

**PROJECT MANUAL**

**FOR**



*UNIVERSITY OF NORTH CAROLINA*  
**CHARLOTTE**

**ROOF REPLACEMENTS – MULTIPLE BLDGS.  
(ROBINSON AND GROUNDS BLDGS.)  
9027 MARY ALEXANDER RD., CHARLOTTE, NC 28223**

**JUNE 12, 2023**

**REI PROJECT NO. 023CLT-100**

**SCO ID # 22-25769-01A**

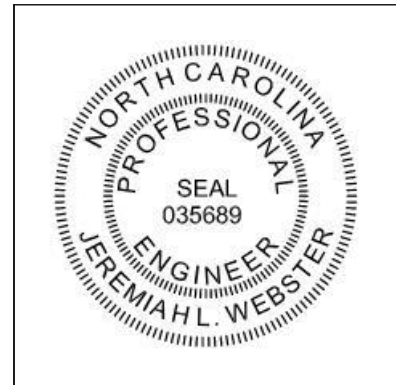
**SEALS PAGE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Design Firm for Roof Replacements - Multiple Bldgs. (Robinson and Grounds Bldgs.) with Project Manual dated June 12, 2023:
1. REI Engineers, Inc.
  2. 1927 J.N. Pease Place, Suite 201, Charlotte, NC 28262
  3. North Carolina Firm License C-1520

Professional Engineer



**END OF SECTION**

**ADVERTISEMENT FOR BIDS**

Sealed proposals will be received until 2:00 PM on June 26, 2023,

(Time) (Date)

in the offices of Facilities Management | Planning, Design &

(Location)

Construction, 9151 Camereon Blvd., Charlotte, NC 28223-001, for the

construction of Roof Replacements - Multiple Bldgs. (Robinson and

(Project)

Grounds Bldgs.) at which time and place bids will be opened and read.

Complete plans and specifications for this project can be

obtained from REI Engineers, 1927 JN Pease Place, Charlotte, NC 28262

(Designer Name and Address)

during normal office hours after May 26, 2023 (Date)

Plan Deposit: Fifty dollars (\$50.00)

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

Signed: UNC Charlotte

(Owner)

# NOTICE TO BIDDERS

Sealed proposals will be received by the University of North Carolina at Charlotte in the office of Facilities Management | Planning, Design & Construction at 9151 Cameron Blvd., Charlotte, NC 28223-0001 up to 2:00 pm on June 26, 2023 and immediately thereafter publicly opened and read for the furnishing of labor, material and equipment entering into the construction of

*Roof Replacement – Multiple Bldgs. (Robinson and Grounds Bldgs.)*

Bids will be received for single prime general construction. All proposals shall be lump sum.

## **Pre-Bid Meeting**

An open pre-bid meeting was held for all interested bidders at 11:00 AM on June 6, 2023, at Facilities Management | Planning, Design & Construction at 9151 Cameron Blvd., Charlotte, NC 28223-0001. The meeting was to address project specific questions, issues, bidding procedures and bid forms.

A follow-up site visit will be held for all interested bidders at 11:00 AM on June 15, 2023, at Robinson Hall, at 9027 Mary Alexander Rd., Charlotte, NC 28223. Attendees shall park in the East parking deck located at 9110 Mary Alexander Rd.

The meeting is also to identify preferred brand alternates and their performance standards that the owner will consider for approval on this project.

In accordance with General Statute GS 133-3, Specifications may list one or more preferred brands as an alternate to the base bid in limited circumstances. Specifications containing a preferred brand alternate under this section must identify the performance standards that support the preference. Performance standards for the preference must be approved in advance by the owner in an open meeting. Any alternate approved by the owner shall be approved only where (i) the preferred alternate will provide cost savings, maintain or improve the functioning of any process or system affected by the preferred item or items, or both, and (ii) a justification identifying these criteria is made available in writing to the public.

In accordance with GS133-3 and SCO procedures the following preferred brand items are being considered as Alternates by the owner for this project:

Owner Preferred Alternate No. 1: Provide roof system manufactured by Sika Sarnafil as specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".

Justification of any approvals will be made available to the public in writing no later than seven (7) days prior to bid date.

Complete plans, specifications and contract documents will be open for inspection in the offices of UNCC Facilities Management | Planning, Design & Construction at the address listed above and REI Engineers, 1927 J.N. Pease Place, Suite 201, Charlotte, NC 28262 or electronic plans may be obtained by those prequalified as prime bidders upon request to REI Engineers. Hard copy plans will only be provided upon a nonrefundable payment of fifty dollars (\$50.00) in cash or certified check.

**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 Form of Proposal 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" or "Specialty (Roofing)".

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

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

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

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

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of 45 days.

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

Designer:  
REI Engineers  
*(Name)*

1927 J.N. Pease Place, Suite 201  
Charlotte, North Carolina 28262  
*(Address)*

704-596-0331  
*(Phone)*

Owner:  
University of North Carolina at Charlotte  
*(Agency/Institution)*

9151 Cameron Blvd.  
Charlotte, North Carolina, 28223

704-687-8622

## TABLE OF CONTENTS

### Introductory Information

1. Cover
2. Seals Page
3. Advertisement for Bids
4. Notice to Bidders
5. Table of Contents
6. List of Drawings

### Procurement Requirements

7. Instructions to Bidders and General Conditions of the Contract
8. Supplementary General Conditions
9. Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts

### Technical Specifications

10. Division 1 through 49 Specifications
  - 01 11 00 Summary of Work
  - 01 14 00 Work Restrictions
  - 01 21 00 Allowances
  - 01 22 00 Unit Prices
  - 01 23 00 Alternates
  - 01 31 00 Project Management and Coordination
  - 01 33 00 Submittal Procedures
  - 01 35 23 Owner Safety Requirements
  - 01 40 00 Quality Requirements
  - 01 50 00 Temporary Facilities and Controls
  - 01 74 00 Cleaning and Waste Management
  - 01 78 39 Project Record Documents
  - 05 01 30 Steel Roof Deck Repair and Securement
  - 06 10 00 Rough Carpentry
  - 07 01 50 Preparation for Reroofing
  - 07 22 16 Roof Insulation
  - 07 26 13 Self-Adhered Vapor Retarder
  - 07 54 00 Thermoplastic Single Ply Roofing
  - 07 62 00 Sheet Metal Flashing and Trim
  - 07 72 36 Smoke Vent
  - 09 24 01 Portland Cement Plastering (Stucco) Repair
  - 09 91 13 Exterior Paint
  - 09 96 53 Elastomeric Coating Restoration
  - 22 14 00 Storm Drainage
  - 22 14 26 Roof Drains
  - 33 46 16.16 Geocomposite Subdrainage

### Project Forms

11. Form of Proposal
12. Minority Business Forms
  - Identification of HUB Certified/ Minority Business Participation
  - Affidavit A – Listing of Good Faith Efforts
  - Affidavit B – Intent to Perform Contract with Own Workforce
  - Affidavit C – Portion of the Work to be Performed by HUB Certified/Minority Businesses
  - Affidavit D – Good Faith Efforts
13. Form of Bid Bond

14. Form of Construction Contract
  - Form of Performance Bond
  - Form of Payment Bond
  - Sheet for Attaching Power of Attorney
  - Sheet for Attaching Insurance Certificates
  - Approval of the University Attorney
15. State/County Sales/Use Tax Statement and Certification
16. Contractor's Affidavit of Release of Liens
17. Contractor's Affidavit of Payment of Debts and Claims
18. Consent of Surety to Final Payment
19. Roofing Manufacturer's Acknowledgement
20. Contractor's Guarantee

**END OF TABLE OF CONTENTS**

## **LIST OF DRAWINGS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

A. The following drawings dated June 12, 2023 are included as part of the Contract Documents:

1. G-001 Cover
2. XR101 Roof Plan
3. XR301 Roof Systems
4. XR501 Details
5. XR502 Details
6. XR503 Details
7. XR504 Details
8. XR505 Details
9. XR506 Details

**END OF SECTION**



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

**STANDARD FORM FOR CONSTRUCTION PROJECTS**

**UNIVERSITY OF NORTH CAROLINA  
SYSTEM OFFICE**

**Sixth Edition – June 2021**

## 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 System Office, Chapel Hill, North Carolina, for that distinct and sole purpose.

### TABLE OF CONTENTS

ARTICLE	TITLE	PAGE
1	Definitions .....	8
2	Intent and Execution of Documents .....	10
3	Clarifications and Detail Drawings .....	11
4	Copies of Drawings and Specifications .....	12
5	Shop Drawings, Submittals, Samples, Data .....	12
6	Working Drawings and Specifications at the Job Site .....	13
7	Ownership of Drawings and Specifications .....	13
8	Materials, Equipment, Employees .....	13
9	Royalties, Licenses and Patents .....	14
10	Permits, Inspections, Fees, Regulations .....	14
11	Protection of Work, Property and the Public .....	15
12	Sedimentation Pollution Control Act of 1973 .....	16
13	Inspection of the Work .....	16
14	Construction Supervision and Schedule.....	17
15	Separate Contracts and Contractor Relationships .....	21
16	Subcontracts and Subcontractors .....	21
17	Contractor and Subcontractor Relationships.....	22
18	Designer's Status .....	23
19	Changes in the Work .....	24
20	Claims for Extra Cost .....	26
21	Minor Changes in the Work .....	27
22	Uncorrected Faulty Work .....	28
23	Time of Completion, Delays, Extension of Time .....	28
24	Partial Utilization: Beneficial Occupancy .....	29
25	Final Inspection, Acceptance, and Project Closeout .....	29
26	Correction of Work Before Final Payment .....	30
27	Correction of Work After Final Payment .....	31
28	Owner's Right to Do Work .....	31
29	Annulment of Contract .....	31
30	Contractor's Right to Stop Work or Terminate the Contract .....	32
31	Requests for Payments .....	32
32	Certificates of Payment and Final Payment .....	34
33	Payments Withheld .....	35
34	Minimum Insurance Requirements .....	35
35	Performance Bond and Payment Bond .....	37
36	Contractor's Affidavit .....	37
37	Assignments .....	37
38	Use of Premises .....	37
39	Cutting, Patching and Digging .....	37
40	Utilities, Structures, Signs .....	38
41	Cleaning Up .....	40
42	Guarantee .....	40
43	Codes and Standards .....	40
44	Indemnification .....	41
45	Taxes .....	41

46 Equal Opportunity Clause .....	42
47 Employment of the Handicapped .....	42
48 Asbestos-Containing Materials (ACM) .....	42
49 Minority Business Participation .....	42
50 Contractor Evaluation .....	42
51 Gifts .....	43
52 Auditing Access to Persons and Records .....	43
53 North Carolina False Claims Act.....	43
54 Termination for Convenience .....	44

**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 cannot be identified as "request for information."
- p. **Clarification or Request for information (RFI)** is a request from the Contractor seeking an interpretation or clarification by the Designer relative to the contract documents. The RFI, which shall be labeled (RFI), shall clearly and concisely set forth the issue or item requiring clarification or interpretation and why the response is needed. The RFI must set forth the Contractor's interpretation or understanding of the contract documents requirements in question, along with reasons for such an understanding.
- q. **Approval** means written or imprinted acknowledgement that materials, equipment or methods of construction are acceptable for use in the work.
- r. **Inspection** shall mean examination or observation of work completed or in progress to determine its compliance with contract documents.

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

- 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.

- 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.

- 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.

