/22	
Sampled By Signature: <i>C. Bornel</i>		No. of Samples in Shipment:	
Turn-Around-Time (TAT)			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 32 Hour <input type="checkbox"/> 48 Hour <input checked="" type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week <small>Please call ahead for large projects and/or turnaround times 8 Hours or Less. *32 Hour TAT available for select tests only, samples must be submitted by 11:30am.</small>			
Test Selection			
PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) <input type="checkbox"/> POINT COUNT <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1,000 (<0.1%) <input type="checkbox"/> POINT COUNT w/ GRAVIMETRIC <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1,000 (<0.1%) <input type="checkbox"/> NIOSH 8002 (<1%) <input type="checkbox"/> NYS 198.1 (Friable - NY) <input type="checkbox"/> NYS 198.6 NOB (Non-Friable - NY) <input type="checkbox"/> NYS 198.8 (Vermiculite SM-V)		TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (Non-Friable - NY) <input type="checkbox"/> TEM EPA 600/R-93/116 w Milling Prep (0.1%) Other Tests (please specify)	
<input checked="" type="checkbox"/> Positive Stop - Clearly Identified Homogeneous Areas (HA)			
Sample Number	HA Number	Sample Location	Material Description
1	1	TRANSOM BORNEL ROOF / FLAT ROOF	(INSULATION / VAPOR BARRIER)
2	1	(NORTH - EAST SIDE) - FLAT ROOF	BULK FELT PAPER
3	1		
4	2	- BORNEL ROOF	BULK FELT PAPER
5	2		(INSULATION / VAPOR BARRIER)
6	2		
7	3	- BORNEL + FLAT ROOF	GRAV
8	3		WGHT CONCRETE
9	3		
10	4		SHEETROCK
Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)			
Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: C. BORNEL	Date/Time: 10/16/22 10:00	Received by: C	Date/Time: 10/16/22 11:45 AM
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - Asbestos Bulk R7 8/14/2021

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OrderID: 292209288



Terracon Consultants, Inc.
 FJ226041
 10/24/2022 8:30
 PLM

TAT: 72 Hour
 Bulk

Order ID: 292209288
 No Samples: 105
 Due: 10/27 8:30 AM
 Fax: 919-873-9555

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Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	HA Number	Sample Location	Material Description
UNCMH - U1	4		
12	4		
13	5	BARREL ROOF / METAL ROOF	BLACK FELT PAPER
14	5	TRANSITION / FLASHING (NORTH SIDE)	(TRANSITION / VAPOR BARRIER)
15	5		
16	6		BLACK TAR PAPER
17	6		
18	6		
19	7		LIGHT CONCRETE SUBSTRATE
20	7		
21	7		
22	8	NORTH SIDE METAL ROOF	COATING / PAINT
23	8		
24	8		
25	9		CAULK ON METAL ROOF
26	9		NAILS
27	9		
28	10		CAULK ALONG TOP OF FLASHING
29	10		
30	10		BLOWN
31	11	TRANSITION FLASHING AT HIGH BUILDING / BARREL ROOF	CAULK ALONG TOP OF FLASHING
32	11		
33	11		
34	12	PARAPET BETWEEN BARREL ROOF AND NORTH WEST FLAT ROOF	PINK / RED CAULK
35	12		

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

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Page 2 of 5

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 10/24/2022 8:30
 PLM

TAT: 72 Hour
 Bulk

Order ID: 292209288
 No Samples: 105
 Due: 10/27 8:30 AM
 Fax: 919-873-9555

EMSL Analytical, Inc.
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 8077
 3675
 me

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	HA Number	Sample Location	Material Description
WNCMH-36	12		
37	13	NORTH-WEST FLAT ROOF PARAPET	YELLOW GULCH BIT MEMBRANE
38	13		
39	13		
40	14	PARAPET BETWEEN NW FLAT ROOF AND BARREL ROOF	BLACK PARAPET MATERIAL
41	14		
42	14		
43	15	GUTTER BETWEEN NW FLAT ROOF AND BARREL ROOF	GREEN COATING
44	15		
45	15		
46	16	PARAPET BETWEEN NORTH EAST FLAT ROOF AND BARREL ROOF	WHITE CALLI ON CAP
47	16		
48	16		
49	17	METAL ROOF AT NE	SEALANT AT METAL PANEL SEAMS
50	17		
51	17		
52	18	NORTH EAST FLAT ROOF	BLACK FELT PAPER
53	18		(INSULATION / VAPOR BARRIER)
54	18		
55	19		LIGHT CONCRETE SUBSTRATE
56	19		
57	19		
58	20	ATTIC CEILING	LIGHT CONCRETE PANELS
59	20		
60	20		

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - Asbestos Bulk RF 05/14/2021

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OrderID: 292209288



Terracon Consultants, Inc.
 FJ226041
 10/24/2022 8:30
 PLM

TAT: 72 Hour
 Bulk

Order ID: 292209288
 No Samples: 105
 Due: 10/27 8:30 AM
 Fax: 919-873-9555

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EMAIL: www@emsl.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	HA Number	Sample Location	Material Description
INEMH-61	21	FRONT NORTH BALCONY	WHITE CAULK ON BALUSTRADE
62	21		
63	21		
64	22		GRAY CAULK ON TOP OF METAL FLASHING
65	22		
66	22		
67	23		BLACK TAR PAPER ON PLYWOOD
68	23		
69	23		
70	24		BLACK TAR PAPER ON WOOD UNDERNEATH PLYWOOD
71	24		
72	24		BLACK / GRAY CAULK ON PARAPET CAP
73	25		
74	25		
75	25		
76	26	HIGH BUILDING FLAT ROOF	YELLOW GUM ASSOCIATED WITH MEMBRANE
77	26		
78	26		
79	27		BLACK FELT PAPER / TAR PAPER (INSULATION - VAPOR BARRIER)
80	27		
81	27		
82	28		OFF-WHITE CAULK ON METAL BORES
83	28		
84	28		
85	29	SOUTH FLAT ROOF + METAL PANELS	YELLOW GUM ON MEMBRANE

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - Asbestos Bulk R7 09/14/2021

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Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	HA Number	Sample Location	Material Description
WCMH-86	29		
87	29		
88	30		BLACK FELT PAPER / VAPOR PAPER (INSULATION / VAPOR BARRIER)
89	30		
90	30		
91	31		GRAY CAULK ALONG TOP OF METAL FLASHING
92	31		
93	31		
94	32		GRAY / WHITE / BROWN CAULK ON STEEL FRAME
95	32		
96	32		
97	33	WEST LOWER FLAT ROOF	BLACK FELT PAPER / VAPOR PAPER (INSULATION / VAPOR BARRIER)
98	33		
99	33		
100	34		GRAY / BROWN CAULK AT METAL FLASHING TOP
101	34		
102	34		
103	35		OLD BEIGE CAULK AT FORMER FLASHING
104	35		
105	35		

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - Asbestos Bulk R7 09/14/2021

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APPENDIX D
PHOTOGRAPHS

Asbestos Inspection Report

UNC Memorial Hall ■ Chapel Hill, North Carolina
Photos taken October 20, 2022 ■ Terracon Project No. FJ226041



Photo #1 Barrel Roof and High Building on south side (Area A)



Photo #2 Metal Roof (Area A) at the Barrel Roof north side (Area 1)



Photo #3 Lower NW Flat Roof (Roof Area 3)



Photo #4 Upper and Lower Flat Roofs on NE side (Areas 2 and 4)



Photo #5 North Porte-Cochere Roof with Balustrade (Area 9)



Photo #6 High Building Roof (Area 7)

Asbestos Inspection Report

UNC Memorial Hall ■ Chapel Hill, North Carolina
Photos taken October 20, 2022 ■ Terracon Project No. FJ226041



Photo #7 S-SE Low Roof with Metal Screen Wall (Area 8)



Photo #8 Low Roof between the Memorial Hall and the Curtis Media Building (Area 6)



Photo #9 Asbestos-containing Black Tar Paper at the North Metal Roof Area A



Photo #10 Asbestos-containing Black Material at the Parapet surrounding the Barrel Roof Area 1

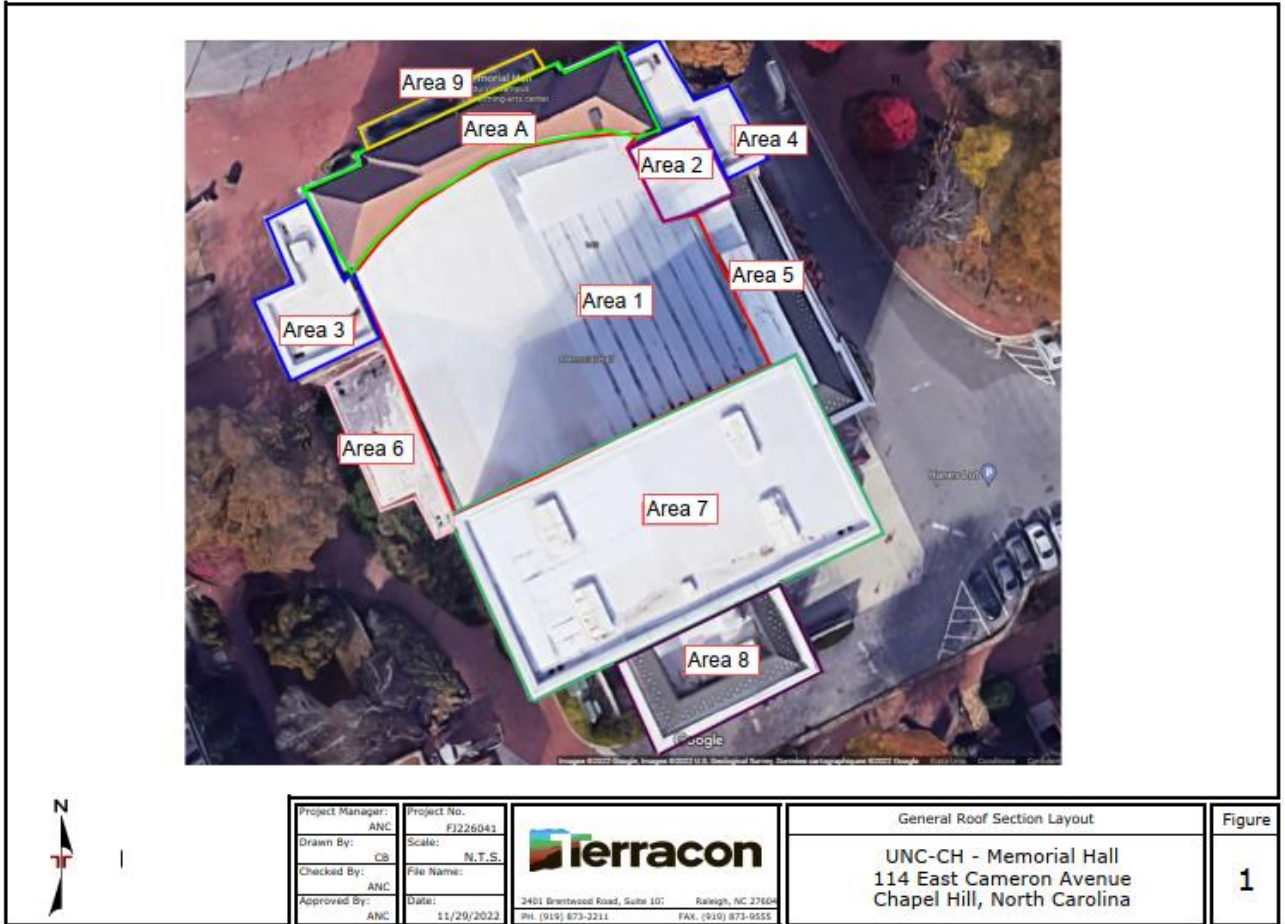


Photo #11 Asbestos-containing White Caulk on Balustrade at the North Porte-Cochere Roof Area 9



Photo #12 Asbestos-containing Black Tar Paper/Material underneath Plywood at the North Porte-Cochere Area 9

APPENDIX E
ROOF SECTION LAYOUT



APPENDIX F
ACCREDITATION



Christian Borrel
5004 Rollingwood Dr
Durham, NC 27713
137635

**North Carolina
Asbestos Accreditation**

EXPIRATION			
09-30-2023			
DOB	SEX	HT	WT
06-16-1963	M	5'10"	210
CLASS		#	EXP
AIR MONITOR		80908	09-23
INSPECTOR		13007	09-23

END OF SECTION 017330

SECTION 017700 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements relating administrative and procedural requirements for contract closeout, including, but not limited to, the following.
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.
- B. Related sections include the following:
 - 1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

1.3 DESIGNERS FINAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Complete final cleaning requirements, including touchup painting.
 - 3. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Completion. On receipt of request, Engineer and Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will notify Contractor of items, either on Contractor's list or additional items identified by Owner, that must be completed or corrected before final completion inspection is scheduled.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Final Inspection shall be conducted as follows:
 - 1. Contractor will have 14 days from Designers Final Completion to reach Final Completion.
 - 2. The Engineer and Owner will conduct a final inspection of all work included in the contract as soon as possible after receiving written notification by the Contractor that the work is complete and ready for inspection.
 - 3. The final inspection report shall be prepared by the Engineer and Owner listing observed deficiencies and furnished to the Contractor.