- 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.
- 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 expeditor on projects involving two or more prime contracts. The project expeditor shall be designated in the Supplementary General Conditions. The Project Expediter shall have at a minimum the following responsibilities:
  - 1. Prepare the project construction schedule and shall allow all prime contractors (multi-prime contract) and subcontractors (single-prime contract) performing general, plumbing, HVAC, and electrical work equal input into the preparation of the initial construction schedule.
  - 2. Maintain a project progress schedule for all contractors.
  - 3. Give adequate notice to all contractors to ensure efficient continuity of all phases of the work.
  - 4. Notify the designer of any changes in the project schedule.
  - 5. Recommend to the owner whether payment to a contractor shall be approved.
- g. It shall be the responsibility of the Project Expediter to cooperate with and obtain from several prime contractors and subcontractors on the job, their respective work activities and integrate these activities into a project construction schedule in form of a detailed bar chart or Critical Path Method (CPM) schedule. Each prime contractor shall provide work activities within fourteen (14) days of request by the Project Expediter. A "work activity", for scheduling purposes, shall be any component or contractual requirement of the project requiring at least one (1) day, but not more than fourteen (14) days, to complete or fulfill. The project construction schedule shall graphically show all salient features of the work required to construct the project from start to finish and within the allotted time established in the contract. The time (in days) between the contractor's early completion and contractual completion dates is part of the project total float time; and shall be used as such, unless amended by a change order. On a multi-prime project, each prime contractor shall review the proposed construction schedule and approve same in writing. The Project Expediter shall submit the proposed construction schedule to the designer for comments. The complete Project construction schedule shall be of the type set forth in the Supplementary General Condition or subparagraph (1) or (2) below, as appropriate:

1. For a project with total contracts of \$500,000 or less, a bar chart schedule will satisfy the above requirement. The schedule shall indicate the estimated starting and completion dates for each major element of the work.
2. For a project with total contracts over \$500,000, a Critical Path Method (CPM) schedule shall be utilized to control the planning and scheduling of the Work. The CPM schedule shall be the responsibility of the Project Expediter and shall be paid for by the Project Expediter.

**Bar Chart Schedule**, Where a bar chart schedule is required, it shall be time-scaled in weekly increments, shall indicate the estimated starting and completion dates for each major element of the work by trade and by area, level, or zone, and shall schedule dates for all salient features, including but not limited to the placing of orders for materials, submission of shop drawings and other Submittals for approval, approval of shop drawings by designers, the manufacture and delivery of material, the testing and the installation of materials, supplies and equipment, and all Work activities to be performed by the Contractor. The Contractor shall allow sufficient time in his schedule for all commissioning, required inspections and completion of final 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.
- 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.
- c. The contractor is and remains fully responsible for his own acts or omissions as well as those of any subcontractor or of any employee of either. The contractor agrees that no contractual relationship exists between the subcontractor and the owner in regard to the contract, and that the subcontractor acts on this work as an agent or employee of the contractor.
- d. The owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

## **ARTICLE 17 - CONTRACTOR AND SUBCONTRACTOR RELATIONSHIPS**

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

- a. On all public construction contracts which are let by a board or governing body of the state government or any political subdivision thereof, except contracts let by the Department of Transportation pursuant to G.S. 136-28.1, the balance due prime contractors shall be paid in full within 45 days after respective prime contracts of the project have been accepted by the owner, certified by the architect, engineer or designer to be completed in accordance with terms of the plans and specifications, or occupied by the owner and used for the purpose for which the project was constructed, whichever occurs first. Provided, however, that whenever the architect or consulting engineer in charge of the project determines that delay in completion of the project in accordance with terms of the plans and specifications is the fault of the contractor, the project may be occupied and used for the purposes for which it was constructed without payment of any interest on amounts withheld past the 45 day limit. No payment shall be delayed because of the failure of another prime contractor on such project to complete his contract. Should final payment to any prime contractor beyond the date such contracts have been certified to be completed by the designer or architect, accepted by the owner, or occupied by the owner and used for the purposes for which the project was constructed, be delayed by more than 45 days, said prime contractor shall be paid interest, beginning on the 46th day, at the rate of one percent (1%) per month or fraction thereof unless a lower rate is agreed upon on such unpaid balance as may be due. In addition to the above final payment provisions, periodic payments due a prime contractor during construction shall be paid in accordance with the payment provisions of the contract documents or said prime contractor shall be paid interest on any such unpaid amount at the rate stipulated above for delayed final payments. Such interest shall begin on the date the payment is due and continue until the date on which payment is made. Such due date may be established by the terms of the contract. Funds for payment of such interest on state-owned projects shall be obtained from the current budget of the owning department, institution or agency. Where a conditional acceptance of a contract exists, and where the owner is retaining a reasonable sum pending correction of such conditions, interest on such reasonable sum shall not apply.
- b. Within seven days of receipt by the prime contractor of each periodic or final payment, the prime contractor shall pay the subcontractor based on work completed or service

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

- c. The percentage of retainage on payments made by the prime contractor to the subcontractor shall not exceed the percentage of retainage on payments made by the owner to the prime contractor. Any percentage of retainage on payments made by the prime contractor to the subcontractor that exceeds the percentage of retainage on payments made by the owner to the prime contractor shall be subject to interest to be paid by the prime contractor to the subcontractor at the rate of one percent (1%) per month or fraction thereof.
- d. Nothing in this section shall prevent the prime contractor at the time of application and certification to the owner from withholding application and certification to the owner for payment to the subcontractor for unsatisfactory job progress; defective construction not remedied; disputed work; third-party claims filed or reasonable evidence that claim will be filed; failure of subcontractor to make timely payments for labor, equipment and materials; damage to prime contractor or another subcontractor; reasonable evidence that subcontract cannot be completed for the unpaid balance of the subcontract sum; or a reasonable amount for retainage not to exceed the initial percentage retained by owner.

#### **ARTICLE 18 - DESIGNER'S STATUS**

- a. The designer shall provide general administration of the performance of construction contracts, including liaison and necessary inspection of the work to ensure compliance with plans and specifications. He is the agent of the owner only for the purpose of constructing this work and to the extent stipulated in the contract documents. He has authority to direct work to be performed, to stop work, to order work removed, or to order corrections of faulty work where any such action by the designer may be necessary to assure successful completion of the work.
- b. The designer is the impartial interpreter of the contract documents, and, as such, he shall exercise his powers under the contract to enforce faithful performance by both the owner and the contractor, taking sides with neither.
- c. Should the designer cease to be employed on the work for any reason whatsoever, then the owner shall employ a competent replacement who shall assume the status of the former designer.
- d. The designer and his consultants will make inspections of the project. 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."

- 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 System Office, 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 System Office 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.

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 System Office 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.
- 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 any time. 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.
  - 4. Resolution of any final inspection discrepancies.
  - 5. Granting access to contractor's records, if owner's internal auditors have made a request for such access pursuant to Article 52.
- e. The contractor shall forward to the designer, the final application for payment along with the following documents:
  - 1. List of minority business subcontractors and material suppliers showing breakdown of contract amounts and total actual payments to 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.
- 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 onsite 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.

# SUPPLEMENTAL GENERAL CONDITIONS

The following modify the June 2021, Sixth Edition of the General Conditions of the Contract, University of North Carolina System Office and supersedes them only whenever they are in conflict. Unaltered provisions of the General Conditions shall remain in effect.

## 1.1 ARTICLE 1 - DEFINITIONS

- A The "Owner" is the State of North Carolina through the University of North Carolina at Charlotte.
- B The "Designer" referred to herein, shall mean REI Engineers, Inc., 1927 J.N. Pease Place, Suite 201, Charlotte, NC 28262.
- C "Equal To" or "Approved Equal" Add: "substitute products by manufacturers other than those specified in the Project Manual, Addenda, and on the drawings and which may be incorporated in the Work after review and concurrence by the Architect and acceptance by the Owner. This review shall be in accordance with the General Requirements".
- D "Provide." Shall mean furnish and install complete in place, and ready for use.
- E "Indicated" and "Shown." Shall mean as detailed, scheduled, or called for in the Contract Documents.
- F "Latest Edition." Shall mean the current printed document issued up to 30 calendar days prior to date of receipt of bids, unless specified otherwise.
- G "Quality." Shall mean the meticulous attention to the detail of installation and workmanship necessary to the assemblage of products in the highest grade of excellence by skilled craftsmen of the trade.
- H "Drawings" or "Plans" mean the drawings enumerated in the Contract (including all information in the Detail Manual).
- I "Specifications" mean this Project Manual and Addenda thereto, and this term shall include such pages as are enumerated in the Contract as applicable to the work involved.
- J "Supplementary Conditions", as referred to in other parts of the Project Manual, shall be the same as "Supplementary General Conditions."
- K Project Identification: All correspondence, reports, schedules, applications for payment, fax items, etc., shall contain formal title of project, code and item numbers, and SCO ID numbers.

## 1.2 ARTICLE 2 - INTENT AND EXECUTION OF DOCUMENTS

- A ADD to paragraph a:

All work shall be in accordance with the Contract Documents. No change therefrom shall be made without a review by the Designer. Where more detailed information is needed, or when an interpretation of the Contract Documents is needed, the Contractor, before proceeding with the work, shall refer the matter to the Designer who will furnish information or interpretation in the form of a Field Order or other written forms or drawings. If any errors, inconsistencies, or omissions in the Contract Documents are recognized by the Contractor or any member of his

organization, the Contractor shall notify the Designer in writing of such error, inconsistency, or omission before proceeding with the work.

Where compliance with two or more requirements, material or equipment, are specified and the requirements, materials or equipment, establish conflicting specifications or quality levels, the contractor is to comply with the most stringent or higher quality specification. The Designer shall be the authority for determining the highest quality specification.

Should the specifications and drawings fail to particularly describe the material or kind of goods to be used in any place, then it shall be the duty of the Contractor to make inquiry of the Designer for what is best suited. The material that would normally be used in this place to produce first quality finished work shall be considered a part of the Contract.

Shop drawings shall be legible and suitable for producing legible reproductions.

### 1.3 ARTICLE 3 - CLARIFICATION AND DETAIL DRAWINGS

A ADD to paragraph a:

If, in the opinion of the Contractor work is indicated or is specified in such manner as will make it impossible to produce a first-class piece of work, or should discrepancies appear within the Contract Documents, he shall refer same to the Designer for interpretation before proceeding with work. If the Contractor fails to make such reference, no excuse will thereafter be entertained for failure to carry out work in satisfactory manner. Where only part of the work is indicated, similar parts shall be considered repetition. Where any detail is shown and the components therefore are fully described, similar details shall be construed to require equal materials and construction.

### 1.4 ARTICLE 4 - COPIES OF DRAWINGS AND SPECIFICATIONS

A ADD to paragraph:

e. Cost of additional drawings and specification shall be as follows:

Drawings: The Designer shall offer printing of additional copies of documents at direct material cost plus 10% for handling.

### 1.5 ARTICLE 5 - SHOP DRAWINGS, SUBMITTALS, SAMPLES, DATA

A ADD to paragraph a:

This schedule shall be an excerpt from the CPM schedule described by the Supplementary General Conditions. This Schedule shall indicate the items, relevant specification sections, other related submittals, the date when such item will be furnished to the Architect, and the date by which Architect's review is necessary to maintain Construction Schedule. This schedule shall take into consideration the resubmission of shop drawings required to achieve acceptance of the Designer and Owner.

B Modify Paragraph b to read:

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. Contractor shall submit one complete set of submittals to the designer electronically for their review.

C Modify Paragraph c to read:

The Designer shall review required submittals promptly, noting desired corrections if any. The submittals will then be returned electronically to the Contractor with comments. Final submittals require written responses to submittal comments. Contractor shall submit 3 hard copies of final accepted submittals to Designer and retain one hard copy for storage on-site during project.

D ADD to paragraph d:

All shop drawings, submittals, samples, and data shall be submitted to the Designer for review according to accepted CPM schedule from Article 5 (a). After these items have been reviewed by the Designer they will be returned to the Contractor or Project Expediter. Samples and shop drawings required for evaluation of a substitution shall be submitted with the request for substitution. Shop drawings, submittals, samples, and data will not be considered by the Designer unless the submission clearly indicates that they have been checked, coordinated between Prime Subcontractors, and stamped approved by the Contractor and Fabricator or Contractor, Subcontractor, and Fabricator as the case may be. All shop drawings and catalog cuts submitted shall each receive the following stamp completed and dated by the Contractor or submitting Prime Contractor. Samples shall have the stamp affixed to a tag attached to each sample.

**Submitted in accordance with Section No.**

**and paragraph  
No.**

**of the specification**

**FOR SINGLE CONTRACT, AS FOLLOWS**

---

We have checked and approved this submittal. We find it to be in accordance with the Contract Documents.

---

Subcontractor	Signature	Date
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---

We have reviewed this submittal and find it is coordinated with the other parts of the Project.

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Subcontractor	Signature	Date
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E ADD paragraph e:

No extension of construction time will be allowed for delay in checking shop drawings, submittals, samples or data because of the Contractor's, Subcontractor's, or Fabricator's failure to check shop drawings before submitting them to the Designer. All shop drawings shall be prepared to show how the material relates specifically to the conditions of the Project. Standard manufacturer's drawings that do not show how and where the material is to be used will not be considered. Shop drawings shall not be reproductions or portions of reproductions of the Contract documents. Coordinated shop drawings at the same scale indicating all mechanical, electrical, and plumbing shall be required between all trades. The Prime Subcontractor in a given area, as determined by the Contractor, shall submit their drawings to the other involved Subcontractors through the Prime Contractor.

F ADD paragraph f:

The Contractor will furnish and deliver to the Owner 1 copy of each shop drawing, submittal, sample, and data which has been reviewed by the Designer and which has received a "NO EXCEPTIONS TAKEN" or a "TO BE CORRECTED AS NOTED" evaluation. The Contractor or

each Prime Contractor shall deliver these to the Owner within 14 calendar days of receiving each reviewed item from the Contractor following review by the Designer, or in the case where 1 copy of a sample was submitted, within 14 calendar days of receiving advice that the sample is "NO EXCEPTIONS TAKEN" or "TO BE CORRECTED AS NOTED." Coordinate delivery with the owner's project manager. The owner shall have the option of accepting submittal copies during construction or at closeout in which case the project expeditor shall neatly store all items by division in "banker type" storage boxes or a separate file cabinet in the contractor's office facility. All stored submittals and samples shall be accessible to owner at any time during normal working hours.

G ADD paragraph g:

After the Plumbing, HVAC, and Electrical shop drawing submittals have received a favorable review, the Contractor shall submit to the Designer for the Owner, complete operating and maintenance manuals as called for in Divisions 22, 23, and 26. These manuals shall be submitted not later than 14 calendar days before occupancy.

Only Contract Documents, approved Change Orders, approved Contractor submittals to the extent they are in accordance with the Contract Documents, Designer bulletin drawings, and references specifically incorporated into Contract Documents constitute authoritative description of the Work. No other documents, including Contractor generated drawings, shall be considered authoritative.

#### 1.6 ARTICLE 8 - MATERIALS, EQUIPMENT, EMPLOYEES

A ADD to paragraph d:

These substitutions shall be made only by the Contractor and not by subcontractors or material suppliers. Necessary or required substitutions can be made after contract award per usual procedure, but only under unusual or extenuating circumstances.

#### 1.7 ARTICLE 10 - PERMITS, INSPECTIONS, FEES, REGULATIONS

A ADD paragraph f:

The Contractor shall perform the Work in accordance with The University of North Carolina at Charlotte regulations and the Preconstruction Conference Checklist (if such checklist is furnished).

#### 1.8 ARTICLE 13 - INSPECTION OF THE WORK

A ADD to paragraph c:

The Contractor shall also serve the same notice to the Owner for all such inspections or testing.

#### 1.9 ARTICLE 14 - CONSTRUCTION SUPERVISION AND SCHEDULE

A ADD to paragraph a:

The Contractor and each of his Prime Subcontractors shall keep a Superintendent on the Project during the progress of the Work, for purposes of coordination with other Prime Subcontractors, and if required by the Owner, regardless of whether said Contractor or Prime Subcontractor has work currently in progress. Contractors are allowed to work any day of the year, except at times when the Owner may have special events which would be disrupted by Contractor's activities.

B ADD to paragraph f:

"Unless designated otherwise, The General Contractor shall be the 'Project Expeditor'." The Project Expeditor shall prepare daily and have available for inspection by the Designer, State, and Owner daily project reports. Project daily reports shall be prepared for every day of the project



beginning with the date of the notice to proceed and terminating with project completion. Daily reports must also be completed for all weekends and holidays. The daily reports are to include the following items (at a minimum): Superintendents name and signature; day and date; morning and afternoon temperature; weather (clear, cloudy, rain and duration of rain); site conditions; other applicable weather conditions; crew sizes for all contractors and subcontractors on site; and major work accomplished for that day.

C ADD to paragraph g:

Provide CPM CONSTRUCTION SCHEDULE as stated below:

The Construction Schedule shall show the date when the work of each Specification Section is to begin and is to be completed, its total dollar value percent to be completed each month, and total dollar value to be completed each month. The initial schedule and subsequent updates shall be signed by the general contractor.

The Construction Schedule shall be a schedule in time scaled logic network in the Critical Path Method and shall depict sequence of operations mutually agreeable to the Owner, designer, and each of the Prime Sub-Contractors.

The dates of commencement and completion of each of the various stages of the work (including lead time activities, drawing and sample submissions, bidding, awarding subcontracts, manufacturing and shipping); delivery dates for material and equipment by separate contract in detail satisfactory to the Designer. Such Schedule shall show a complete itemized breakdown of the work, and shall include networks for all phases of the work including networks for all work to be performed by the Contractor or all Prime Sub- Contractors.

The schedule and all other constructions schedules shall include 1 and only 1 critical path and this critical path shall be clearly identified. The Construction Schedule shall include the early and late start dates and early and late finish dates of all activities.

The Contractor shall also submit a separate progress schedule listing all submittals required under the contract and when it is anticipated that each submittal will be submitted allowing 20 days for the designer's review. The separate progress schedule shall be an excerpt from the above described construction schedule.

The schedule shall not indicate any on-site construction activity longer than 21 consecutive calendar days or any other activity longer than 28 consecutive calendar days. Any activity with an anticipated longer duration must therefore be broken into component activities, each of which has duration of no longer than 28 calendar days. The initial schedule and subsequent updates shall be submitted in 24" X 36" color plots using a font size acceptable to the owner. Additionally, one 11" X 17" copy shall be submitted with each color plot.

The Construction Schedule shall anticipate all weather delays which may be predicted from analysis of weather reports for the last 5 years and allowances for rock and unsuitable soil removal. The schedule shall also include all major milestones and all anticipated inspection, shutdowns/outages for electrical, water, natural gas, and steam tie-ins if applicable.

As a separate document, the Contractor shall submit progress report, with each Application for Payment, which shall consist of a checklist showing the date of commencement of each activity on the Construction Schedule then commenced the date of completion of those activities completed, and the approximate percentage of completion of each activity.

The Contractor shall receive the permission of the Owner to make changes to the schedule. Notwithstanding any other provisions here of to the contrary, the time of completion may be extended only by a written change order.

Whenever the Schedule of Work changes, the Construction Schedule, which is a different document from the progress report, shall be revised by the Contractor to include the Schedule revisions of all the Prime Sub-Contractors and other sub-contractors and submitted with the next Application for Payment. This revised schedule shall include all information required of the schedule prior to revisions and shall provide for completion on the Contract Completion Date.

The Contractor shall advise in advance, at least 24 hours on a weekday and at least 48 hours on weekends and legal holidays, of all schedule changes, so that any Owner inspections can be arranged. If no revised Construction Schedule is included with an Application for Payment, this lack of inclusion shall constitute a certification by each and all the Contractors that no changes in the Construction Schedule have occurred.

#### Ownership of float and purpose of Schedule

All schedule float, slacktime, or contingency within the schedule jointly belongs to the Owner and Contractor. The Owner shall be entitled to require early completion and clean-up of certain portions of the Work. (i.e. the difference in time between the projects early completion and the required completion date and total float within the overall schedule, is not the exclusive use of either the owner or the Contractor, but is jointly owned by each and is a resource available to and shared by each of the parties as needed to meet contract milestones and the contract completion dates with the owner receiving initial benefit. The Contractor shall not sequester shared float through such strategies as extending activity duration estimates to consume available float, using preferential logic or using extensive crew/resource sequencing etc. since float time within the schedule is jointly owned, no time extensions will be granted until a delay occurs which extends the work beyond the contract completion date. Since float time within the construction schedule is jointly owned, it is acknowledged that owner caused delays on the project may be offset by Owner caused time savings (i.e., critical path submittals returned in less time than allowed by the contract, approval of substitution requests which result in a savings of time to the Contractor. In such an event, the Contractor shall not be entitled to receive a time extension until all owner caused time savings are exceeded and the contract completion date is also exceeded.

The submittal of a fully revised and acceptable construction schedule shall be a condition precedent to the processing of the second monthly payment application. As such, each of the prime Sub-Contractors have a specific obligation to each of the other Prime-Sub Contractors and to the owner to provide all necessary information and to fully cooperate with the Contractor in the development of this and all other construction schedules, including monthly updated construction schedules. All updated construction schedules shall include an updated submittal process schedule excerpted from the construction schedule.

Regardless of which submittal method the Contractor elects to use in formulating the construction schedule, an updated schedule shall be submitted to the owner 5 days prior to submittal of any monthly payment request. The submittal of the updated construction schedule, which satisfies the requirement of this article accurately reflects the status of the work, and incorporates all changes into the schedule, shall be a condition precedent to the processing of the monthly payment application. Updated schedules shall also be submitted at such other times as the Owner may direct. Upon approval of a change order or issuance of a directive to proceed with a change the approved change order shall be reflected in the next schedule update submitted by the Contractor or other update submittal approved by the Owner.

If completion of any part of the work, the delivery of equipment or materials, or submittal of any of the submittals is behind the updated construction schedule and will impact the end date of the work past the contract completion date, the Contractor, shall submit in writing, a plan acceptable to the owner for completing the work on or before the current completion date.

No extensions of time shall be granted unless the delay can be clearly demonstrated by the Contractor, on the basis of the updated construction schedule current as of the month the change is issued on the delay occurred and which delay cannot be mitigated, offset, or eliminated through

such actions as revising the intended sequence of work or other means. It is recognized that any such delay which is the direct result of, and only the direct result of an owner directed change may entitle the Contractor to added compensation for efforts to maintain the schedule or for costs related to extending the schedule as a result of the owner directed change which cannot be accommodated by owner caused time savings.

As a precedent to the release of retained funds, the Contractor shall, after completion of the work has been achieved, submit a final construction schedule which accurately reflects the manner in which the project was constructed and includes actual start and completion dates for all work activities on the construction schedule.

Should the Contractor fail or refuse to complete any portion of the work in accordance with the Construction Schedule, the Owner may perform or cause to be performed the work necessary to cause such completion, and all costs incurred by Owner and Designer shall be deducted from any monies which otherwise may become due the Contractor. Should such costs exceed monies due, the Contractor shall reimburse the Owner within 30 days of the Owner documenting the costs to the Contractor. Schedule shall be prepared by a third party scheduling consultant.

The Contractor shall anticipate that the Owner may require various changes to the work. Only those changes which also change the duration of the critical path shall entitle the Contractor to present a claim for schedule impact, acceleration, or deceleration, only to the extent of the change in the duration of the critical path. Beyond compensation given in resolution of such a claim for acceleration or deceleration.