-
4. Upon satisfactory completion of all deficiencies, Contractor shall initial each item on the report certifying his compliance and return to the Engineer.
 5. No portion of the final payment will be made until all items have been satisfactorily corrected and the project closeout documents submitted to the Engineer. Final payment shall be made within thirty (30) days of receipt of closeout documents.
 6. All project completion documents are to be submitted within thirty (30) days following acceptance by the Owner.
- B. Refer to Closeout Document Checklist at the end of this Section for all documents to be submitted and approved by Engineer.
- C. Contractor shall submit a Certificate of Compliance prior to close-out of the project.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - b. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - c. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - d. Clean transparent materials, including glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish glass, taking care not to scratch surfaces.
 - e. Remove labels that are not permanent.
 - f. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - g. Leave Project clean and ready for occupancy.

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

CLOSEOUT DOCUMENTS CHECKLIST

- Asbestos Manifests.
- Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
- Updated final statement, accounting for final changes to the Contract Sum
- Certificate of Completion
- Contractor's Affidavit of Payment of Debts and Claims
- Contractor's Affidavit of Release of Liens
- Consent of Surety to Final Payment
- Contractor's Warranty
- Metal Finish Warranty
- Manufacturer's Warranty
- Copy of Manufacturer Inspection Reports
- Record Drawings
- Certificate of Compliance
- Fall Protection Certification documents
- Builder's Risk Insurance Cancellation Certificate

THERMOPLASTIC MEMBRANE ROOFING SYSTEM WARRANTY
(on Contractor's Standard Letterhead)

Owner: _____ University of North Carolina at Chapel Hill

Installer: _____

Location of Building: _____ Chapel Hill, North Carolina

Name of Building: _____ Memorial Hall Building

Roof Areas: _____

Date of Substantial Completion: _____

Know all men by these presents, that we, Installer as defined above, having installed insulation, roofing, flashings and sheet metal work, and having accomplished certain other work on the roof areas identified above under contract between Owner and Contractor, warrant to Owner, with respect to said work that for a period of two (2) years from date of Final Completion of said work, the roofing including insulation, roofing membrane, flashings and sheet metal work, shall be absolutely watertight and free from all leaks, provided however that the following are excluded from this warranty:

Defects or failures resulting from abuse by the Owner.

Defects in design involving failure of (1) structural frame, (2) load-bearing walls, and (3) foundations.

Damage caused by fire, tornado, hail, hurricane, acts of God, wars riots or civil commotion.

We, Installer, agree that should any leaks occur in the roofing we will promptly remedy said leaks in a manner to restore the roof to a watertight condition by methods compatible to the system and acceptable under industry standards and general practice.

We, Installer, further agree that for a period of two (2) years from date of Final Completion referred to above, we will make repairs at no expense to the Owner, to any defects which may develop in the work including but not limited to open laps, blisters, wrinkles, ridges, splits, warped insulation, and loose flashings in a manner compatible to the system and acceptable under industry standards and general practice.

IN WITNESS WHEREOF, we have caused this instrument to be duly executed, this _____ day of _____, 20 _____.

(Installer)

WITNESS:

by _____
President

Notary Public

The undersigned named Owner agrees, from the date of acceptance of the project, to maintain the roof in accordance with the manufacturers written requirements and agrees to avoid damage to the roof surface by any parties under his control working or walking on the roof. The Owner recognizes his responsibility to inspect the roof semi-annually.

Owner Date

END OF SECTION 017700

SECTION 061000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Rooftop equipment bases and support curbs.
 - 2. Wood nailer.
 - 3. Expansion joint.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances."
 - 2. Division 1 Section "Unit Prices."
 - 3. Division 7 Section "Thermoplastic Membrane Roofing."
 - 4. Division 7 Section "Sheet Metal Flashing and Trim."

1.3 DELIVERY, STORAGE AND HANDLING

- A. Supply and keep all materials dry at all times prior to application.
- B. Store all lumber/plywood in dry, covered storage, or on platforms, and with weatherproof, breathable type material such as heavy canvas. Materials which are not stored under specified covers are subject to removal from the site at Engineer's or Owner's discretion.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS

- A. Lumber: No. 2 grade (or better) southern yellow pine or douglas fir unless specifically noted otherwise. Each piece of lumber shall bear the inspection stamp of the Southern Pine Inspection Bureau (SPIB) or the Western Wood Products Association (WWPA) indicating the grade and type of lumber.
 - 1. Wood Preservative: Retention of preservative shall be 0.025 pcf. All material shall be kiln-dried after treatment to 19 percent or less moisture content.
- B. Plywood: APA Rated Sheathing (CDX) with waterproof glue for exterior applications in thicknesses specified. All plywood shall comply with the requirements of the latest version of U.S. Product Standard PS1 and each sheet shall clearly bear the APA trademark of the American Plywood Association. Minimum span rating for 15/32 inch plywood shall be 32/16 and shall be so marked on each sheet.

2.2 FASTENERS

- A. Provide stainless steel fasteners at all locations where fastener will come into contact with pressure-treated lumber.
- B. For securing lumber or plywood to lumber, provide stainless steel ring shank nails of sufficient length to penetrate a minimum of 1½ inches into the underlying member but not smaller than 8d nails.
- C. For securing wood to concrete or masonry, secure using Tapcon Masonry fasteners at 12 inches on center, staggered.
- D. For securing wood to steel, secure using self-drilling/self-tapping fasteners.
- E. Anchor Bolts: ½ inch diameter, length to embed in concrete a minimum of 8 inches, with appropriately-sized nuts and washers.

PART 3 - EXECUTION

3.1 GENERAL

- A. Furnish and install new nominal 6-inch wide wood blocking at all edges and openings as required for blocking to finish flush with the top of the roof insulation.
- B. Secure wood nailers over existing nailers with ring shank fasteners or screws in two rows staggered and spaced not over 12 inches in each row.
- C. Secure wood blocking and curbs at spacings of 8 inches on center in a staggered pattern.
- D. Stagger fasteners when securing nominal 6 inch wide lumber or wider.

3.2 EXISTING WOOD

- A. Remove all existing loose, wet, damaged or deteriorated wood blocking and discard. Install new wood blocking using the same size and thickness as existing.
- B. Inspect existing wood blocking at perimeters. In the event current fastener spacing exceeds 8 inches on center, secure blocking with additional specified fasteners to achieve fastener rate of 8 inches on center or less.

3.3 WOOD BLOCKING

- A. Furnish and install new wood blocking at all roof mounted equipment and hatches as required to provide a minimum flashing height of 8 inches above finished roof level.
- B. Install new wood blocking at all expansion joints as required to provide a minimum flashing height of 8 inches above finished roof level.

END OF SECTION 061000

SECTION 070000 – ROOFING PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Preparations.
 - 2. Deck repairs.
 - 3. Connects and disconnects.
 - 4. Overflow scupper resizing.
 - 5. Roof drain replacement.
- B. Related Sections include the following:
 - 1. Division 1 Section "Allowances."
 - 2. Division 1 Section "Unit Prices."
 - 3. Division 6 Section "Rough Carpentry."

PART 2 - PRODUCTS

2.1 STEEL DECK REPAIR MATERIALS

- A. Metal Deck Primer: Sherwin Williams Kem Kromik Universal Metal Primer or approved equal.
- B. Sheet Plating: 20 gauge galvanized steel.
- C. Steel Deck: ASTM A 653, galvanized, G-90 deck, manufactured in accordance with the requirements of the Steel Deck Institute, Inc. for narrow rib (Type A) and wide rib (Type B). (Contractor to field verify deck type.) Minimum section properties:
 - 1. Yield strength = 33 ksi.
 - 2. Section Modulus: 0.111in³.
 - 3. Moment of Inertia: 0.124in⁴.
 - 4. Thickness: 22 gauge.

2.2 FASTENERS

- A. Self-Drilling Fasteners: Stainless steel of sufficient length to secure steel such as #12 diameter TEKS 5.
- B. TEKS 3 for side laps.
- C. Concrete/Masonry Fasteners: ¼", coated, long enough to embed in concrete as required by manufacturer.

2.3 DRAIN MATERIALS

- A. Drain extensions, if required, provided by drain manufacturer.

2.4 FALL PROTECTION

- A. Provide fall protection based on plan details.
- B. Building anchorages, tie-downs, and any other affected parts of the building shall be designed and certified by a North Carolina registered Professional Engineer (PE) with extensive experience in fall protection to provide the most appropriate fall prevention/protection solution.

2.5 BALLASTED GUARD RAILS

- A. Non-penetrating, aluminum framed roof edge guard rail utilizing counterbalance weights.
- B. Railings are to extend above 42" in height:
- C. Structural performance of top rails and supports.
 - 1. Capable of withstanding a concentrated load of 200 pounds, applied to the top rail at any point and in any direction.
 - 2. Capable of withstanding a uniform load of 50 pounds per linear foot applied to the top horizontally with a simultaneous load of 100 pounds per linear foot applied vertically downward.
 - 3. Design need not provide for both concentrated and uniform loads to be applied concurrently.
- D. Structural performance at railing infill:
 - 1. Capable of withstanding a horizontal concentrated load of 200 pounds (90.6 kg), applied to one foot (30.5mm) square area at any point on the infill.
 - 2. Infill includes panels, intermediate rails, posts and other elements.
 - 3. Design need not provide for infill loads to be applied concurrently with top rail loading.
 - 4. Horizontal members not to exceed 12 inch (305 mm) spacing over lens area of skylight (if applicable).

2.6 ROOF HATCH GUARD RAIL

- A. Complying with OSHA Standard 1910.28(b)(3)(v)(A)
- B. Aluminum framing.

2.7 GYPSUM REPAIR

- A. Gypsum Fill/Grout: ASTM C 317, Class A; Quick-setting gypsum concrete with minimum compressive strength of 500 psi.

2.8 ROOF LADDER

- A. Custom Fabricated galvanized steel ladder.

- B. In compliance with ANSI A 14.3: with mounting brackets and attachments.
- C. Ladder is to be fully supported by the wall and shall not penetrate or bear on the roof membrane.

2.9 MISCELLANEOUS MATERIALS

- A. Steel Plate: For covering openings, 1/8 inch thick, single sheet sized to extend 6 inches beyond opening in all directions.
- B. Single Component Polyurethane Sealant: ASTM C 920, Type S, Grade NS, Class 25, Use NT, M, A and O.
- C. Primer: As recommended by sealant manufacturer.
- D. Primer: Rust-inhibitive primer.
- E. Paint: To be applied over steel. Color to be selected by Owner.

PART 3 - EXECUTION

3.1 PREPARATION, GENERAL

- A. Prior to commencement of any work, inspect and thoroughly water test all existing roof drains for free flow operation with Owner's maintenance personnel present. Report drain restrictions to Engineer and Owner. Owner's maintenance personnel shall perform repairs to remove any restrictions found. Should drains become clogged at any time after the start of work, correct the condition at no additional expense to the Owner.
- B. All vents, hatches and mechanical units must be raised to provide an 8 inch base flashing height above the finished roof system.
- C. Prior to the installation of any new roofing, flashings, and metal flashings, clean surfaces of all dust, dirt and other foreign matter.
- D. Furnish and install new primer and paint at all exhaust vents, smoke vents, power ventilators and stack vents as specified herein:
 - 1. Remove all loose rust by wire brushing. Sweep away all dirt, dust and debris prior to paint and primer application.
 - 2. Apply one coat of Sherwin Williams Kem Kromik Universal Metal Primer rust-inhibitive primer and two coats of fibrated aluminum roof coating to match roof surface.
- E. Over all openings in deck, install new steel plate. Secure to deck using specified fasteners spaced not over 6 inches on center at all edges.
- F. Extend all existing vents through the roof to the height required by the local plumbing code but not less than 8 inches above finished roof level.
- G. Wire brush, prime and paint rusted mechanical vents.

3.2 CONNECTS AND DISCONNECTS

- A. In the event it is necessary to disconnect any electrical wiring or connections, plumbing lines or other building services, notify the Owner. Contractor shall not disconnect or connect services unless authorized in writing by Owner.
- B. Modification of existing service piping, wiring and duct work required in connection with the lifting, removal or relocation of roof mounted equipment shall be accomplished by this Contractor and is to be included in the Proposal price.
- C. All costs required in connection with electrical and/or mechanical service connections/disconnections, including satellites and weather stations, are to be included in the Bid price. All associated work is to be accomplished by appropriately licensed personnel in accordance with all applicable codes and regulations.
- D. Contractor shall review roof top equipment usage with Owner and facility user at beginning of project. Equipment determined to be essential to the operations of the facility may only be disabled at those times prescribed by the Owner. This may require the contractor to work at other than normal operating hours.

3.3 DECK REPAIR

- A. Where steel deck is rusted but remains structurally sound, thoroughly clean deck units of rust and foreign matter with a wire brush. Paint with specified metal primer.
- B. Where steel deck is damaged or rusted through in small areas, smaller than 2' by 2', clean deck units of rust with a wire brush. Paint with specified metal primer. Install over the damaged area a steel plate secured to the existing steel deck with sheet metal screws around the perimeter of the plate at 6 inches on center. Extend the new steel plate a minimum of 6 inches onto the surface of the existing steel deck beyond the damaged area.
- C. Where steel deck units are severely damaged or have deteriorated over large areas, larger than 2' by 2', remove the entire existing deck unit and install new decking of the same type and gauge as the existing. Lap new deck units over the existing the same manner as originally installed but not less than 6 inches. Lap ends only over structural framing. Secure to structural framing with specified fasteners at 6 inches on center at each framing member. Secure deck side laps at not more than 36 inches on center.
- D. Secure all existing loose steel deck to roof framing members using specified fasteners placed 12 inches on center at each available framing member.
- E. Secure metal deck side laps with specified fasteners at spacings not exceeding 36 inches from each other or nearest deck support. For deck supports (framing members) spaced greater than 36 inches on center and less than 72 inches on center, install a single side lap fastener at midspan between framing members.
- F. At all changes in direction, install specified steel plate 6 inches across change in direction on each side and secure using specified fasteners at 6 inches on center around the perimeter.
- G. Where concrete deck is damaged in small areas, smaller than 2' by 2', install over the damaged area a steel plate secured to the existing concrete deck with concrete fasteners around the perimeter of the plate at 6 inches on center. Extend the new steel plate a minimum of 6 inches onto the surface of the existing concrete deck beyond the damaged area.
- H. Where gypsum deck is damaged, remove all existing loose, damaged, wet or deteriorated gypsum and discard. Fill the void created by the removals to match the existing deck surface elevation and slope. Allow sufficient time for gypsum fill/grout to cure prior to application of new materials.

3.4 COUNTERFLASHING PREPARATION

- A. Neatly bend existing counterflashing receiver up at walls as required to completely remove existing base flashings and to install new base flashings. After installation of new base flashings, neatly bend counterflashing receiver back in place using sufficient care to prevent deformation to the finished counterflashing receiver. Rivet new counterflashing to the existing at 6-inches on center.
- B. Cut new raggle in walls above roof level for installation of new metal counterflashings. Provide a minimum height of 8 inches above finished roof level.
 - 1. Saw raggle to a minimum depth of 1-1/2 inches in a straight line to allow proper installation of new counterflashings. Utilize all procedures necessary including, but not limited to, saw guides to ensure straight, clean raggles.

3.5 FALL PROTECTION INSTALLATION

- A. Fall protection installer shall install fall protection based on approved engineered shop drawings.
- B. Upon close out, the qualified designer and installer shall provide the following:
 - 1. Ensure that documentation of anchorage certification and annual recertification requirements are provided to the Owner prior to the system being put to use.
 - 2. Training to the Owner on the use of the system and system maintenance requirements.
 - 3. Detailed and printed user instructions for the fall arrest system. At a minimum, the instructions shall include the following:
 - 4. Manufacturer's name, address, and telephone number.
 - 5. Manufacturer's user instruction for the part and model number
 - 6. Statement of manufacturers intended use and purpose.
 - 7. Description of proper methods and limitations on use.
 - 8. Printed information or illustration of fixed equipment markings
 - 9. Description of detailed inspection/recertification procedures for fall arrest system.
 - 10. Criteria for failing inspections and determining unusable equipment.
 - 11. Procedures for maintenance and repair requirements
 - 12. Who is authorized to make adjustments and repair to equipment.
 - 13. Appropriate warnings regarding altering, misusing, and limitation of equipment.
 - 14. Submit reduced shop drawings of the fall protection system to be posed at all roof accesses.
 - 15. Submit manufactures warranty information and documentation that the system was installed in accordance with the manufactures instructions.

3.6 LADDER INSTALLATION

- A. Install in strict accordance manufactures written instructions.
- B. Fasteners are to be installed through the plywood sheathing and insulation to engage the metal deck units.

3.7 GUARD RAIL INSTALLATION

- A. Install in strict accordance manufactures written instructions.

3.8 DRAIN EXTENSION INSTALLATION

- A. Install new drain extensions to match new insulation thicknesses, over drain bowl using manufacturer-supplied extensions, gaskets, and fasteners.
- B. Thoroughly water test all joints upon completion.

- C. Upon completion of membrane and flashing installation at drains, install drain clamping rings at all new and existing drains with new manufacturer-supplied bolts of sufficient length to properly engage drain bowl lugs.

3.9 PULL TESTS

- A. Area 1: Prior to proceeding with the application of a temporary membrane over the pyrofill deck, conduct random pull tests of specified torch applied membrane, low rise foam adhesive and insulation using equipment calibrated to provide accurate withdrawal resistance loads. Test in each area of deck comprising a day's work or every 3,000 square feet, whichever is least. Test by adhering system and test to achieve required uplift pressure resistance required plus 10%. Additionally, Engineer or Owner may require additional testing based upon results of initial testing or any questionable appearance of the deck. Test all areas of the deck which differ significantly in appearance. Notify Engineer in the event system does not achieve required uplift resistance.
 - 1. Submit results of testing to Engineer within 48 hours of testing.
- B. Area A: Prior to proceeding with the application of materials over pyrofill deck, conduct random pull tests of up to three fasteners for attaching the clip to the deck, as recommended by the manufacturer, using equipment calibrated to provide accurate withdrawal resistance loads. Test fasteners in each area of deck comprising a day's work or every 3,000 square feet, whichever is least. Test fasteners by installing into deck and test to failure or until fastener has achieved the minimum average resistance required plus 10%. Test a minimum of three (3) fasteners in each area. Additionally, Engineer or Owner may require additional testing based upon results of initial testing or any questionable appearance of the deck. Test all areas of the deck which differ significantly in appearance. Notify Engineer in the event average withdrawal resistance of fasteners tested is less than the minimum specified.
 - 1. Submit results of testing to Engineer within 48 hours of testing.

END OF SECTION 070000

SECTION 074113 –METAL ROOF PANELS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Metal roof panel system of preformed steel panels.

1.2 RELATED REQUIREMENTS

- A. Section 061000 - Rough Carpentry: Roof sheathing.
- B. Section 074213 - Metal Wall Panels: Preformed wall panels.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Summary of test results, indicating compliance with specified requirements.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Specimen warranty.
- B. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
 - 1. Show work to be field-fabricated or field-assembled.
- C. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.
- D. Verification Samples: For each roofing system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.
 - 1. Include typical panel joint in sample.
 - 2. Include typical fastening detail.
- E. Manufacturer's qualification statement.
- F. Installer's qualification statement.
- G. Test Reports: Indicate compliance of metal roofing system to specified requirements.
- H. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section and with at least five years of documented experience.

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- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.
- B. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.6 FIELD CONDITIONS

- A. Do not install metal roof panels, eave protection membrane, underlayment, or sealants when surface, ambient air, or wind chill temperatures are below 45 degrees F.

1.7 WARRANTY

- A. See Section 017700 - Closeout Submittals for additional warranty requirements.
- B. Finish Warranty: Provide 20-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.
- C. Special Warranty: Provide 20-year warranty for weathertightness of roofing system, including agreement to repair or replace metal roof panels that fail to keep out water commencing on the Date of Substantial Completion. Complete forms in Owner's name and register with warrantor.
- D. Installer's Warranty: Provide 5-year Installer's warranty, on form at end of this Section, signed by roofing Installer, properly executed and printed on Installer's letterhead form.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Architectural Metal Roof Panel Manufacturers:
 - 1. Berridge Manufacturing Company; Cee-Lock Panel: www.berridge.com/#sle.
 - 2. Fabral; Thin Seam: www.fabral.com/#sle.
 - 3. Metal Roofing Systems, Inc; System 2000 - Metal Roof Panels: www.metalroofingsystems.biz/#sle.

2.2 PERFORMANCE REQUIREMENTS

- A. Metal Roof Panels: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:
 - 1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed L/180 of span length(L) when tested in accordance with ASTM E1592.
 - a. Dead Loads: Weight of roofing system.
 - b. Live Loads: As required by ASCE 7.
 - 2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
 - 3. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.

2.3 METAL ROOF PANELS

- A. Metal Roof Panels: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.
- B. Metal Panels: Factory-formed panels with factory-applied finish.