The purpose of the Construction Schedule, and monthly updates as hereinbefore described, or as may be otherwise submitted and approved, shall be to furnish the Owner and Designer with information to indicate that the Contractor has planned the Project in sufficient detail for the Contractor to insure that its construction can be accomplished in an orderly manner and on the Contract completion date. The dollar value estimates to be included on the schedule are to assist the Owner in cash flow planning so that funds will be readily available to pay the Applications for Payment. Monthly progress reports and updates are to furnish the Owner with current status of any changes required in the original schedule which will assist the Owner in scheduling delivery and installation of any products, furnishings, etc., necessary for the operation of the facility for its intended purpose. The responsibility for construction planning and the effective efficient implementation of such, or the converse, to meet the Contract completion date, or authorized appropriate extensions therefore, are the total responsibility of the Contractor, and such responsibility shall not transfer to the Owner/Designer. Preview of the original Construction Schedule, and subsequent modifications thereto, by the Owner and/or the Designer shall be limited to the general purposes set out above. Such approval shall not operate to imply the agreement of the Owner/Designer to the Contractor's planned procedures, coordination, critical path scheduling, etc., as being appropriate or reasonable.

Contractor shall assign manpower loading for each activity of the schedule by applying the total man-hours required to complete each activity to a resource identified as "man-hours" on each activity."

If the Contractor submits an early completion baseline schedule that shows contract completion in less than 85 percent of the working days specified in these special provisions, the baseline schedule shall be supplemented with resource allocations for every task activity and include time-scaled resource histograms. The resource allocations shall be shown to a level of detail that facilitates report generation based on labor crafts and equipment classes for the Contractor and subcontractors. The Contractor shall use average composite crews to display the labor loading of on-site construction activities. The Contractor shall optimize and level labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not duplicated in concurrent activities. The time-scaled resource histograms shall show labor crafts and equipment classes to be utilized on the contract. The Engineer may review the baseline schedule activity resource allocations using Means Productivity Standards or equivalent to determine if the schedule

is practicable."

D ADD paragraph m:

Prior to and during the execution of the Work, the Contractor shall immediately report any error, discrepancies, conflicts, and omissions found therein to the Designer in writing and shall have the same explained or corrected by the Designer before proceeding with the Work. Any necessary changes shall be adjusted as required thereafter by Article 19 - Changes in the Work. Any work done by the Contractor or after these Conditions have been discovered, and before the Designer has either explained or made corrections, shall be corrected at the Contractor's expense. The Contractor shall coordinate all work of his Contract to produce the required finished Project in accordance with the Contract Documents. Special attention shall be given to the submission of shop drawings, samples, color charts, and requests for substitution within the specified time; furnishing the proper shop drawings to Subcontractors, and material suppliers, whose work and equipment is affected by and related thereto; and the furnishing of all information concerning location, type, and size of built-in equipment and materials and equipment utilities. This coordination is in addition to all other coordination requirements called for in the technical sections of the Project Manual.

E ADD paragraph n:

The Contractor shall post a sign indicating firearms are prohibited on the job site.

F ADD paragraph o:

Prior to issuing the 2<sup>nd</sup> Application and Certificate for Payment, the contractor shall provide in graphic format the Baseline Anticipated Cost based on both early and late start dates for the duration of the project. On a monthly basis and as part of each subsequent Application and Certificate for Payment, the contractor shall submit the Baseline Anticipated Cost graph to include the actual earned value along with an explanation of any schedule variance.

#### 1.10 ARTICLE 15 - SEPARATE CONTRACTS AND CONTRACTOR RELATIONSHIPS

A ADD paragraph g:

The Contractor shall provide all required Site Utilities Work, including but not limited to: Site Storm Sewer, Site Sanitary Sewer, Water and Steam Lines, Natural Gas, and Electrical. Final connection from building to site utilities shall be by the Contractor.

#### 1.11 ARTICLE 17 - CONTRACTORS AND SUBCONTRACTOR RELATIONSHIPS

A ADD:

The Contractor has the responsibility to insure that all product suppliers, and Prime Subcontractors, their agents and employees, adhere to the Contract Documents and that they provide all products on time.

#### 1.12 ARTICLE 19 - CHANGE IN THE WORK

A ADD to paragraph c.1:

Unit prices include all time, costs, and overhead of each unit.

B ADD to paragraph d:

Overhead shall include all Conditions of the Contract and all general requirements such as Project management, scheduling, home office expense, layout, reproduction of Drawings and

Specifications, testing and inspection, shop drawings and sample coordination, shop drawing preparation, proposal request estimating, supervision (including general and nonworking foremen) small tools and expendable items, taxes, temporary facilities and services, including access and safety provisions, "as-built" drawings, estimating general and administrative overhead, and profit. Pricing of proposal requests need to be accomplished within 20 calendar days minimum following receipt by the contractor. Upon request, the contractor shall provide the designer with documentation to substantiate labor rates.

In the event of additions and deletions of items of direct labor and/or material, the item quantities shall be algebraically summed prior to the incorporation of applicable prices, Unit Prices, and/or the overhead and profit percentage applicable.

1.13 ARTICLE 21 - MINOR CHANGES IN THE WORK.

A Revise the first sentence by adding after "The Designer..." "with consultation with the Owner."

1.14 ARTICLE 23 - TIME OF COMPLETION, DELAYS, EXTENSIONS OF TIME

A Substitute the following as paragraph b:

The Contractor shall commence work to be performed under this Agreement on the issued Notice to Proceed, and shall fully complete all work hereunder within 90 consecutive calendar days from and including said date.

All Contractors are responsible for "on-time" performance and shall be responsible for identifying and appropriately coordinating long lead materials and equipment to maintain the project schedule.

For each day in excess of the contract duration, the Contractor shall pay to the Owner, the sum of Five Hundred Dollars (\$500.00) per calendar day until completion, as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the Owner by reason of failure of said Contractor to complete the work within the time specified, such time being of the essence of this contract and a material consideration thereof.

The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate or progress as will ensure full completion thereof within the time specified.

B ADD to paragraph c:

After the contract completion date, the Designer shall deduct from all contractor pay applications, the liquidated damages in the amount of the daily liquidated damage rate times the number of calendar days after the contract completion date minus any previously assessed liquidated damages.

C Add to paragraph d:

The "5-year average of precipitation" shall be determined only by applying daily amounts greater than one-tenth (0.10) of an inch. Only amounts exceeding 0.10 inch shall be applied in determining the actual number of "rain days" for a given month.

The Contractor shall maintain, on site, a hard bound log book to record daily precipitation data from the UNC Charlotte Weather Center. The Log shall also record any corresponding impacts to activities on the critical path. The Log shall be maintained on a daily basis and made available for inspection by the Designer or Owner at any time.

Saturdays, Sundays, and holidays are available to recover lost time due to weather. Time extensions for weather related delays which affect the critical path and exceed the NOAA 5-year

average for a particular month, will only be granted provided the contractor makes an effort to make-up work on weekends or holidays following the rain event. Exceptions to this requirement may be granted in cases where rain occurs on a make-up day.

The effect of "rain days" may impact Critical Path work activities for a period more than the average rain days for any period, such as dewatering, cleanup, etc. which would follow a rain event. The Contractor shall include in the Project Schedule, sufficient days to accommodate weather related delays which will result from the 5-year average precipitation for each month. It is the responsibility of the Contractor to maintain such a log and to obtain the verification and initials of the Designer's representative on a monthly routine basis. The Contractor shall transmit logs and 5 year weather data averages to the Designer monthly. The Designer shall make weather delay determinations by comparing verified Contractor's logs with the 5 year averages over the duration of the Project. All approved weather delays shall be reported to the Contractor or Project Expediter and to the Owner and shall be accumulated and granted in 1 or more Change Orders. Contract time shall not be shortened by weather conditions which are more advantageous than had been predicted.

1.15 ARTICLE 24 - PARTIAL UTILIZATION: BENEFICIAL OCCUPANCY.

A ADD paragraph e:

Unless training requirements are included in the specifications, prior to issuance of Date of Acceptance, the Contractor shall have his/her authorized representatives visit the Project and give full instructions to the Owner's designated operating and maintenance, care, and adjustment of all equipment and special construction elements."

1.16 ARTICLE 31 - REQUEST FOR PAYMENT

A Add to paragraph a:

After the award of the Contract, the contractor shall promptly submit to the Designer for review and Owner approval a complete schedule of values of the various parts of the work listed in the numerical order of the specifications. The schedule shall be dated and signed by the Contractor and shall include a description of the work, quantities, labor, materials, and total Contract amount for each item. Upon Owner approval of this schedule of values, the schedule shall be used as the basis for determining monthly payments and, therefore, is needed in advance of the Contractor submitting the first application and certification for payment. Plumbing, Electrical, and HVAC Prime Sub-Contracts shall be broken down in accordance with the Table of Contents for each such work. Values shall generally be of the same order of magnitude and generally shall be between \$10,000.00 and \$100,000.00. Should the schedule of values include any value for mobilization, the schedule of values shall include an equal value for demobilization.

The Request for Payment shall be on forms described by North Carolina State Construction Manual Section 323 and similar to AIA Documents G702 and G703, latest edition. The Request for Payment shall list materials and labor separately for each Section of the Project Manual. When Request for Payment includes (1) materials stored other than on the Owner's property, or, (2) if allowed by the Owner, other than within the boundaries of the State of North Carolina, request for Payment will not be considered and another Request for Payment shall be made.

Contractor or each Prime Contractor shall also attach to the application all receipts and vouchers required to verify the requested payments for stored materials. No payment made to the Contractor by the Owner shall constitute acceptance of any work or materials not in accordance with the true intent of the Contract.

The Contractor shall additionally include on each monthly Application for Payment the following statement: "We certify that the Surety for this Project has been duly notified of the amount of this request." Unless exception to pay is made by the Surety to the Designer within 4 calendar days

following the date of request, it will be assumed that the Surety concurs in the payment of this application.

B Add to paragraph c:

The contractor shall submit to the Designer for review and Owner approval a complete schedule of values of the various parts of the work listed in the numerical order of the specifications. The schedule shall be dated and signed by the Contractor and shall include a description of the work, quantities, labor, materials, and total Contract amount for each item. Upon Owner approval of this schedule of values, the schedule shall be used as the basis for determining monthly payments and, therefore, is needed in advance of the Contractor submitting the first application and certification for payment. Should the schedule of values include any value for mobilization, the schedule of values shall include an equal value for demobilization.

#### 1.17 ARTICLE 32 – CERTIFICATES OF PAYMENT AND FINAL PAYMENT

A ADD to paragraph f:

The final payment of retained amount due to the Contractor on account of the Contract shall not become due until the Contractor has furnished to the Owner, through the Designer, Guarantees as set forth in the General and Supplementary General Conditions including other Guarantees required by specific Sections of the Project Manual. In addition to the above, all other submissions required by other Articles and Sections of the Project Manual must be in the hands of the Designer before approval of final payment.

#### 1.18 ARTICLE 34 - MINIMUM INSURANCE REQUIREMENTS

A ADD to opening paragraph:

The Designer shall be named as additional insured party on all insurance policies supplied by the Contractor.

#### 1.19 ARTICLE 38 - USE OF PREMISES.

A Add paragraph e:

Should the Owner allow material storage outside the construction limits, the following conditions shall apply:

Staging of the Contractors: Site office trailer, equipment, materials, etc. shall be inside the construction fence or where there is no fence, inside the construction limits. No open trailers or flat beds are permitted, unless otherwise authorized. All material shall be stored in an enclosed and securable vehicle. Put name of project, company name, and company phone number on all storage vehicles stored off construction site.

As space is available, the Owner may allow parking of construction workers' vehicles on its property at no cost to the contractor. Vehicles found parked outside the designated area will be towed away at the contractor's expense.

Contractor personnel must wear ID badges at all times when they are working at UNC Charlotte. The ID badge can either be the Contractor's ID badge or clothing indicating which contractor or subcontractor they are directly employed by.

#### 1.20 ARTICLE 39 – CUTTING, PATCHING AND DIGGING

A Add paragraph d:

The repair of all damages made by cutting shall include restoring those surfaces to a state of finish equal to that when construction began, including such things as surface texture, design, and color, unless in remodeled work new finishes are called for. All such repairs shall be performed by persons trained and proficient in the particular trades involved, for example, plaster repairs by plasterers, masonry repairs by masons, tile repairs by tile setters, painting by painters, and the like. It is the intent of the Contract Documents that all areas requiring repairs shall be restored to a completely finished condition acceptable to the Architect and the Owner.