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1. Steel Panels:
 - a. Aluminum-zinc alloy-coated steel complying with ASTM A792/A792M; minimum AZ50 coating.
 - b. Steel Thickness: Minimum 24 gauge, 0.024 inch.
 2. Profile: Standing seam, with minimum 1.5-inch seam height; concealed fastener system for snap-on application of matching standing seam batten.
 3. Texture: Smooth, with intermediate ribs for added stiffness.
 4. Length: Full length of roof slope, without lapped horizontal joints.
 5. Width: Maximum panel coverage of a nominal 16 inches.
- 2.4 ATTACHMENT SYSTEM
- A. Concealed System: Provide manufacturer's standard stainless steel concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.
- 2.5 FABRICATION
- A. Panels: Provide factory fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.
 - B. Joints: Provide captive gaskets, sealants, or separator strips at panel joints to ensure weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.
- 2.6 FINISHES
- A. Fluoropolymer Coil Coating System: Manufacturer's standard multi-coat metal coil coating system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin, and at least 80 percent of coil coated metal surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch; color and gloss as selected from manufacturer's standards.
- 2.7 ACCESSORIES
- A. Fluoropolymer Coil Coating System: Manufacturer's standard multi-coat metal coil coating system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin, and at least 80 percent of coil coated metal surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch; color and gloss as selected from manufacturer's standards.
- 2.8 ACCESSORIES
- A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.
 1. Downspouts: Open face, rectangular profile.
 - B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish.
 - C. Sealants:
 1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
 2. Concealed Sealant: Non-curing butyl sealant or tape sealant.
 3. Seam Sealant: Factory-applied, non-skinning, non-drying type.
 - D. High Temperature Underlayment: Self-adhering polymer modified asphalt sheet complying with ASTM D1970/D1970M, with strippable release film and top surface of woven polypropylene sheet.
 1. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.
 2. Sheet Thickness: 40 mil, minimum total thickness.
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3. Self Sealability: Nail sealability in accordance with ASTM D1970/D1970M.
4. Low Temperature Flexibility: Comply with ASTM D1970/D1970M.
5. Water Vapor Permeance: 0.1 perm, maximum, when tested in accordance with ASTM E96/E96M using Desiccant Method (Method A).
6. Products:
 - a. Certaineed Roofing; WinterGuard HT - High Temperature Waterproofing Underlayment: www.certaineed.com/#sle.
 - b. Henry Company; Blueskin PE200HT: www.henry.com/#sle.
 - c. Polyglass USA, Inc; Polystick MTS Self-Adhered High Temperature Roof Underlayment: www.polyglass.us/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.1 SYSTEM SCHEDULE

- A. Refer to Table 1 for a general schedule of the primary roof components (described from the bottom up) for each roof area. Methods of installation and related materials are in other sections of these specifications.
- B. Table 1:

<u>Area A</u>
Existing Pyrobar Gypsum plank deck system
High temperature underlayment
Standing seam metal panels attached to substrate with concealed clips

3.2 EXAMINATION

- A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

3.3 PRE-INSTALLATION TESTING

- A. Prior to installation of materials, the Contractor is to perform pull tests on the existing roof deck using up to three types of fasteners as recommended by the Manufacturer for the deck type.
- B. A total of five (5) tests of each type of fastener is required for each type of fastener.
- C. The pull test should achieve a minimum pull out strength to resist the uplift forces associated with each clip.
- D. Should the pull tests not achieve the pull out strength required at each clip, plywood is to be installed per the unit price.

3.4 PREPARATION

- A. Broom clean wood sheathing prior to installation of roofing system.
- B. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to ensure that completed roof will be free of leaks.
- C. Coordinate installation of waterproof membrane over roof sheathing with Section 061000.
- D. Remove protective film from surface of roof panels immediately prior to installation; strip film carefully to avoid damage to prefinished surfaces.
- E. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by metal roof panel manufacturer.
- F. Protect surrounding areas and adjacent surfaces from damage during execution of this work.
- G. At locations where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.5 INSTALLATION

- A. Overall: Install roofing system in accordance with approved shop drawings and metal roof panel manufacturer's instructions and recommendations, as applicable to specific project conditions; securely anchor components of roofing system in place allowing for thermal and structural movement.
 - 1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
 - 2. Minimize field cutting of panels. Where field cutting is required, use methods that will not distort panel profiles. Use of torches for field cutting is prohibited.
- B. Accessories: Install necessary components that are required for complete roofing assembly, including flashings, gutters, trim, moldings, closure strips, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.
- C. Install specified membrane on roof sheathing before installing preformed metal roof panels; secure by methods acceptable to roof panel manufacturer, minimizing use of metal fasteners; apply from eaves to ridge in shingle fashion, overlapping horizontal joints at least 2 inches and side and end laps at least 3 inches; offset seams in building paper and seams in roofing felt.
- D. Roof Panels: Install metal roof panels in accordance with manufacturer's installation instructions, minimizing transverse joints except at junction with penetrations.
 - 1. Provide concealed clips at panel joints, and apply snap-on battens to provide weathertight joints.
 - a. Secure clips with 2 fasteners per clip.
 - 2. Conceal all fasteners where practical. Where exposed fasteners are required, install through waterproof washers and finish to match roof panels.
 - 3. Install sealant or sealant tape at end laps and side joints as recommended by metal roof panel manufacturer.
 - 4. Panel should be fastened to the substrate at the ridge.
 - 5. Room for expansion should be provided at the eave.

3.6 CLEANING

- A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.7 PROTECTION

- A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.
- B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION 074113

SECTION 074213 – FORMED METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

- A. Flush-profile, concealed fastener metal wall panels, with related metal trim and accessories.

1.3 RELATED REQUIREMENTS

- A. Division 05 Section "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal panels.
- B. Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal flashing items in addition to items specified in this Section.

1.4 REFERENCES

- A. American Architectural Manufacturer's Association (AAMA): www.aamanet.org:
 - 1. AAMA 621 - Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.
 - 2. AAMA 809.2 Voluntary Specification Non-Drying Sealants.
- B. American Society of Civil Engineers (ASCE): www.asce.org/codes-standards:
 - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. ASTM International (ASTM): www.astm.org:
 - 1. ASTM A755 - Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - 2. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - 3. ASTM C920 - Specification for Elastomeric Joint Sealants.
 - 4. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
 - 5. ASTM D4214 - Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.
 - 6. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
- D. International Accreditation Service (IAS):
 - 1. IAS AC472 Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems, Part B.

1.5 QUALITY ASSURANCE

- A. Manufacturer/Source: Provide metal panel assemblies and accessories from a single manufacturer accredited under IAS AC472, Part B.
- B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum five years experience in manufacture of similar products in successful use in similar applications.
 - 1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
 - a. Product data, including certified independent test data indicating compliance with requirements.
 - b. Samples of each component.
 - c. Sample shop drawings from similar project.
 - d. Project References: Minimum of five installations not less than three years old, with Owner and Architect contact information.
 - e. Sample warranty.
 - f. Certificate of accreditation under IAS AC472 Part B.
 - 2. Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.
 - 3. Approved manufacturers must meet separate requirements of Submittals Article.
- C. Installer Qualifications: Experienced Installer certified by metal panel manufacturer with minimum of five years experience with successfully completed projects of a similar nature and scope.
 - 1. Installer's Field Supervisor: Experienced mechanic certified by metal panel manufacturer supervising work on site whenever work is underway.

1.6 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Prior to erection of framing, conduct preinstallation meeting at site attended by Owner, Architect, metal panel installer, metal panel manufacturer's technical representative, inspection agency and related trade contractors.
 - 1. Coordinate building framing in relation to metal panel system.
 - 2. Coordinate openings and penetrations of metal panel system.

1.7 ACTION SUBMITTALS

- A. Product Data: Manufacturer's data sheets for specified products. Include data indicating compliance with performance requirements.
- B. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2-inch per foot of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, and special details. Make distinctions between factory and field assembled work.
 - 1. Indicate points of supporting structure that must coordinate with metal panel system installation.
 - 2. Include structural data indicating compliance with performance requirements and requirements of local authorities having jurisdiction.
- C. Samples for Initial Selection: For each exposed product specified including sealants. Provide representative color charts of manufacturer's full range of colors.
- D. Samples for Verification: Provide 12-inch- (305 mm-) long section of each metal panel profile. Provide color chip verifying color selection.

1.8 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Indicating compliance of products with requirements.
- B. Qualification Information: For Installer firm and Installer's field supervisor.
- C. IAS Accreditation Certificate: Indicating that manufacturer is accredited under provisions of IAS AC472 Part B.
- D. Manufacturer's warranty: Unexecuted sample copy of manufacturer's warranty.

1.9 CLOSEOUT SUBMITTALS

- A. Maintenance data.
- B. Manufacturer's Warranty: Executed copy of manufacturer's warranty.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Protect products of metal panel system during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage. Protect panels and trim bundles during shipping.
- B. Deliver, unload, store, and erect metal panels and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.
- C. Store in accordance with Manufacturer's written instruction. Provide wood collars for stacking and handling in the field.
- D. Shield foam insulated metal panels from direct sunlight until installation.

1.11 WARRANTY

- A. Special Manufacturer's Warranty: On manufacturer's standard form, in which manufacturer agrees to repair or replace metal panel assemblies that fail in materials and workmanship within one year from date of Completion.
- B. Special Panel Finish Warranty: On Manufacturer's standard form, in which Manufacturer agrees to repair or replace metal panels that evidence deterioration of factory-applied finish within the warranty period, as follows:
 - 1. Fluoropolymer Two-Coat System:
 - a. Color fading in excess of 5 Hunter units per ASTM D 2244.
 - b. Chalking in excess of No. 8 rating per ASTM D 4214.
 - c. Failure of adhesion, peeling, checking, or cracking.
 - d. Warranty Period: Twenty (20) years from date of Substantial Completion

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Approved Manufacturers:
 - 1. MBCI
 - 2. McElroy Metal
 - 3. CMP
 - 4. Metal Roofing Systems Inc.
 - 5. Berridge Manufacturing Company
- B. Other manufacturers shall be approved by Engineer prior to bid.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Provide metal panel system meeting performance requirements as determined by application of specified tests by a qualified testing facility on manufacturer's standard assemblies.
- B. Structural Performance: Provide metal panel assemblies capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated, as determined by ASTM E1592:
 - 1. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.
 - a. Wind Negative Pressure: Certify capacity of metal panels by actual testing of proposed assembly.
 - 2. Deflection Limits: Withstand inward and outward wind-load design pressures in accordance with applicable building code with maximum deflection of 1/120 of the span with no evidence of failure.
- C. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction. Allow for deflection and design for thermal stresses caused by temperature differences from one side of the panel to the other.

2.3 FORMED METAL WALL PANELS

- A. Standing Seam profile, Concealed Fastener Metal Wall Panels: Structural metal panels consisting of formed metal sheet with vertical panel edges and striated pan, with standing seam joints between panels, field assembled with nested lapped edges, and attached to supports using concealed fasteners. Profile should generally resemble the existing standing seam panels.
 - 1. Nominal Thickness: 24 gage coated thickness, with smooth surface.
 - a. Exterior Finish: Fluoropolymer two-coat system.
 - b. Color: As selected by Owner from manufacturer's standard colors.
 - 2. Panel Width: to match existing standing seam metal panels.
 - 3. Panel Thickness: 1-3/4 inch (44 mm).
 - 4. Attachment Spacing: as recommended by manufacturer.

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide complete metal panel assemblies incorporating trim, copings, fasciae, gutters and downspouts, and miscellaneous flashings. Provide required fasteners, closure strips, and sealants as indicated in manufacturer's written instructions.
- B. Flashing and Trim: Match material, thickness, and finish of metal panels.
- C. Concealed System: Provide manufacturer's standard stainless steel concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.
- D. High Temperature Underlayment: Self-adhering polymer modified asphalt sheet complying with ASTM D1970/D1970M, with strippable release film and top surface of woven polypropylene sheet.
 - 1. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.
 - 2. Sheet Thickness: 40 mil, minimum total thickness.
 - 3. Self Sealability: Nail sealability in accordance with ASTM D1970/D1970M.
 - 4. Low Temperature Flexibility: Comply with ASTM D1970/D1970M.
 - 5. Water Vapor Permeance: 0.1 perm, maximum, when tested in accordance with ASTM E96/E96M using Desiccant Method (Method A).
 - 6. Products:
 - a. Certainteed Roofing; WinterGuard HT - High Temperature Waterproofing Underlayment: www.certainteed.com/#sle.
 - b. Henry Company; Blueskin PE200HT: www.henry.com/#sle.
 - c. Polyglass USA, Inc; Polystick MTS Self-Adhered High Temperature Roof Underlayment: www.polyglass.us/#sle.
 - d. Substitutions: See Section 016000 - Product Requirements.

2.5 FABRICATION

- A. General: Provide factory fabricated and finished metal panels, trim, and accessories meeting performance requirements, indicated profiles, and structural requirements.
- B. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions, approved shop drawings, and project drawings.

2.6 FINISHES

- A. Finishes, General: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
- B. Fluoropolymer Two-Coat System: 0.2 - 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat, AAMA 621.
 - 1. Basis of Design: MBCI, Signature 300.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine metal panel system substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal panels.

1. Inspect framing that will support insulated metal panels to determine if support components are installed as indicated on approved shop drawings and are within tolerances acceptable to metal panel manufacturer and installer. Confirm presence of acceptable framing members at recommended spacing to match installation requirements of metal panels.
- B. Correct out-of-tolerance work and other deficient conditions prior to proceeding with insulated metal panel installation.

3.2 METAL PANEL INSTALLATION

- A. Concealed-Fastener Formed Metal Panels: Install metal panel system in accordance with manufacturer's written instructions, approved shop drawings, project drawings, and referenced publications. Install metal panels in orientation, sizes, and locations indicated. Anchor panels and other components securely in place. Provide for thermal and structural movement.
- B. Fasten metal concealed clips to substrate with fasteners at each location indicated on approved shop drawings, at spacing and with fasteners recommended by manufacturer. Fasten panel to support structure through leading panel flange. Snap-fit back flange of subsequent panel into secured flange of previous panel. Where indicated, fasten panels together through flush-fitted panel sides.
 1. Cut panels in field where required using manufacturer's recommended methods.
 2. Dissimilar Materials: Where elements of metal panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by metal panel manufacturer.
- C. Attach panel flashing trim pieces to supports using recommended fasteners.

3.3 ACCESSORY INSTALLATION

- A. General: Install metal panel accessories with positive anchorage to building and weather tight mounting; provide for thermal expansion. Coordinate installation with flashings and other components.
 1. Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.
 2. Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.
 3. Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.

3.4 CLEANING AND PROTECTION

- A. Clean finished surfaces as recommended by metal panel manufacturer.
- B. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Architect.

END OF SECTION 074213

SECTION 074500 – THERMOPLASTIC MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Thermoplastic membrane roofing.
 - 2. Cover board.
 - 3. Roof insulation.
 - 4. Gypsum Underlayment
 - 5. Temporary Roof Membrane
- B. Related Sections include the following:
 - 1. Division 7 Section "Reroofing Preparation."
 - 2. Division 7 Section "Sheet Metal Flashing and Trim."

1.3 PERFORMANCE REQUIREMENTS

- A. Provide a roofing system that complies with the requirements of Underwriters' Laboratories, Inc. for a Class A roof covering.
- B. Provide roofing system meeting the Ultimate Wind Uplift Pressures identified on the drawings.

1.4 SUBMITTALS

- A. Materials List: Give written notification of the brand name and manufacturer of each material proposed for use and include a statement that all proposed materials meet the specification requirements. Obtain approval prior to placing orders.
 - 1. Submittal of catalog cut sheets, etc. in lieu of the materials list required above is not acceptable.
- B. Manufacturers' Installation Instructions.
- C. Tapered Insulation Shop Drawings: Submit proposed tapered insulation and cricket system for approval prior to start of work. Provide drawings for each area and include, at a minimum, concise tapered layouts, material identification, cross sections of typical sections with each board labeled, board stagger pattern, slopes and cricket widths.
- D. Manufacturer Certificates: As follows:
 - 1. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

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2. System Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 3. Material Certificates: Original document signed by a responsible officer of the firm, notarized, on manufacturer's standard letterhead, certifying materials furnished for project comply with the referenced standard. Specifically reference the project and applicable compliance standard on certificate.
- E. Polyisocyanurate Insulation Certificate: Signed by insulation manufacturer stating that polyisocyanurate insulation shipped to this project complies with requirements listed in Part 2.
 - F. Warranties: As specified in this Section.
 - G. Inspection Reports: Copy of roofing system manufacturer's inspection reports.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver all materials to site in original containers bearing manufacturers' name and type of material. All materials used in roof membrane must have appropriate Underwriters' Laboratories, Inc. labels.
- B. Supply and keep all materials dry at all times prior to application.
- C. Store all insulation, cover board, and tapered edge strips in dry, covered storage, or on platforms, and with weatherproof coverings. Coverings shall be waterproof breathable type material such as heavy canvas. Insulation wrappers are not sufficient. Materials which are not stored under specified covers are subject to removal from the site at Engineer's or Owner's discretion.
- D. Store all roll goods on end (does not apply to rolls over 5 foot long) on clean floors or platforms in their manufacturers' wrapper. Do not use flattened rolls or rolls with ends damaged.
- E. Materials which, in the opinion of the Engineer, have been prematurely exposed to the weather are subject to immediate removal by the contractor and replaced with new materials at contractor's expense. Engineer may, at Engineer's option, mark such materials with paint or other indelible materials while they remain on-site.
- F. Store solvent bearing materials in dry, cool storage and keep lids tight on partially used containers to prevent escape of solvents.

1.6 WARRANTIES

- A. Installer's Warranty: Installer's warranty, on form included in these specifications, signed by roofing Installer, properly executed and printed on Installer's letterhead form.
 1. Warranty Period: Five (5) years from date of Final Completion.
- B. Roofing System Guarantee: Manufacturer's Standard Form without monetary limitation in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.
 1. Roofing system guarantee includes roofing membrane, base flashings, cover board, roof insulation, and other components of roofing system.
 2. Guarantee Period: Twenty (20) years from date of final completion. Nothing herein is to be interpreted or construed as changing any provisions of the specifications except as stated herein.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Listed in this section are specifications for materials required generally for use in accomplishing the work specified. Materials not listed may also be required.
- B. Except as specifically noted herein, all reference standards included herein are to be presumed to be the latest published editions of such standards available as of the issue date of these specifications.
- C. Brand or manufacturer names are used as standards of quality where no other appropriate reference is available. The Engineer (or Owner) will consider substitution of materials of equal quality and properties provided a written request accompanied by substantiating data is received by him at least 10 days prior to bid date.
- D. Where a generic product or a general manufacturer's product is specified and more than one such product is offered by the manufacturer, it is understood that only the manufacturer's premium materials are approved for this project.
- E. All roofing system components used on this project shall be compatible and approved for use by the roofing system manufacturer and shall qualify for the specified roofing system guarantee.

2.2 MANUFACTURERS

- A. For purposes of these documents, the roof system manufacturer is defined as the manufacturer of the primary roof membrane. The roof system is intended to encompass, but is not necessarily limited to, all components above the structure including roof insulation, metal panels, membrane and metal flashings and any proprietary flashing/components of the system manufacturer. Subject to compliance with the material specifications of these documents, all materials are to be supplied by the same manufacturer.
- B. All materials used in systems to be covered by a Manufacturer's Guarantee must be supplied by the same manufacturer, unless the manufacturer issuing the guarantee waives this requirement in writing.
- C. The following material manufacturers are approved for this project. Such approval does not relieve the Contractor from the requirement to supply materials which meet all other requirements of these Specifications.
 - 1. Sarnafil Inc.
 - 2. FiberTite, Seaman Corporation
 - 3. Soprema

2.3 FLEXIBLE SHEET MEMBRANE MATERIALS

- A. Membrane: The following membranes, meeting the requirements of the warranty, are approved for use on this project.
 - 1. PVC Sheet: ASTM D 4434, Type II, Grade 1, fiber reinforced, as follows:
 - a. Exposed Face Color: White.
 - 2. KEE Sheet: ASTM D6754
 - a. Exposed Face Color: White.

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- B. Adhesive: Solvent-based contact adhesive.
 - C. Base Flashing: As recommended by membrane manufacturer.
 - D. Walkpads: As recommended by membrane manufacturer.
 - E. Pre-fabricated Flashing Components: Provide other pre-fabricated components as required, such as corner flashing, vent stacks, etc.
 - F. Miscellaneous Products: Sealants, preformed sealant pockets, primers and cleaners supplied by the membrane manufacturer.

2.4 ROOF INSULATION MATERIALS

- A. Polyisocyanurate Roof Insulation: Rigid, cellular polyisocyanurate thermal insulation with core formed by using HCFCs as blowing agents complying with ASTM C 1289, Type II, with glass-fiber mat on both major surfaces. Maximum board size shall be 4' x 4' for adhered boards and 4x8 for mechanically attached boards. No organic facers shall be used.
- B. Polyisocyanurate insulation shall be manufactured to meet the following requirements in addition to the requirements above:
 - 1. Min. Compressive Strength: 20 psi
 - 2. Dimensional Stability: 2% maximum linear change when conditioned at 158°F and 97% relative humidity
 - 3. Min. Curing Time: 24 hrs. plus 24 hrs. for each inch of thickness at a minimum of 60°F before shipment from manufacturer
 - 4. Maximum Board thickness: 3 inches
- C. Contractor shall submit a statement from manufacturer of polyisocyanurate insulation stating they will certify compliance of material shipped to this project with these requirements.
- D. Gypsum Cover Board: ASTM C 1177, non-structural board, glass mat embedded, water-resistant gypsum core, factory primed, 1/2 inch thick.
 - 1. Maximum board size: 4' x 4'.
- E. Gypsum Underlayment: ASTM C 1177, non-structural board, glass mat embedded, water-resistant gypsum core, factory primed, 5/8 inch thick.
 - 1. Maximum board size: 4' x 8'.
- F. Tapered Edge Strips: ASTM C 208, wood fiberboard, 1-1/2 inch at thick edge.
- G. Insulation Adhesive: Two component, low rise polyurethane foam, approved by membrane manufacturer for insulation and substrates on this project.

2.5 TEMPORARY MEMBRANE

- A. Base Ply: ASTM D 5147 and D 6162, Type I, Grade S, or D 6163 , Type I, Grade S, minimum thickness of 120 mil, SBS-modified asphalt sheet, suitable for application method specified and as follows:
 - 1. Installation Method: Cold process or torch applied.

2.6 BASE SHEET MATERIALS

- A. Fiber Glass Base Sheet: ASTM D 4601, Type II, SBS-modified asphalt-impregnated and coated sheet, with glass-fiber reinforcing mat, dusted with mineral surfacing on both sides.

2.7 FASTENING DEVICES

- A. Termination Bar: Extruded aluminum bar, 1 inch by 1/8 inch, with pre-punched holes at 6 inches on center.
- B. Insulation Fasteners and Plates: Plated steel fastener and 3 inch diameter round or 3 inch square steel plate as manufactured by or specifically recommended by the roof system manufacturer. Fasteners should be capable of resisting specified uplift pressure.
- C. Masonry Anchors: Stainless steel screw anchor for use in concrete, brick or concrete masonry units manufactured with threads for cutting into walls of pre-drilled opening to provide tight friction fit, 1/4 inch diameter, 1.5 inch minimum length.

2.8 FLUID APPLIED COATING AND FLASHING:

- A. Provided by roof membrane manufacturer
- B. Included in the roof system warranty.
- C. Fabric reinforcing: As recommended by roof manufacturer.