B Add paragraph e:

CUTTING AND PATCHING: All cutting required to perform the work, and install the products specified under a particular Contract or Subcontract, shall be performed under that particular Contract or Subcontract, and all patching work resulting from this cutting shall be performed under that particular Contract or Subcontract unless completely new products have been scheduled or called for. All patching work shall be by craftsmen skilled in the required work and who may already be engaged on the Project. Cutting shall be held to the minimum.

C Add paragraph f:

PAINTING FOR PATCHING: All patching work within previously painted areas shall be painted by that Contract or Subcontract, which caused the need for this painting, unless completely new finish or finishes have been scheduled or called for. All painting shall be by skilled painters who may already be engaged on the Project.

D Add paragraph g:

CUTTING OF STRUCTURAL MEMBERS: Shall not be performed without review by the Architect.

## 1.21 ARTICLE 40 - UTILITIES, STRUCTURES, SIGNS

A ADD to paragraph j:

The University will provide the Contractor with access to electrical power for operating small tools, for construction lighting, for elevator testing, and for field office operations. The University will not charge the Contractor for power so consumed. The Contractor will bear all costs related to connecting to, transforming, and distributing power from the connection point. The Contractor will bear all costs related to connecting to, transforming, distributing and maintaining temporary power from the connection point.

The Contractor shall allocate power equitably. Welding equipment and other high power users must have self-contained power sources. Power outages shall be coordinated by the Contractor with the University 30 days in advance.

At the start of construction, the contractor shall enter into a Service Agreement with Piedmont Natural Gas and pay all gas utility costs until owner occupancy at which time said Service Agreement will be transferred to the owner.

B ADD to item i:

A shop drawing of the project identification sign must be approved by the University prior to fabrication. No directional signs will be permitted without the University's permission.

Contractors are not permitted to install any sign, anywhere on the site, off the site on University property, or on any equipment on the site, without explicit written approval of the Owner. See enclosed University project sign detail.

Location of any sign shall be approved by the Owner. Should any sign be moved from its initial



location, the new location shall be approved by the Owner. All signs shall be maintained by the project expeditor in first class condition throughout the Contract by repainting, repairing, and re-erecting as necessary and as required. Sign shall be fabricated as indicated on the Drawings.

## 1.22 ARTICLE 42 – GUARANTEE

A ADD paragraph e:

ALL GUARANTEES SHALL INCLUDE LABOR AND PRODUCTS AND SHALL BE SIGNED BY THE MANUFACTURER OR SUBCONTRACTOR, AS THE CASE MAY BE, AND COUNTERSIGNED BY THE CONTRACTOR. ALL GUARANTEES SHALL BE IN ADDITION TO, AND NOT IN LIEU OF, ALL LEGISLATED GUARANTEES. ALL GUARANTEES SHALL BE ADDRESSED TO THE OWNER AND DELIVERED TO THE DESIGNER UPON COMPLETION OF THE PROJECT AND BEFORE OR WITH THE SUBMISSION OF REQUEST FOR FINAL PAYMENT.

B ADD to paragraph f:

In the event that the Owner considers it impractical, because of unsuitable test conditions, or some other factors, to execute simultaneous final acceptance of all equipment, portions of the installation may be certified by the Designer for the Owner's final acceptance when that portion of the system is complete and ready for operation. The decision to accept only portions of the Project rests entirely with the Owner and may only be executed by the Owner.

C ADD Paragraph g:

The Roofing Contractor shall warrant the materials and workmanship of the roofing system against leakage and against defects due to faulty materials, workmanship and contract negligence for a period of two (2) years following the date of final acceptance of the work. He shall, immediately upon notification by the Owner of water penetration, determine the source of water penetration and, at his own expense, do any work necessary to make the work covered by this Contract watertight. He shall also, at his own expense, repair or replace any other damaged material, finishes, equipment, and furnishings, damaged as a result of this water penetration to return the building to its original accepted condition.

D ADD Paragraph h:

The Roofing System Manufacturer shall inspect the installation and warrant the materials and workmanship of the roofing system against leakage for a minimum period of twenty (20) years following acceptance of the project by the Owner.

E ADD paragraph i:

The Contractor signing a Contract with the Owner, shall obtain and forward to the Owner any and all guarantees issued by the manufacturers specifically for certain products and systems covered under his Contract. In the event the manufacturer does not have a suitable "preprinted" warranty form" to fully cover the guarantee requirements as set forth in the Specification Section, he shall produce a warranty form patterned after those contained hereinafter which shall fully document the guarantee as set forth in the Specification Section.

F ADD paragraph j:

In addition to the foregoing stipulations, the Contractor shall comply with all other guarantees referred to in any portion of the Contract Documents, the more stringent requirements governing.

G ADD paragraph k:

If for any reason the Contractor cannot guarantee any part of his work using materials or construction methods which have been specified or indicated he shall notify the Designer in typewritten form before Contracts are signed, giving reasons together with the names of products and data or substitution he can guarantee. Should the Contractor fail to so notify the Designer prior to the Signing of Contract, he will be held to have agreed to guarantee all work specified or indicated.

1.23 ARTICLE 45 - TAXES.

A ADD to paragraph e:

Contractors shall submit monthly with their request for payment, a signed statement containing the amount of sales and use tax paid by the Contractor for that particular billing period."

1.24 ARTICLE 48 – ASBESTOS CONTAINING MATERIALS (ACM).

A ADD the following:

No asbestos containing material may be installed in this facility, including but not limited to, sprayed-on insulation, pipe insulation, floor tile, mastic adhesive, patch materials, wiring insulation, or acoustical treatment.

**END OF SUPPLEMENTAL GENERAL CONDITIONS**

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

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on University of North Carolina construction projects in the amount of \$300,000 to \$2,000,000. The legislation provides that the State (University of North Carolina) 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, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

## **SECTION B: DEFINITIONS**

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
  - a. Black, that is, a person having origins in any of the black racial groups in Africa;
  - b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
  - c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
  - d. American Indian, that is, a person having origins in any of the original peoples of North America; or
  - e. Female
2. Minority Business - means a business:
  - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
  - b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.
3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".
4. Public Entity - means State and all public subdivisions and local governmental units.
5. Owner - The State of North Carolina, through the constituent institution named in the contract.
6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.

7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.
8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.
9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.
10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

## **SECTION C: RESPONSIBILITIES**

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

The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

- a. Identify those areas of work for which there are minority businesses, as requested.
- b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
- c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:

- (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
- (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the 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

The University of North Carolina 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 contracts. The State (University of North Carolina) reserves the right to reject any or all bids and to waive informalities.
- b. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
- c. Providing statistical data and required reports to the HUB Office.

d. Resolving any protest and disputes arising after implementation of the plan.

3. Constituent Institutions of The University of North Carolina

Before awarding a contract, 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 an attempt to meet the goals.
- f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the 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, or alternative contracting method, the designer will:

- a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
- b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
- c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.
- e. During construction phase of the project, review "MBE Documentation for Contract Payment" – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the University of North Carolina.
- f. Make documentation showing evidence of implementation of Designer's responsibilities available for review by University of North Carolina and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, construction manager at risk and alternative contracting methods, contractor(s) will:

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

If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

- d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
- e. Identify on the bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
- f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by University of North Carolina and HUB Office, upon request.
- g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
- h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
- i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" – (Appendix E), for designer's review.
- j. During the construction of a project, at any time, if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, University of North Carolina, and the Director of the HUB Office in writing, of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.
- k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
- l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities

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

**SECTION 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:** These guidelines shall apply upon promulgation on University construction projects. Copies of these guidelines may be obtained from The University of North Carolina, (physical address) 910 Raleigh Road, Chapel Hill North Carolina, 27515, (mail address) PO Box 2688, Chapel Hill, North Carolina, 27515-2688, phone (919) 962-1000, Website:

[http://www.northcarolina.edu/info/vendors/UNC\\_HUB\\_Guidelines2002\\_Rev 7-10](http://www.northcarolina.edu/info/vendors/UNC_HUB_Guidelines2002_Rev 7-10)

**SECTION F:** In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing MBE participation in State 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, (physical address) 910 Raleigh Road, Chapel Hill North Carolina, 27515, (mail address) PO Box 2688, Chapel Hill, North Carolina, 27515-2688, phone (919) 962-1000, Website:  
[http://www.northcarolina.edu/info/vendors/UNC\\_HUB\\_Guidelines2002\\_Rev 7-10](http://www.northcarolina.edu/info/vendors/UNC_HUB_Guidelines2002_Rev 7-10)

### MINORITY BUSINESS SUBCONTRACT GOALS:

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

The bidder must identify on its bid (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 **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, 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**

Provide 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 includes **documentation of Good Faith Effort**.

### **OR**

Have provided Affidavit B with his/her bid as noted above, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

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



**Summary of required submissions:**

(use check boxes to assist in ensuring that all appropriate forms are submitted)

**ALL BIDDERS SUBMIT  
WITH THEIR BID:**

- “Identification of Minority Business Participation” form

**AND EITHER**

- Affidavit A – “Listing of Good Faith Efforts”

**OR**

- Affidavit B – “Intent to Perform Contract with Own Workforce”

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**IN ADDITION, THE  
APPARENT LOWEST  
RESPONSIVE,  
RESPONSIBLE BIDDER  
SUBMITS (IF HE HAS  
NOT SUBMITTED  
AFFIDAVIT B):**

- 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 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%.

## **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 (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 Good Faith Efforts, 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 are due.
- (3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
- (4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- (5) Attending any prebid meetings scheduled by the public owner.
- (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
- (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- (8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

## Identification of HUB Certified/ Minority Business Participation

I, \_\_\_\_\_, (Name of Bidder)

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

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

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

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

**The total value of minority business contracting will be (\$)\_\_\_\_\_.**

# The University of North Carolina - AFFIDAVIT A - Listing of Good Faith Efforts

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.

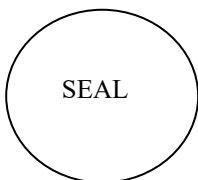
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure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

# The University of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of \_\_\_\_\_

Affidavit of \_\_\_\_\_

(Name of Bidder)

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

\_\_\_\_\_ contract.

(Name of Project)

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

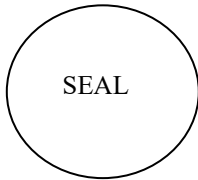
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

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

Title: \_\_\_\_\_



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

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

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

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

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

County of \_\_\_\_\_

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

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

Affidavit of \_\_\_\_\_ I do hereby certify that on the  
**(Name of Bidder)**

\_\_\_\_\_ **(Project Name)**  
Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

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

Attach additional sheets if required

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

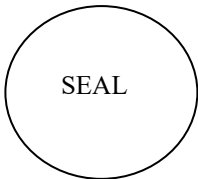
\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

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

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

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_



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

Title: \_\_\_\_\_

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

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

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

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

**University of North Carolina**

**AFFIDAVIT D – Good Faith Efforts**

County of \_\_\_\_\_

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

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

Affidavit of \_\_\_\_\_ I do hereby certify that on the  
**(Name of Bidder)**

\_\_\_\_\_  
**(Project Name)**  
 Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

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

(Attach additional sheets if required)

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

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

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

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

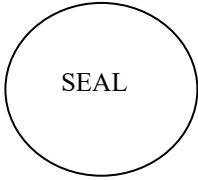
- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

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

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

Do not submit with bid Do not submit with bid Do not submit with bid Do not submit with bid  
The undersigned hereby certifies that he or she has read the terms of  
this commitment and is authorized to bind the bidder to the  
commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_  
Notary Public \_\_\_\_\_  
My commission expires \_\_\_\_\_



# APPENDIX E

## MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: \_\_\_\_\_

Address & Phone: \_\_\_\_\_

Project Name: \_\_\_\_\_

Pay Application #: \_\_\_\_\_ Period: \_\_\_\_\_

The following is a list of payments 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.