PART 3 - EXECUTION

3.1 SYSTEM SCHEDULE

- A. Refer to Table 1 for a general schedule of the primary roof components (described from the bottom up) for the roof area. Methods of installation and related materials are in other sections of these specifications.

Table 1: Roof System Schedule

Area 1	Areas 2 and 5	Areas 3, 4, and 6	Areas 7, and 8	Area 9
Pyrobar Gypsum Deck (Barrel Roof)	Metal deck (Structurally Sloped)	Concrete Deck (Flat)	Concrete Deck (Structurally Sloped)	Concrete Deck (Awning)
Temporary modified bitumen roof membrane (torch applied)	5/8" gypsum underlayment (mechanically attached)	Temporary modified bitumen roof membrane (torch applied)	Temporary modified bitumen roof membrane (torch applied)	Temporary modified bitumen roof membrane (torch applied)
2.6-inch polyisocyanurate insulation (adhered)	Temporary modified bitumen roof membrane (cold or torch applied)	2.6-inch polyisocyanurate insulation (adhered)	2.6-inch polyisocyanurate insulation (adhered)	1/4-inch per foot tapered polyisocyanurate insulation (adhered). Starting at 1/2-inch
2.6-inch polyisocyanurate insulation (adhered)	2.6-inch polyisocyanurate insulation (adhered)	2-inch polyisocyanurate insulation (adhered)	2.6-inch polyisocyanurate insulation (adhered)	1/2" gypsum cover board (adhered)
1/2" gypsum cover board (adhered)	2.6-inch polyisocyanurate insulation (adhered)	1/4-inch per foot tapered polyisocyanurate insulation (adhered). Starting at 1/2-inch	1/2" gypsum cover board (adhered)	Fully adhered single ply membrane
Fully adhered single ply membrane	1/2" gypsum cover board (adhered)	1/2" gypsum cover board (adhered)	Fully adhered single ply membrane	
	Fully adhered single ply membrane	Fully adhered single ply membrane		

3.2 EXAMINATION

- A. Inspect all surfaces to receive work specified herein. Application of materials constitutes approval of the substrate as being satisfactory.
- B. Do not proceed with roofing until all vents, drains, curbs, cants, blocking, nailing strips, and projections through the roof deck have been installed.

3.3 INSTALLATION, GENERAL

- A. Do not apply materials on wet or damp surfaces, over dust, dirt, or other foreign matter.
- B. Accomplish application of roofing materials so that each area will be complete at the end of each workday.
- C. Protect edges and incomplete flashings against water entry at all times. Remove cut-offs and temporary protection prior to resumption of work.
- D. Where work detailing affects adjacent roof areas, contractor is to coordinate with existing roofing manufacturer as to not affect the existing manufacturer's warranty.
- E. Contractor shall by all means necessary, prevent odors from entering building.
- F. Install materials in accordance with manufacturers instructions, in manner that maintains roofing system warranty.

3.4 GYPSUM UNDERLAYMENT APPLICATION

- A. Clean deck surfaces of all dirt, dust and other foreign matter.
- B. Furnish and install new 5/8 inch thick gypsum underlayment over metal decks.
- C. On metal decks, apply gypsum sheathing with long dimension of units across deck ribs. On open rib steel decks, ends of units must bear on deck surface.
- D. Apply gypsum with end joints staggered approximately one-half the length of units.
- E. Fit all gypsum units snugly to each other and to all vertical surfaces.
- F. Where gypsum underlayment is to be mechanically fastened, fasten with the number of fasteners as required by the manufacturer to meet the specified wind pressures.
 - 1. Provide insulation fasteners of lengths sized to engage top flange of metal deck a minimum of 3/4 inch and a maximum of 1-1/2 inches.
 - 2. Fasteners shall be a minimum of 6 inches away from any edge of board.

3.5 TEMPORARY MEMBRANE INSTALLATION

- A. Apply new torch grade SBS modified bitumen material in strict accordance with manufacturer's latest printed instructions except as amended in this section.
- B. Lap ends at least 6 inches and sides at least 4 inches.
- C. Starting at low point in roof, apply base ply. Apply uniformly and without voids. Press into full contact with substrate.
- D. Contractor shall provide means of draining standing water from the temporary roof surface where standing water occurs. This includes but is not necessarily limited to the use of sump pumps.

3.6 INSULATION APPLICATION

- A. Clean surfaces of all dirt, dust and other foreign matter.

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- B. Furnish and install new base insulation, and tapered polyisocyanurate insulation, as specified herein.
 - C. Refer to Roof System Schedule and plans for all locations to receive base layer, and tapered polyisocyanurate insulation.
 - D. Insulation set in adhesive:
 - 1. Set each layer of insulation in cold fluid applied adhesive with ribbons spaced as directed by the manufacturer to meet the specified wind pressures.
 - E. Stagger all joints off those of preceding layer.
 - F. Fit all insulation units snugly to each other and to all vertical surfaces.
 - G. Apply insulation in two or more separate layers.
 - H. Form crickets as specified herein:
 - 1. Form crickets along the upslope side of all curb mounted equipment with base widths exceeding 24 inches using factory tapered polyisocyanurate insulation and fill units and tapered edge strips.
 - 2. Form slope between drains using factory tapered polyisocyanurate insulation units, polyisocyanurate insulation fill units, and tapered edge strips.
 - 3. Start cricket construction by striking chalk lines for outer edges of tapered edge strips. Install edge strips along chalk lines, mitering and fitting at the points where lines break.
 - 4. Build crickets over the base layer insulation. Take special care to prevent water penetration into crickets during construction.
 - 5. Unless noted otherwise all crickets are to be fabricated from tapered stock as required to provide an installed slope matching that of the adjacent roof area. For example, where the roof slope is 1/4 inch per foot, crickets are to be fabricated from 1/2 inch per foot stock to provide an installed slope of 1/4 inch per foot.
 - 6. Adhere insulation units as described previously.
 - 7. Provide tapered edge strips as required along cricket edges to provide a smooth transition.
 - 8. Install crickets of sufficient size and slope as required to ensure complete drainage and prevent standing water. Fabricate full crickets between drains with a minimum width-to-length ratio of 0.25. Fabricate partial crickets with dimensions which would result in a minimum width-to-length ratio of 0.25 if they were extended to full size.
 - 9. Fabricate crickets sufficiently wide as to result in valleys with positive slopes of not less than 1/16 inch per foot.
 - I. Taper insulation down to drains beginning at a point approximately 24 inches from drain. There is to be a 1 inch change from the top of the drain sump to the drain. Furnish and install drain extensions as required to elevate drain level.
 - J. Form tapered insulation system using factory tapered polyisocyanurate insulation units and polyisocyanurate insulation fill units.
 - 1. Provide a completed slope of 1/4 inch per foot.
 - 2. Provide a starting thickness of 1/2 inch.
 - K. Form sumps from factory tapered insulation sloped at a minimum 1/2 inch per foot.
 - 1. Sumps shall extend two feet out from the center of the drain in each direction.

3.7 COVER BOARD INSTALLATION

- A. Install cover board in specified adhesive as described herein.
 - 1. Follow ribbon spacing specified for insulation adhesives.
 - 2. Set cover board into cold adhesive immediately after application while adhesive is still soft and tacky.
 - 3. Stagger all joints off those of preceding layer.
 - 4. Apply high density cover board with end joints staggered approximately one-half the length of units.
- B. Ensure full adhesion of all layers of insulation and take whatever steps necessary to achieve full adhesion including, if necessary, temporary ballasting of insulation until adhesive sets.
- C. Provide an insulation thickness at eaves as required to maintain edge metal-fascia at uniform elevation and with uniform face widths. Install additional tapered edge strips at eaves, etc. as required to meet this requirement.

3.8 MEMBRANE INSTALLATION

- A. Install membrane in strict accordance with manufacturer's recommendations.
- B. Unroll membrane and allow to relax before installing.
- C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer.
- D. Apply bonding adhesive to substrate and underside of roofing membrane at rate(s) required by roofing manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.
- E. Mechanically fasten roofing membrane securely at terminations, penetrations and perimeter of roofing.
- F. Apply membrane with side laps shingled with slope of roof where possible.
- G. Seams: Clean seam areas, overlap roofing membrane and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
- H. Repair tears, voids and lapped seams in roofing that do not meet requirements.
- I. Contractor must perform pull tests daily to verify proper bonding at seams and maintain a daily log.

3.9 FLASHING APPLICATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate(s) and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

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- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
 - D. Weld side and end laps to ensure a watertight seam installation.
 - E. At vertical terminations, terminate and seal top of sheet flashings and mechanically anchor to substrate with specified fasteners through specified termination bar approximately 1 inch below top edge and spaced not over 6 inches on center.
 - F. Unless specifically stated otherwise in these specifications or on drawings all base flashings are to extend a minimum of 8 inches above finished roof level. Costs for modifications to parapets, equipment curbs, expansion joint curbs, etc. are to be included in the contractor's bid.
 - G. Fasten base flashing using specified fasteners and termination bar.
 - H. Follow roofing system manufacturer's instructions for installation and securement of wall flashings when wall height exceeds maximum for base flashing material.
 - I. Where bituminous materials are present on substrates coming in direct contact with the membrane, Contractor shall remove bituminous materials by any means necessary without compromising the substrate.
 - J. Apply fluid applied flashing at locations indicated on drawings, in strict accordance with the manufacturer's requirements.

3.10 DRAIN FLASHING INSTALLATION

- A. Provide a smooth transition from the roof surface to drain clamping ring. Prepare the substrate around each roof drain to avoid membrane bridging at the sump area and possible distortion at the drain clamping ring. Use drain extensions as necessary.
- B. Locate membrane field splices a minimum of 24 inches outside drain sump.
- C. Cut the membrane so it extends approximately 1/2 inch beyond the attachment points of the drain clamping ring. Ensure hole is no smaller than drain leader.
- D. Provide water cut-off mastic under compression between membrane and drain base.

3.11 WALKWAY APPLICATION

- A. Install new walkway at all locations indicated on Drawings as specified herein.
- B. Install new walkway on all sides of all major equipment (motorized equipment, scuttles, or any rooftop unit with any single dimension greater than 4 feet).
- C. Adhere flexible walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

END OF SECTION 074500

SECTION 076200 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Sheet metal flashing and trim.
- B. Related Sections include the following:
 - 1. Division 7 Section "Thermoplastic Membrane Roofing."

1.3 SUBMITTALS

- A. Materials List: Give written notification of the brand name and manufacturer of each material proposed for use and include a statement that all proposed materials meet the specification requirements. Obtain approval prior to placing orders.
 - 1. Submittal of catalog cut sheets, etc. in lieu of the materials list required above is not acceptable.
- B. Submit shop drawings of all specified types of metal shapes, showing details of proposed installation where appropriate.
- C. Submit two 6-inch long samples of each metal shape.
- D. Manufacturer Certificates: Original document signed by a responsible officer of the manufacturing firm, notarized, on manufacturer's standard letterhead, certifying materials furnished for project comply with the referenced standard. Certificate shall specifically reference the project and applicable compliance standard.
- E. Color Chart: Manufacturer's standard range of colors for prefinished metals, including available gauges.
- F. Obtain approval of shop drawings, samples and certifications prior to fabrication and installation.
- G. Do not purchase, fabricate or install any sheet metal item until all required shop drawings and related submittals for each item are approved. Items purchased, fabricated and/or installed which are not in compliance with approved shop drawings are subject to immediate removal from the project at contractor's expense.

1.4 STORAGE

- A. Restrict on-site storage to minimum for work in progress. Protect all stored metal from exposure to weather and physical damage.

1.5 WARRANTIES

- A. Upon completion of the work, furnish from manufacturer a standard twenty (20) year finish warranty.
- B. Finish: Deterioration includes, but is not limited to, the following:
 - 1. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - 2. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - 3. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- A. Prefinished Galvalume Steel: Aluminum-zinc alloy-coated steel sheet meeting ASTM A 792, Class A 750, coating designation, Grade 40 (Class AZM 150 coating designation, Grade 275), structural quality with Kynar 500®. Color to be selected by Owner.
- B. Exposed Finish Kynar ® 500 Based fluoropolymer coating, containing not less than 70% polyvinylidene fluoride resin by weight. Mask metal with protective film.
- C. Color: As selected by Owner from manufacturer's full range.
- D. Membrane Clad Metal: 24 gauge galvanized steel with factory aminated membrane material supplied by manufacturer.

2.2 COPING

- A. Factory fabricated to sizes required; corners mitered; concealed fasteners.
 - 1. Configuration: Concealed continuous hold down cleat at both legs; internal splice piece at joints of same material, thickness, and finish as cap; concealed stainless steel fasteners.
 - 2. Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test method RE-3 to positive and negative design wind pressure as defined by applicable local building code.
 - 3. Material: See Sheet Metal Schedule
 - 4. Finish: 70 percent polyvinylidene fluoride.
 - 5. Color: As selected by Owner from manufacturer's standard range.
 - 6. Joints: Use standing seam joints for coping under 18 inches wide. Use 6 inch cover and 6 inch backup plates with three beads of sealant at coping over 18 inches.

2.3 PRE-FABRICATED EDGE METAL

- A. Pre-fabricated edge metal shall meet ANSI/SPRI ES-1 Roof Edge Standard.
- B. Pre-fabricated edge metal shall be covered under roofing manufacturer's 20 year, 72 mph warranty.
- C. Base flange shall be a minimum of 3 inches wide.
- D. Retainer base plate shall be 0.100 extruded aluminum
- E. Exterior fascia covers shall be 24 ga. galvalume.
- F. Pre-fabricated edge metal shall be approved by roof manufacturer and included in system warranty.
- G. Corners, and end caps shall be fabricated by the roof edging manufacturer. Factory fabricated mitered corners shall have 12" nominal leg lengths.

2.4 AUXILIARY MATERIALS

- A. Sealant: ASTM C 920, Type S, Grade NS, Class 25, one-part polyurethane sealant.
- B. PVC Stripping: 20 mil PVC

2.5 SHEET METAL SCHEDULE

- A. Counterflashing: 24 gauge prefinished galvalume
- B. Counterflashing Receiver: 24 gauge prefinished galvalume
- C. Overflow Scupper Liner: 24 gauge membrane clad metal
- D. Coping Cap: 24 gauge prefinished galvalume
- E. Edge Metal: 24 gauge prefinished galvalume
- F. Gutter and Downspout: 24 gauge prefinished galvalume

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Inspect all surfaces to which metal is to be applied. Do not install metal unless surfaces are even, sound, clean, dry and free from defects that might affect the application.
- B. Follow recommendations of Sheet Metal and Air Conditioning Contractors National Association (SMACNA) Architectural Sheet Metal Manual (Seventh Edition, 2012) for fabricating in-shop and on-site, and for installation, unless otherwise specified herein or on Drawings.
- C. Follow published instructions of the product manufacturer for installation of extruded or proprietary metal products, unless otherwise specified herein or on Drawings.
- D. Use nails, screws, bolts, cleats or other fasteners of the same material or, if approved by Engineer, of material chemically compatible with the contacted metal.

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1. Use stainless steel fasteners at all locations in contact with pressure-treated lumber.
 - E. Fabricate cleats to be one gauge heavier than metal to be secured by cleat unless otherwise noted.
 1. Secure cleats to substrate with fasteners specifically manufactured for the purpose at spacings of 6 inches, on center. Fasteners are to be manufactured of metal chemically compatible with the contacted metal. Fasteners to be used in wood substrates are to be ring shank. Fasteners are to be located as close to hem of cleat as practical but no more than 2 inches from hem unless specifically indicated otherwise herein or on drawings.
 - F. Install metal to be water and weathertight with lines, arrises and angles sharp and true and with plane surfaces free of waves or buckles. All raw edges of exposed or finish sheet metal shall be hemmed.
 - G. Install shop-formed flashings in 10-foot lengths maximum and with minimum number of pieces in each straight run.
 - H. Do not place dissimilar metals in direct contact or in positions where water sheds across both metals.
 - I. Miter and seal all inside and outside corners of coping cap. Shop fabricated corner pieces are preferable
 - J. Shop form all metal shapes, which are to be formed of prefinished metal, with protective plastic film in place. Do not remove plastic film until just prior to (or, if possible, after) installation.
 - K. At all corners, shop form corner pieces of coping caps, eave and rake flashings with 18 inch legs (joints no more than 18 inches from corner). Seal joint of corner piece.
 - L. Form faces of fascia with vertical faces of sufficient width to extend to specified length as shown in the details.

3.2 COUNTERFLASHING INSTALLATION

- A. Install new counterflashing at various wall and equipment locations as specified herein. Refer to Drawings for additional information.
- B. Refer to sheet metal schedule for gauge and metal type.
- C. Install new counterflashing at all roof mounted equipment. Extend flange down a minimum of 4 inches over base flashing. Secure counterflashing to top of curb, or to integral flange of unit with appropriate fasteners at 4 inches on center.
- D. Insert upper edge of counterflashing receiver in raggle. Secure with driven lead wedges not over 18 inches on center. Fabricate wedges from lead wool.
- E. Insert upper edge of counterflashing in metal receiver. Bend receiver neatly and snugly to face of counterflashing.
- F. Fill raggle with to full depth with permanent, non-shrinking sealant.
- G. Notch and lap joints and inside corners. Notch and seam outside corners. Do not rivet or otherwise secure joints and corners.
- H. Lap ends 4 inches. Crimp hem of overlapping section around hem of underlapping section.

3.3 COPING CAP INSTALLATION

- A. Submit design drawing for Install new coping cap at locations indicated on plans. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-1.
- B. Refer to sheet metal schedule for gauge and metal type.
- C. Prior to installation of coping cap, extend the PVC membrane across the top of the wall and extending down the outside face approximately the width of the vertical sections of the coping cap.
- D. Secure both vertical sections with a continuous cleat fastened to precast concrete or wood blocking.
- E. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-1, Detail 1 for cleat and coping hem dimensions.
- F. Join sections with 1-inch vertical single-lock standing seams and caulk with approved sealant. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-3, Seam 22.

3.4 ROOF EDGING INSTALLATION

- A. Submit design drawing for review and approval to Engineer before fabrication.
- B. Installing contractor shall check as-built conditions and verify the manufacturer's roof edging details for accuracy to fit the wall assembly prior to fabrication. The installer shall comply with the roof edging manufacturer's installation guide when setting edging.
- C. Installer shall use stainless steel screw type fasteners, provided by edge manufacturer to assure minimum 240# pull-out resistance is achieved for the substrates to which being installed.
- D. Install waterproof sealant to underside of retainer base plate as recommended by the roofing membrane manufacturer.

3.5 MISCELLANEOUS FLANGED FLASHING INSTALLATION

- A. Set flange on top of roofing membrane in solid bed of water cut-off mastic.
- B. Except at plumbing vents or other locations where flashing is turned into top of pipe or otherwise integrally secure against water entry, install bonnet flashing extending below and beyond edges of flashing riser and secure mechanically to roof penetration so that connection is watertight. Securement by sealant alone is not acceptable.

3.6 GUTTER INSTALLATION

- A. Install new gutters at locations as specified herein and on Drawings. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-2 Style A and Drawings.
- B. Refer to sheet metal schedule for gauge and metal type.
- C. Size gutters to be 6 inches wide by 6 inches deep.
- D. Provide butt-type expansion joints in gutters at 30 foot maximum intervals. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-7 and Drawings.

-
- E. Provide gutter brackets sized at 1/8 inch by 1 inch spaced 3 feet on center. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-13A and drawings. Gutter brackets are to be wrapped with galvalume metal to match the color of the gutters.
 - F. Secure gutter brackets to fascia using appropriate fastener at 3 feet on center. Refer to SMACNA Architectural Sheet Metal Manual 1-13A.
 - G. Provide galvalume gutter spacers sized at 1 inch by 1/8 inch spaced 3 feet on center. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-13A.

3.7 DOWNSPOUT INSTALLATION

- A. Install new downspouts at roof as specified herein. Refer to SMACNA Architectural Sheet Metal Manual Figures 1-33B and 1-33E.
- B. Refer to sheet metal schedule for gauge and metal type.
- C. Size downspout to be 5" x 4".
- D. Form downspout hangers from the same material as downspouts using material not less than two (2) gauges heavier than downspouts.
- E. Secure downspout to wall with hangers spaced not more than 5 feet on center. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-35C.
- F. Where downspout terminates at lower roof areas, provide new splash pans over walkpad. Size walkpad to be 6 inches longer and wider than splash pan. Adhere splash pan to walkpad using materials consistent with roof membrane installation. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-36, Second Alternate Section. Provide elbows at base of downspouts which turn out at 45°.
- G. Where downspouts terminate at grade, provide concrete splash block. Refer to SMACNA Architectural Sheet Metal Manual Figure 1-36, Second Alternate Section. Provide elbows at base of downspouts which turn out at 45°.
- H. Where downspouts terminate at subgrade drainage, contractor is to provide connection necessary to tie in the downspout with the existing subgrade drainage system.

END OF SECTION 076200

FORMS

FORM OF PROPOSAL

Memorial Hall Building _____ Contract: _____

University of North Carolina at Chapel Hill Bidder: _____

SCO ID No. 22-25151-01A 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 the University of North Carolina at Chapel Hill 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

Memorial Hall Building Roof Replacement Project

in full in complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the State of North Carolina, and

University of North Carolina at Chapel Hill

with 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: Roof Replacement of Areas 1, 2, and 7:

_____ Dollars

(\$ _____)

ALTERNATE NO. 1: Roof Replacement of Areas 3, 4, 5, 6, 8, and 9:

_____ Dollars

(\$ _____)

ALTERNATE NO. 2: Coating installation on Area B and the internal gutter below:

Dollars

(\$ _____)

General Subcontractor:
 _____ Lic _____

Plumbing Subcontractor:
 _____ Lic _____

Mechanical Subcontractor:
 _____ Lic _____

Electrical Subcontractor:
 _____ 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.

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.

Description	Unit of Measurement	Quantity	Price
1. Wire brush and paint metal deck.	SF	500	
2. Wire brush, paint and plate metal deck.	SF	250	
3. Replace steel deck.	SF	100	
4. Replace damaged or deteriorated wood blocking.	BF	250	
5. Secure metal deck side laps.	Unit	100	
6. Resecure metal deck.	Unit	100	
7. Repair damaged and deteriorated Pyrofill Deck.	SF	250	
8. Install plywood over Pyrofill Deck on Area A.	Unit		

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

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.

<p>Note: Bidders must always submit <u>with their bid</u> the Identification of Minority Business Participation Form listing all MB contractors, <u>vendors and suppliers</u> 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.</p>
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Proposal Signature Page

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 _____, 20_____.