**\*\*THIS DOCUMENT MUST BE SUBMITTED WITH EACH PAY REQUEST & FINAL PAYMENT\*\***

## **TECHNICAL SPECIFICATIONS**

## SECTION 01 11 00

### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Name: Roof Replacements - Multiple Bldgs. (Robinson and Grounds Bldgs.)
- B. Project Address: 9027 Mary Alexander Rd., Charlotte, North Carolina 28223
- C. Owner: UNC Charlotte
- D. Engineer: The Contract Documents, dated June 12, 2023, were prepared by REI Engineers, Inc.
- E. This work includes the provision of labor, material, equipment, supervision and administration to integrate the work outlined in these specifications into the total building system such that no leakage into the system occurs. In general, the scope of work in the Base Bid includes:
  - 1. Robinson Hall - Areas A1, A2, A5.1 and A5.2:
    - a. Remove and dispose of the roof system including flashings and sheet metal down to the concrete deck.
    - b. Provide vapor retarder.
    - c. Provide roof insulation system as specified in Section 07 22 16 "Roof Insulation".
    - d. Fully adhere felt-back thermoplastic single ply membrane along with flashings and accessories as specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".
    - e. Replace sheet metal flashings and trim as specified in Section 07 62 00 "Sheet Metal Flashing and Trim".
    - f. Provide a complete, watertight, 20-year warrantable roof assembly.
  - 2. Robinson Hall - Areas A3, A4, A5.3, A6, A7, A8, A9 and A10:
    - a. Remove and dispose of the roof system including flashings and sheet metal down to the steel deck.
    - b. Secure the steel deck to structural framing members as specified in Section 05 01 30 "Steel Roof Deck Repair and Securement".
    - c. Provide roof insulation system as specified in Section 07 22 16 "Roof Insulation".
    - d. Fully adhere felt-back thermoplastic single ply membrane along with flashings and accessories as specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".
    - e. Replace sheet metal flashings and trim as specified in Section 07 62 00 "Sheet Metal Flashing and Trim".
    - f. Provide a complete, watertight, 20-year warrantable roof assembly.
  - 3. Robinson Hall - Areas A11 and A12:

- a. Remove and dispse of the roof system including flashings and sheet metal down to the plywood deck.
  - b. Provide roof insulation system as specified in Section 07 22 16 "Roof Insulation".
  - c. Fully adhere felt-back thermoplastic single ply membrane along with flashings and accessories as specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".
  - d. Replace sheet metal flashings and trim as specified in Section 07 62 00 "Sheet Metal Flashing and Trim".
  - e. Provide a complete, watertight, 20-year warrantable roof assembly.
4. Remove the lightning protection/grounding system prior to commencement of roof replacement work. Upon completion of flashing and sheet metal installation, reinstall or provide parts, components or materials to meet UL requirements at the time of initial installation. Provide a "Letter of Findings" from UL.
- F. Asbestos Containing Roofing Materials (ACRM):
- 1. It is the intention of these specifications that no asbestos bearing materials be incorporated into the work. In the event the contractor determines unanticipated asbestos bearing materials present in the building components, stop work in the affected area, notify the Engineer and Owner, and provide temporary protection as required. Costs incurred due to the presence of hidden or unanticipated asbestos bearing materials will be authorized by Change Order to this contract.
- G. Provide electrical, plumbing, mechanical, and other related trade work necessary to facilitate project operations. Relocate or raise conduit, HVAC equipment, curbs, and/or plumbing necessary to comply with the requirements of these documents and conform to the requirements of the State Building Code.
- H. General requirements and specific recommendations of the material manufacturers are included as part of these specifications. The manufacturers' specifications are the minimum standards required for the completed systems. Where specific items listed herein improve the standards required by the manufacturers, they take precedence where their compliance does not affect the manufacturers' guarantee or warranty provisions.

## **1.2 RELATED DOCUMENTS**

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

## **1.3 CONTRACT**

- A. Project constructed under a single prime general construction contract.

## **1.4 SPECIFICATION FORMATS AND CONVENTIONS**

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use section numbers and titles to cross-reference Contract Documents. Sections in the Project Manual are in numeric sequence.; however, the sequence is incomplete. Consult the Table of Contents at the beginning of the Project Manual.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Interpret words and meanings as appropriate. Infer words implied, but not stated, as the sense requires. Interpret singular words as plural and plural words as singular where applicable as the context of the Contract Documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Perform requirements expressed in the imperative mood. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

**END OF SECTION**

## **SECTION 01 14 00**

### **WORK RESTRICTIONS**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. Administrative and procedural requirements for work sequence, work restrictions, occupancy requirements and use of premises.

##### **1.2 RELATED DOCUMENTS**

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

##### **1.3 WORK SEQUENCE**

A. Conduct work in the following sequences unless construction phases are otherwise specified.

1. Construct Work in phases to accommodate the Owner's use; if applicable, of the premises during the construction period; coordinate the construction schedule and operations with the Owner and Engineer.
2. Construct the Work in phases to provide for public convenience. Do not close off public use of facility until completion of one phase of construction provides alternative usage.
3. Schedule construction in such a manner that once work has commenced on one facility, the work force to remain at that facility continuously each workday through final completion at that facility.

##### **1.4 WORK RESTRICTIONS**

A. Work hours generally performed during normal business hours. Provide notification to the Owner and Engineer 48 hours in advance of work outside of normal business hours. No work allowed without prior notification and authorization.

B. University Work Restrictions:

1. Coordinate work schedule with University's testing and events schedule and may not be allowed on-site during certain days/events.

##### **1.5 OCCUPANCY REQUIREMENTS**

A. Owner Occupancy:

1. Owner occupies the premises during construction to conduct his normal operations. Cooperate with Owner in construction operations to minimize conflict, and to facilitate Owner usage.

2. Conduct operations as to ensure the least inconvenience and the greatest amount of safety and security for the Owner, building occupants, and the general public.
3. Control noise from operations so that building occupants are not affected.

## **1.6 PROTECTION OF EXISTING WORK**

- A. All Contractors are hereby reminded and cautioned that extreme care shall be exercised to protect the existing facilities from damage during the progress of the work. Any damage that occurs shall be repaired or damaged areas removed and replaced with new materials equal to the existing and to the owner's satisfaction without additional cost.
- B. The lawn in the material storage areas and elsewhere as affected by the contract shall be protected from unnecessary digging, trenching and rutting, and after completion of the work all holes, trenches, ruts, and other damage shall be filled in, graded, and made ready to receive new grassing. These areas shall be grassed to match existing as close as possible.

## **1.7 SECURITY**

- A. Each contractor shall be responsible for security and protection to his equipment and the site-stored and installed products under his jurisdiction, at all times whether paid for by the owner or not, until the owner accepts the project.
- B. Conduct construction work so that the owner's existing building can be locked securely at all times when it is not normally opened. All temporary outside walls and barriers shall be constructed so they will be reasonably tamperproof.
- C. Contractors shall provide identification for their vehicles and all employees on this project. Identification methods shall be approved by the owner. The contractor shall be held responsible for each of his employees wearing the identification while on the project.
- D. The Contractor shall establish a color code for the hard hats to differentiate between the various trades and visitors. Twelve (12) hard hats for Owner's and Architect's representatives shall be furnished by the Contractor and kept in clean condition.
- E. Except for communication devices, no radios or other sound-emitting devices not directly associated with the work will be operated by the workers at the job site. All workers will behave in a polite manner and all workers will wear shirts and shoes when on campus. Workers are not to make any comments or gestures to any University personnel, students, or guests. Workers are permitted to smoke in designated smoking areas. Workers not complying with these requirements will not be allowed to work and may be instructed to vacate the work site. If workers are restricted from working, such restriction(s) shall not alter the terms of the contract.

## **1.8 CONTRACTOR SITE ACCESS:**

- A. The Contractor shall use only the following roads on campus:
  1. Toby Creek Road from W.T. Harris Boulevard to Cameron Blvd. to Craver Rd.
  2. Cameron Blvd. from University City Blvd. to Craver Road
  3. Craver Road from Cameron Blvd. to the construction entrance.

- B. Each Contractor must coordinate materials deliveries to the project site without recourse to University staff assistance. Shipping documents must contain complete delivery instructions to include a site location, Contractor name, and telephone number for the delivery truck driver's use.
  - 1. Deliveries to the construction site or (NAME OF BUILDING) shall be completed before 8:00 am or started after 6:00 pm Monday thru Friday. If special or weekend deliveries are needed, coordinate with the University Project Manager (UPM).

## **1.9 USE OF SITE:**

- A. Each Contractor (and all Contractor employees) must comply with University Traffic Regulations and Emergency Procedures Manual. All North Carolina motor vehicle laws apply on Campus, including registration and inspection requirements. The University reserves the right to direct the route of all hauling on University property. There shall be no additional payment related to the route being selected or modified by the University. Factors such as traffic disruption, soiling of street, and detriment of pavement will be considered.
- B. Diveways and Entrances:
  - 1. Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles.
  - 2. Do not use these areas for parking or storage of materials.
  - 3. Schedule deliveries to minimize use of driveways and entrances.
- C. Truck and equipment access:
  - 1. Avoid traffic conflict with vehicles of the Owner's employees and customers and avoid over-loading of street and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to the designated areas.
  - 2. Provide adequate protection for existing surfaces, roadways/haul routes, parking lots, curbs, sidewalks, finishes, and adjacent facilities from damage during construction and from vehicles.
- D. All materials, equipment, vehicles, and employee vehicles must be contained within the limits of construction. Parking is extremely limited on Campus. Vehicles shall be parked in assigned areas to be arranged with the UPM. Vehicles must display temporary parking permits which will be provided by the UPM. Vehicle operators shall comply with all traffic and parking signs. Parking on sidewalks or lawns for loading and unloading may be arranged on an individual basis, but only after coordination with the UPM or University Construction Manager.
- E. All equipment must be secured when Contractor staff is not on-site. Each contractor must accept responsibility for physical security of tools, equipment, materials and other property on-site. The construction fence must be maintained and signed to prevent casual entry into the site. Contractors can work 24 hours per day, 7 days per week, except on Saturday during spring and winter commencements, provided the general contractor's superintendent is on site. Other restrictions apply near housing areas.
  - 1. Move stored materials and equipment that interfere with operations of the Owner.



## **1.10 USE OF BUILDING**

- A. Maintain building in a weathertight condition throughout construction period.
- B. Take precaution against injuries to persons or damage to property.
- C. Protect building, its contents, and its occupants during construction period.
- D. Repair to the Owner and Engineer's satisfaction, or to restore to condition at the time of award of Contract, or to make restitution acceptable to the Owner, damages to the building, its contents, or surface improvements resulting from, or attributable to, the work operation.
- E. Indoor Air Quality:
  - 1. Coordinate with the facility personnel to identify the area where roof work is performed daily and what HVAC equipment and personnel in the building may be affected by the work.
  - 2. Work with facility personnel to prevent odors or fumes from entering the building or where found to not be practical due to the work area, HVAC equipment limitations or other reasons; coordinate with facility personnel to have occupants relocated to an area of the building not affected by the work.
  - 3. When possible to safely shut down and seal HVAC equipment; as determined by the facility personnel, coordinate with facility personnel to have mechanical units affected by the planned work area and air intakes properly closed and sealed. After closing of mechanical units and air intakes, cover units and intakes with 6-mil polyethylene sheeting taped secure. Remove polyethylene sheeting before coordinating restart of units and intakes.
  - 4. Provide box carriage fans on rooftop during roof application to move and circulate air away from intakes and units.
  - 5. Where HVAC equipment is required to remain operational during roof work, coordinate with facility personnel to cover air intakes with charcoal filters prior to beginning work. Facility personnel to provide and install the charcoal filters on affected equipment.
  - 6. When starting roof work using materials which have odors or emit fumes, communicate with facility personnel within the building in the area of the work to determine if fumes or odors are being experienced. If fumes or odors are experienced, stop work until the cause is determined and remediated or occupants can be moved to an area not affected by the work.

## **1.11 CONTRACTOR CONDUCT**

- A. Each Contractor is responsible for employee conduct and behavior on Campus. Harassment, verbal abuse, and other such behavior toward students, faculty, staff, or the public will not be tolerated. Radios and other sound sources are not allowed on the project. All employees are required to wear shirts.
- B. Weapons are prohibited on Campus.

**END OF SECTION**

## **SECTION 01 21 00**

### **ALLOWANCES**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. Administrative and procedural requirements governing allowances.

##### **1.2 RELATED DOCUMENTS**

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:

1. Section 05 01 30 "Steel Roof Deck Repair and Securement"
2. Section 06 10 00 "Rough Carpentry"
3. Section 07 01 50 "Preparation for Reroofing"
4. Section 07 22 16 "Roof Insulation"

##### **1.3 ABBREVIATIONS**

A. Abbreviations for typical units of measurement:

1. Square Foot (SF)
2. Square Yard (SY)
3. Cubic Foot (CF)
4. Board Foot (BF)
5. Linear Foot (LF)
6. Each (EA)
7. Tonnage (TON)

##### **1.4 QUANTITY ALLOWANCES**

A. Include the specified quantity allowances in the base bid. Use the unit price submitted on the Bid Form to compute the quantity allowances. The quantities indicated on the Bid Form are estimated quantities only for the purpose of comparing bids. Compensation for the unit price bid made for the exact quantity of work performed under the unit price item. Deductive amounts of unit price work included in the Contract Sum are calculated at 100% of the quoted add unit price.

#### **PART 2 - PRODUCTS (NOT USED)**

#### **PART 3 - EXECUTION**

##### **3.1 SCHEDULE OF ALLOWANCES**

A. Quantity Allowances:

1. Repair 3,000 SF of Corroded Steel Deck (Corrosion Degree 1) with Coating. Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
2. Repair 500 SF of Steel Deck (Corrosion Degree 2) with Steel Plates. Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
3. Overlay 1,000 SF of Deteriorated Steel Deck (Corrosion Degree 3) with Steel Deck. Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
4. Replace 500 SF of Deteriorated Steel Deck (Corrosion Degree 4). Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
5. Replace 500 BF of Deteriorated Wood Blocking. Refer to Section 06 10 00 "Rough Carpentry".
6. Replace 500 SF of Deteriorated Plywood. Refer to Section 06 10 00 "Rough Carpentry".
7. Provide 600 LF of Additional Manufacturer's Walk Pad Material. Refer to Section 07 54 00 "Thermoplastic Single Ply Roofing".

**END OF SECTION**

## SECTION 01 22 00

### UNIT PRICES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for unit prices.

##### 1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:

1. Section 05 01 30 "Steel Roof Deck Repair and Securement"
2. Section 06 10 00 "Rough Carpentry"
3. Section 07 01 50 "Preparation for Reroofing"
4. Section 07 22 16 "Roof Insulation"

##### 1.3 DEFINITION

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 ABBREVIATIONS

A. Abbreviations for typical units of measurement:

1. Square Foot (SF)
2. Square Yard (SY)
3. Cubic Foot (CF)
4. Board Foot (BF)
5. Linear Foot (LF)
6. Each (EA)
7. Tonnage (TON)

##### 1.5 UNIT PRICE MEASUREMENT

A. Prior to performing work under a unit price as specified herein, notify the Engineer to allow for measurement of the actual quantities of work. Work performed under these items without prior approval and measurement is at the Contractor's expense.

B. Maintain a daily log including visual documentation (i.e. digital photographs) showing dates, location and exact quantities of unit price work.

- C. Owner and Engineer reserve 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 party.

## **1.6 UNIT PRICE PAYMENT**

- A. Include in unit prices costs associated with performing the unit price work including but not limited to labor, material, equipment, insurance, applicable taxes, overhead and profit, etc.

## **1.7 UNIT PRICE PERFORMANCE**

- A. Install unit price work in accordance with the applicable specification sections and Contract Drawings.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.1 SCHEDULE OF UNIT PRICES**

- A. Provide a unit price for:
1. Repair Corroded Steel Deck (Corrosion Degree 1) with Coating. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
  2. Repair Steel Deck (Corrosion Degree 2) with Steel Plates. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
  3. Overlay Deteriorated Steel Deck (Corrosion Degree 3) with Steel Deck. Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
  4. Replace Deteriorated Steel Deck (Corrosion Degree 4). Unit of Measurement: Square Foot (SF). Refer to Section 05 01 30 "Steel Roof Deck Repair and Securement".
  5. Replace Deteriorated Wood Blocking. Unit of Measurement: Board Foot (BF). Refer to Section 06 10 00 "Rough Carpentry".
  6. Replace Deteriorated Plywood. Unit of Measurement: Square Foot (SF). Refer to Section 06 10 00 "Rough Carpentry".
  7. Provide Additional Manufacturer's Walk Pad Material. Unit of Measurement: Linear Foot (LF). Refer to Section 07 54 00 "Thermoplastic Single Ply Roofing".

**END OF SECTION**

## **SECTION 01 23 00**

### **ALTERNATES**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. Administrative and procedural requirements for alternates.

##### **1.2 RELATED DOCUMENTS**

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

##### **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 or in the products, materials, equipment, systems or installation methods described in the Contract Documents.

##### **1.4 ALTERNATES**

- A. Indicate on the Bid Form whether the alternate bid amount is to added to or deducted from the base bid in the event the alternate bid is accepted.
- B. The Owner reserves the right to accept or reject any or all of the alternate bids.
- C. Responsible for determining to his own satisfaction and for his own purposes the limits and extent of the work affected by the alternate bids and to make proper allowance therefore in the submission of alternate bid.
- D. Include the cost of each alternate bid as specified in the technical specification sections and as described on the drawings. Perform work required by the alternate bids in accordance with applicable specifications and drawings of the trade section affected.
- E. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate selected alternates into the Work. No other adjustments are made to the Contract Sum.
- F. The Owner reserves the right to delay the acceptance of the alternate bids during the bid holding period prior to accepting the contract without a change in the dollar amount of the alternate bids.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.1 SCHEDULE OF ALTERNATES**

- A. Alternate No. 1 (Owner Preferred): Provide roof system manufactured by Sika Sarnafil as specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".
- B. Alternate No. 2:
  - 1. Provide roof replacement of Grounds Building (Area B):
    - a. Remove and dispose of the roof system including flashings and sheet metal down to the [steel deck][concrete deck][wood plank deck][plywood deck][cementitious wood fiber deck][poured gypsum deck][lightweight concrete deck][lightweight insulating concrete][existing insulation system to remain].
    - b. Secure the steel deck to structural framing members as specified in Section 05 01 30 "Steel Roof Deck Repair and Securement".
    - c. Provide roof insulation system as specified in Section 07 22 16 "Roof Insulation".
    - d. Fully adhere felt-back thermoplastic single ply membrane along with flashings and accessories as specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".
    - e. Replace sheet metal flashings and trim as specified in Section 07 62 00 "Sheet Metal Flashing and Trim".
    - f. Provide a complete, watertight, 20-year warrantable roof assembly.
  - 2. Remove bushes and landscaping on South and East elevations around Grounds Building.
  - 3. Properly prepare and repair stucco and provide elastomeric coating on exterior walls of Grounds Building.
  - 4. Excavate down to top of footer and provide french drain system consisting of perforated pipe in gravel bed wrapped in filter fabric along East elevation of building. Tie french drain system into below grade PVC drainage pipe and discharge into nearest catch basin.
  - 5. Provide cast iron downspout boot at each downspout and provide 6" diameter below grade PVC drainage pipe at 1% min. slope routed to nearest catch basin.
- C. Alternate No. 3: Replace smoke vents.
- D. Alternate No. 4: Properly prepare, prime and paint smoke vents.

**END OF SECTION**

## **SECTION 01 25 00**

### **SUBSTITUTION PROCEDURES**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. This Section specifies administrative and procedural requirements for handling requests for substitutions after award of Contract.

##### **1.2 RELATED DOCUMENTS**

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

##### **1.3 DEFINITIONS**

A. Substitutions: Requests for changes in products, materials, and equipment, of construction required by Contract Documents proposed by the Contractor are considered requests for "substitutions". The following are not considered substitutions:

1. Revisions to Contract Documents requested by the Owner or Engineer.
2. Specified options of products and construction methods included in Contract Documents.
3. Determination of and compliance with governing regulations and orders issued by governing authorities.

##### **1.4 PRODUCT SUBSTITUTIONS:**

A. Products and systems specified are the absolute minimum quality standard and substitutions of lesser quality are not acceptable.

B. Request for Substitution will not be considered verbally nor will approval be issued verbally. All requests for substitution shall be in written form as hereinafter stated and shall be transmitted through the bidding contractor with his concurrence.

C. Requests for Substitution of products by, manufacturers other than those listed in or performance requirements specified in the sections of the specifications, addenda, and on the drawings, will be considered by the architect if received not later than 10 working days prior to the date for receipt of bids, not including any bid date extension, so as to allow a reasonable time for the evaluation of requests for substitution and the notification, by addendum, of all bidding contractors as to the approved and accepted substitutions.

D. Request for Substitution:



1. After Contract(s) is (are) signed, no substitutions will be evaluated by the Engineer without compensation from the requesting Contractor to the Owner for cost of evaluation charged the Owner by the Engineer.
- E. Any Request for Substitution which does not clearly show equality, to the architect's satisfaction, will be rejected. The burden of proof that the proposed substitution is equal to and meets the requirements specified and shown in the project documents including type, design, quality, operation, function, use, size, appearance, capability, electrical requirements, mechanical requirements, and manufacture shall be solely the responsibility of the bidding contractor through which the substitution was transmitted and thereby concurred with the substitution.
  - F. Request for Substitution for a system and for each separate product item shall include: reason for substitution request; cost of both specified item and proposed substitution item; laboratory test reports; catalogs and drawings showing capacities, operations, functions, dimensions, construction details and methods of assembly; connections; and installation to the work. If a proposed substitution of products, equipment, or systems have different dimensions or configuration than that which is specified and required, then The Contractor proposing the substitution shall furnish full drawings and details verifying the suitability of the proposed substitution with respect to space provided, functional operation (including maintenance accessibility), and aesthetic values, as a condition precedent to acceptance of the substitution. If the proposed substitution is accepted by the owner, after architect's review, the contract sum will be adjusted by change order reflecting extras or credits involved. Should the request for a substitution be accepted, shop drawings and samples shall be submitted in accordance with the general conditions and supplements thereto. Substitutions of a minor nature not involving a change in the contract sum or the contract time may be approved by the architect, without referral to the owner, in accordance with general conditions of the contract, form oc-15, North Carolina Department of Administration; article 21.
  - G. Manufacturer's Literature which is readily available to the architect will not be acceptable for establishing proof of equality. Laboratory test reports shall have been performed by a nationally recognized independent testing laboratory which is known for its testing expertise. The laboratory test shall include type of materials used in the product including their thickness and strength, and a direct comparison to that specified for capacities, capabilities, coating, functions, life cycle usage, and operations. Where products will be exposed, and where systems will be used, no change in the architect's design and engineering intent will be allowed.
  - H. If proposed substitutions are accepted by the Owner, after Engineer's review, the bidding Contractor's price may include prices reflected by the substitutions so indicated by Addendum.
  - I. After the time for requesting substitutions has expired, requests for substitutions will be reconsidered, after signing of Contract, should circumstances arise that will be detrimental to the Project with respect to the time of completion and quality of performance as required by the Contract Documents. These circumstances shall be limited to strikes and other conditions beyond The Contractor's control. Request for reconsideration will be judged on the merit of each individual request.