(Name of firm or corporation making bid)

WITNESS:

By: _____

Signature

(Proprietorship or Partnership)

Name: _____

Print or type

Title _____

(Owner/Partner/Pres./V.Pres)

Address _____

ATTEST:

By: _____

License No. _____

Title: _____

Federal I.D. No. _____

(Corp. Sec. or Asst. Sec. only)

Email Address: _____

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 _____ Addendum No. 3 _____ Addendum No. 5 _____ Addendum No. 7 _____

Addendum No. 2 _____ Addendum No. 4 _____ Addendum No. 6 _____ Addendum No. 8 _____

**GUIDELINES FOR
RECRUITMENT AND SELECTION OF MINORITY BUSINESSES
FOR PARTICIPATION IN THE UNIVERSITY OF NORTH CAROLINA
CONSTRUCTION CONTRACTS**

In accordance with G.S. 116-31.11 and G.S. 143-128.2 these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, design-build, public-private partnership, and alternative contracting methods, on University of North Carolina construction projects in the amount of \$100,000 to \$4,000,000. The legislation provides that the State, including the University of North Carolina System, 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 through The University of North Carolina, its constituent institutions, and/or affiliates (hereafter The University of North Carolina) as awarding authorities 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 business, minority person, and socially and economically disadvantaged individual - G.S. 143-128 (g) includes the following definitions. Any changes to G.S. 143-128 (g) are incorporated herein upon enactment:
 - (1) The term "minority business" means a business:
 - a. In which at least fifty-one percent (51%) is owned by one or more minority persons or socially and economically disadvantaged individuals, 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.
 - (2) The term "minority person" means 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, or the Pacific Islands;
 - d. American Indian, that is, a person having origins in any of the original Indian peoples of North America; or
 - e. Female.
 - (3) The term "socially and economically disadvantaged individual" means the same as defined in 15 U.S.C. 637.
2. Public Entity – The State of North Carolina and all public subdivisions and local governmental units.
3. Owner - The State of North Carolina, through the constituent institution named in the contract.

4. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.
5. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.
6. 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.
7. 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.
8. Subcontractor - A firm under contract with the prime contractor, construction manager at risk, design-builder, or private developer under public-private partnerships 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 University of North Carolina 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. The University of North Carolina System Office: The University of North Carolina System Office will be responsible for the following:

- a. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal prior to award of construction contracts within their awarding authority. The State through The University of North Carolina, reserves the right to reject any or all bids and to waive informalities.
 - b. Assisting constituent institutions in monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
 - c. Consulting and advising institutions and affiliates regarding changes in HUB statutes, executive orders, or state procedures.
 - d. Resolving any protest and disputes arising on projects within The University of North Carolina System Office award authority.
3. Constituent Institutions and Affiliates of The University of North Carolina: Before awarding a contract, the constituent institution shall do the following:
- a. Implement The University of North Carolina HUB plan.
 - 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 its efforts 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 University of North Carolina.
 - g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to University of North Carolina.
 - h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment.
 - i. Document evidence of implementation of Owner's responsibilities.
4. Designer
Under the single-prime bidding, separate prime bidding, construction manager at risk, design-build, public-private partnership, 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), including the 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.
- f. Make documentation showing evidence of implementation of Designer’s responsibilities available for review by The University of North Carolina System Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, Design-Builder, Public-Private Partnership developer and Its First-Tier Subcontractors: Under all construction delivery 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. 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. 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.
- 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 Subcontractor responsibilities available for review by the University of North Carolina System 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 B) indicating bidder’s 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) and has all material and supplies required for the project. Bidder may be asked to provide additional documentation in support of the claim of self-performance and regarding the Good Faith Effort to utilize minority suppliers where possible. (2) 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; (3) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal (Affidavit D). 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 for formal contracts (>\$500,000) as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
- i. The contractor(s) on formal contracts (>\$500,000) shall submit with each monthly pay request(s) and final payment(s), “MBE Documentation for Contract Payment” – (Appendix E), for designer’s review. This documentation is also required for contracts under informal bidding, but these projects, typically of shorter duration, may have a single payment request at project completion.
- j. During the construction of a project, at any time, if it becomes necessary to replace a minority business

subcontractor, immediately advise the owner, The University of North Carolina System 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 that these requirements apply to all contractors and first tier subcontractor under any of the approved construction delivery methods permitted 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 D: 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 E: EFFECTIVE DATE

These guidelines shall apply upon promulgation on university construction projects. Copies of these guidelines may be obtained from The University of North Carolina System Office
website:<https://www.northcarolina.edu/offices-and-services/finance-and-administration/capital-design-and-construction/>.

SECTION F: FORMS

In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing MBE participation in State, through The University of North Carolina, building projects. An explanation of the process follows, titled "MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)" along with relevant forms for its implementation ("Identification of Minority Business Participation" form, Affidavits A, B, C, D, and Appendix E).

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in University of North Carolina 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 University of North Carolina System Office website: <https://www.northcarolina.edu/offices-and-services/finance-and-administration/capital-design-and-construction/>

MINORITY BUSINESS SUBCONTRACT GOALS:

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

The bidder must identify on its bid (by using the "Identification of Minority Business Participation" form provided in the bid document), the minority businesses that will be utilized on the project with corresponding total dollar value of the bid. In addition, the bidder must submit with his/her bid an affidavit (**Affidavit A**) listing good faith efforts.

Failure to submit these documents is grounds for rejection of the bid. Bid amounts from rejected bids shall not be read aloud at public bid openings.

The lowest responsible, responsive bidder must also provide:

Affidavit B, if the bidder does not customarily subcontract work on this type project and has all material and supplies required for the project. Bidder may be asked to provide additional documentation in support of the claim of self-performance and regarding the Good Faith Effort to utilize minority suppliers where possible.

OR

Affidavit C, if the portion of work to be performed by minority firms is equal to or greater than 10% of the bidder's total contract price. Affidavit C includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, and lists the participating minority firms with the dollar value of their contracts.

OR

Affidavit D, if the portion of work to be performed by minority firms is less than 10% of the bidder's total contract price. Affidavit D includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, lists the participating minority firms with the dollar value of their contracts, and must include adequate **documentation of Good Faith Effort**.

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

Summary of required submissions: Use check boxes to assist in ensuring that all appropriate forms are submitted.

ALL BIDDERS MUST SUBMIT BOTH FORMS WITH THEIR BID:

- “Identification of Minority Business Participation” form

AND

- Affidavit A – “Listing of Good Faith Efforts”

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

=====

IN ADDITION, THE APPARENT LOWEST RESPONSIVE, RESPONSIBLE BIDDER SUBMITS:

- Affidavit B** – “Intent to Perform Contract with Own Workforce”. This form is to be submitted within 72 calendar hours of notification of being low bidder. Bidder may be asked to provide additional documentation in support of the claim of self-performance and regarding the Good Faith Effort to utilize minority suppliers where possible.

OR

- Affidavit C** – “Portion of the Work to be Performed by Minority Firms” if the percentage of work to be performed by minority firms is 10% or more. This form is to be submitted within 72 calendar hours of notification of being low bidder.

OR

- Affidavit D** – “Good Faith Efforts” if the percentage of work to be performed by minority firms is less than 10%. This form is to be submitted within 72 calendar hours of notification of being low bidder.

The above information is mandatory. 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 (The University of North Carolina) 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 (The University of North Carolina) 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 (The University of North Carolina) whether to terminate the contract for breach.

In determining whether a contractor has made a Good Faith Effort, the University of North Carolina 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 were 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, _____, do hereby certify that on
(Name of Bidder)
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 Number	Work Type	*Minority Category	**HUB Certified
			Y / N
			Y / N
			Y / N
			Y / N
			Y / N
			Y / N
			Y / N
			Y / N
			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 (\$)_____.

AFFIDAVIT A

Listing of Good Faith Efforts

(The University of North Carolina)

County of _____

Affidavit of _____

(Name of Bidder)

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.

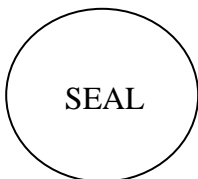
The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

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: _____

Do not submit with bid

Do not submit with bid

Do not submit with bid

Do not submit with bid

AFFIDAVIT B
Intent to Perform Contract with Own Workforce
(The University of North Carolina)

This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

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.

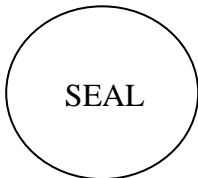
The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

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: _____

Do not submit with bid

Do not submit with bid

Do not submit with bid

Do not submit with bid

AFFIDAVIT C

Portion of the Work to be Performed by HUB Certified/Minority Businesses (The University of North Carolina)

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 bidder's 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.

County of _____

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

_____ contract.
(Name of Project)

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	Work Description	Dollar Value
		Y / N		
		Y / N		
		Y / N		
		Y / N		
		Y / N		
		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 is 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.

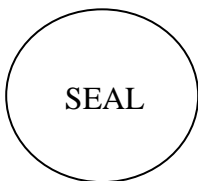
The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

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: _____

AFFIDAVIT D

Good Faith Efforts

(The University of North Carolina)

This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low 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:

County of _____

Affidavit of _____ I do hereby certify that on the

(Name of Bidder)

(Project Name)

Project ID# _____ Amount of Bid \$ _____

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

(Attach additional sheets if required)

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

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

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster

- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

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

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

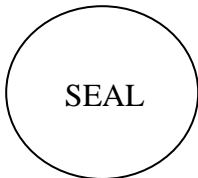
The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____

Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

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

Notary Public: _____

My commission expires _____

Do not submit with bid Do not submit with bid Do not submit with bid Do not submit with bid
****THIS DOCUMENT MUST BE SUBMITTED WITH EACH PAY REQUEST & FINAL PAYMENT****

APPENDIX E MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments to be made to minority business contractors 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**) Socially and Economically Disadvantaged (**D**)

Date: _____

Approved/Certified By: _____

Name

Title

Signature

Signature certifies that any minority firms not previously verified in the bid/award process have been appropriately verified, services have been rendered, and payment is due as processed.

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 University of North Carolina at Chapel Hill 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 2024 by and between _____ hereinafter called the Party of the First Part and the State of North Carolina through **Chapel Hill University** 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:

Memorial Hall Building, SCO Project No. 22-25151-01A

Consisting of the following sheets:

Dated: ____ and the following addenda:

Addendum No. 1	_____	Dated:	_____	Addendum No. 5	_____	Dated:	_____
Addendum No. 2	_____	Dated:	_____	Addendum No. 6	_____	Dated:	_____
Addendum No. 3	_____	Dated:	_____	Addendum No. 7	_____	Dated:	_____
Addendum No. 4	_____	Dated:	_____	Addendum No. 8	_____	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:

Base Bid _____
Alt. No. 1 _____
Alt. No. 2 _____
TOTAL _____

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 five (5) 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)

University of North Carolina at Chapel Hill
(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:

Contractor:(Trade or Corporate Name)

(Proprietorship or Partnership)

By: _____

Attest: (Corporation)

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

By: _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

(CORPORATE SEAL)

(Surety Company)

Witness:

By: _____

Title: _____
(Attorney in Fact)

Countersigned:

(Surety Corporate Seal)

(N.C. Licensed Resident Agent)

Name and Address-Surety Agency

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

FORM OF PAYMENT BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal
(Contractor) _____

Name of Surety: _____

Name of Contracting
Body: _____

Amount of Bond: _____

Project: _____

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall promptly make payment to all persons supplying labor/material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

Contractor: (Trade or Corporate Name)

(Proprietorship or Partnership)

By: _____

Attest: (Corporation)

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

By: _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

(CORPORATE SEAL)

(Surety Company)

Witness:

By: _____

Title: _____
(Attorney in Fact)

Countersigned:

(Surety Corporate Seal)

(N.C. Licensed Resident Agent)

Name and Address-Surety Agency

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

Sheet for Attaching Power of Attorney

Sheet for Attaching Insurance Certificates

Approval of the Attorney General

CERTIFICATION BY THE OFFICE OF STATE
BUDGET AND MANAGEMENT

Provision for the payment of money to fall due and payable by the

under this agreement has been provided for by allocation made and is available for the purpose of carrying out this agreement.

This _____ day of _____, 20_____.

Signed: _____
Budget Office