## **1.5 PRODUCTS PROPOSED FOR USE IN PROJECT:**

- A. Within 20 consecutive calendar days after the Notice to Proceed, The Contractor shall furnish to the Engineer for review, a complete list of products with manufacturers and suppliers of each that The Contractor will provide in the Project. This list shall be broken down into the Sections of the Project Manual. If an item is to be substituted, it shall be so noted and the request for substitution shall be submitted as hereinbefore called for. If an item is not listed and a request for substitution is not offered, then the Engineer for expedience will select colors and finishes when preparing the color schedule and The Contractor shall match these colors. All materials installed by The Contractor shall be new. All materials shall meet NC State Building Codes and should there be any discrepancies between design and code, the more stringent requirement shall apply. All materials shall be in compliance with standards (or approved products) of the NC State Construction Office. Unless specified otherwise, no product containing any amount of any form of asbestos shall be installed at UNC Charlotte. Asbestos means asbestiform varieties of chrysotile, crocidolite, amosite, anthophyllite, tremolite or actinolite. By definition, installation of asbestos materials will be considered contractor's negligence and the contractor shall perform all necessary work to remove the asbestos and restore the site to the "post-contract" condition.
- B. All revisions resulting directly or indirectly from equipment, products, and systems to be provided, which have different characteristics from that which the Project was designed for, shall be the financial responsibility of The Contractor or Subcontractor providing the equipment, products, and system which caused the revision. For example: Should a unit of equipment require a utility supply of larger capacity, such increase required in the supply system and its related components, back to a point where an increase will not be required, shall be paid for by The Contractor or Subcontractor providing that unit of equipment.

**END OF SECTION**

## **SECTION 01 31 00**

### **PROJECT MANAGEMENT AND COORDINATION**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - a. Project Schedule
  - b. Project meetings

##### **1.2 RELATED DOCUMENTS**

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

##### **1.3 SUBMITTALS**

A. Refer to Section 01 33 00 "Submittal Procedures".

B. Emergency contact list: Key personnel including home, office and mobile numbers, for the following:

1. Owner
2. Contractor
3. Subcontractor(s)
4. Engineer

C. Work schedule:

1. Indicate start date, crew size, production rate, completion date, etc.
2. Refer to Article 14 of the General Conditions and Supplementary General Conditions for additional schedule requirements.

D. Logistics Plan

##### **1.4 PROJECT MEETINGS**

A. Pre-Construction Meeting

1. A Pre-Construction Meeting will be scheduled as soon as possible after the award of the contract.
2. The Engineer's Representative will compile minutes of the meeting and will furnish a copy of the minutes to each person present.
3. Attendance:
  - a. Project Manager

- b. Job Superintendent
- c. Job Foreman
- d. Subcontractors' Representative
- e. Owner
- f. Engineer's Representative
- g. Manufacturer's representatives

4. Minimum Agenda:

- a. Meeting will follow SCO Preconstruction Conference Agenda

B. Progress Meetings:

- 1. Prior to the meeting, Contractor shall provide the Engineer a completed and updated Monthly Progress Report and Project Schedule Summary on SCO Forms.
- 2. Attend monthly progress meetings for the purpose of informing the Owner and the Engineer regarding the status of the project.
- 3. The Engineer will compile minutes of the meeting and will furnish a copy of the minutes to each person present.
- 4. Attendance:

- a. Project Manager
- b. Job Superintendent
- c. Job Foreman
- d. Subcontractors' Representative
- e. Owner
- f. Engineer's Representative
- g. SCO Project Monitor

5. Minimum Agenda:

- a. Meeting will follow SCO Monthly Construction Conference Agenda.

C. Preliminary Final Inspection Meeting

- 1. Upon notification from the Contractor that the project is complete, the Designer will make a preliminary final inspection of the project. The Designer shall prepare a list of discrepancies as a punch list for the contractors.

D. Final Inspection Meeting

- 1. Upon notification by the Contractor that the discrepancies (punch list items) have been completed, the Designer shall verify the completeness of the project and schedule a formal final inspection with the Contractor and Owner.

## 1.5 LOGISTICS PLAN

- A. Prior to Mobilization and Construction, contractor shall submit Logistics Plan to Designer and University Project Manager (UPM). Plan to include procedures, arrangements, maps, and diagrams as needed. Logistics Plan shall address and document the following:

1. Site Access Route (roads entering campus, roads used to go through campus, and routes to work site).
  - a. Flagmen are required for any intersection of a pedestrian route with contractor's site access route to the construction site.
2. Site Access Location(s) and Construction Entrance.
3. Contractors must limit parking of company vehicles and storage of materials to within the limits of the construction site and laydown area, or in an area designated in consultation with UPM. Locations shall be shown on Logistics Plan.
  - a. Two vehicle parking passes will be provided to the General Contractor for their daily use for duration of project and must always be displayed. General Contractor logo must be visible on the vehicle while on campus.
  - b. Exact parking location of these two vehicles shall be designated by the Designer & UPM and shown on Logistics Plan.
  - c. All other construction and personal vehicles can park at the Starlight Cinema parking lot, located at 11240 US HWY 29, 11240 N Tryon Street, Charlotte, NC, 28262, or as otherwise coordinated with University Project Manager (UPM).
4. Laydown area boundaries must be defined within the construction site (limits of construction as identified on plans).
5. Storage of dumpster, contractor trailer, construction material & equipment storage, and storage unit shall be limited to the laydown area, or in an area designated in consultation with UPM.
  - a. The location of the dumpster shall be designated by Designer and UPM and shown on Logistics Plan.
  - b. A storage unit shall be placed with (NAME OF BUILDING) for the duration of project. Exact location shall be designated by Designer and UPM and shown on Logistics Plan.
6. Temporary sanitary facility locations shall be shown on Logistics Plan.
7. Temporary Construction Fence locations shall be shown on Logistics Plan.
8. Traffic Movement and Interruptions, Detour Plans and Signage:
9. If pedestrian walkways are affected because of project construction, a proposed plan shall be submitted to re-route pedestrians around the site and shall include and maintain all ADA accesses as designated by the Designer. Logistics Plan shall be updated to show accepted re-routing. Signage and location of signs for the pedestrian walkways shall be designated by Designer, shown on Logistics Plan, and provided by contractor. All signage shall be submitted to the UPM for approval.

- a. Road and sidewalk blockages shall be scheduled fourteen (14) days in advance to including appropriate detours to accommodate handicapped access and implemented only after Designer and University Project Manager (UPM) approval. No excavations shall take place prior to placing proper barricades, lighting, and other devices as required. Contractor shall install warning signs, barricades, and detour information signs to maintain traffic flow as directed by Designer and UPM. If required, flagmen shall direct traffic around the construction or detour areas. Contractor shall make requests for approval for any street, alley, driveway, or any access way to be closed at least ten (10) workdays prior to the date for desired closing. Contractor shall not close any street, alley, driveway, or access-way without prior approval by UNC Charlotte. Logistics Plan must be updated as changes occur.

**END OF SECTION**

## SECTION 01 33 00

### SUBMITTAL PROCEDURES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

##### 1.2 RELATED DOCUMENTS

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

##### 1.3 SUBMITTAL PROCEDURE

- A. General: The Contractor is responsible for providing the submittals to the Engineer. Each submittal is required to be accepted in writing prior to commencement of work.

B. Submission Requirements:

1. Submit required submittals electronically in pdf format to the Engineer for review. The submittals will then be returned electronically to the Contractor with comments. Final submittals require written responses to submittal comments.
  - a. Submit 3 hard copies of final accepted submittals to Engineer in accordance with Article 5 of the General Conditions for additional information for shop drawings, submittals, samples and data.

- C. Processing Time: Allow time for submittal review, including time for resubmittals, as specified below, commencing on Engineer's receipt of submittal.

1. Initial Review: Allow 7 work days for initial review of submittals.
2. Allow 7 work days for processing each resubmittal.
3. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

D. Identification:

1. Submit as one pdf file with bookmarks for each scheduled item.
2. Submit final hard copies in a labeled three ring binder with tabs for each scheduled item.

- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals and provide letter describing in detail proposed changes, substitutions, or deviations from the project or manufacturer's specifications. Include a written explanation of why substitutions should be considered under the appropriate tab.

- F. Transmittal: Package submittals appropriately for transmittal. Engineer will discard submittals received from sources other than Contractor. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- G. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

#### 1.4 SCHEDULE OF SUBMITTALS

- A. Refer to the applicable specification section for list of submittal requirements for each section.
- B. Submit the following submittal items electronically with a title page and/or pdf bookmark for each submittal item (for final hard copy submittal, provide tabs for each submittal item) to meet the requirements specified herein:
  - 1. Emergency contact list including mobile and home numbers of key Contractor and Subcontractor personnel, and office and mobile numbers of key Owner and REI personnel.
  - 2. Work schedule indicating start date, crew size, production rate, completion date, etc.
  - 3. Sample Application for Payment and Schedule of Values
    - a. Application for Payment Cover on AIA G702.
    - b. A schedule of values on AIA G703 Continuation Sheet consisting of a detailed breakdown of the Contract amount showing separate figures for labor and materials. The work listed under the various sections and subsections of the Specifications serve as the format for preparation of the Schedule of Values.
  - 4. Section 00 62 33 "Roof Manufacturer's Acknowledgment" Form
  - 5. List of Materials: List of materials with Safety Data Sheets (SDS)
  - 6. Section 05 01 30 "Steel Roof Deck Repair and Securement"
  - 7. Section 06 10 00 "Rough Carpentry"
  - 8. Section 07 01 50 "Preparation for Reroofing"
  - 9. Section 07 22 16 "Roof Insulation"
  - 10. Section 07 26 13 "Self-Adhered Vapor Retarder"
  - 11. Section 07 54 00 "Thermoplastic Single Ply Roofing"
  - 12. Section 07 62 00 "Sheet Metal Flashing and Trim"
  - 13. Section 09 24 01 "Portland Cement Plastering (Stucco) Repair"
  - 14. Section 09 96 53 "Elastomeric Coating Restoration"
  - 15. Section 22 14 00 "Storm Drainage"
  - 16. Section 22 14 26 "Roof Drains"
  - 17. Section 33 46 16.16 "Geocomposite Subdrainage"
  - 18. Shop Drawings: Shop drawings or letter stating installation of materials as detailed in the Contract Drawings unless properly authorized by the Engineer.
  - 19. Existing Damage Documentation: Existing damaged/dysfunctional components documentation (videotape, photos, etc.) including but not limited to asphalt spills, windows, walls, sidewalks, paving, ceilings, etc. Lack of submission prior to commencement of work indicates no existing damaged components and Contractor takes responsibility for damages caused by operations.
  - 20. Physical color samples as specified in the applicable specification section.



## PART 2 - PRODUCTS

### 2.1 SUBMITTALS

- A. General: Prepare and submit Submittals required herein and by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. If information is specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 2. Mark each copy of each submittal to show which products and options are applicable.
  - 3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Manufacturer's catalog cuts.
    - e. Wiring diagrams showing factory-installed wiring.
    - f. Printed performance curves.
    - g. Operational range diagrams.
    - h. Compliance with recognized trade association standards.
    - i. Compliance with recognized testing agency standards.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  - 1. Preparation: Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Shopwork manufacturing instructions.
    - f. Templates and patterns.
    - g. Schedules.
    - h. Notation of coordination requirements.
    - i. Notation of dimensions established by field measurement.
  - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- D. Samples: Prepare physical units of materials or products, including the following:

1. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  2. Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.
  3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Engineer's sample where so indicated. Attach label on unexposed side.
  4. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and component as delivered and installed.
  5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity and used to determine final acceptance of construction associated with each set.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.
- F. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- G. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- H. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software used for calculations. Include page numbers.

- M. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- N. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, and term of the coverage.

### **PART 3 - EXECUTION**

#### **3.1 ENGINEER'S ACTION**

- A. Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal item with an action stamp and will mark stamp appropriately to indicate action taken.
- B. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

**END OF SECTION**

## SECTION 01 35 23 - OWNER SAFETY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Owner Safety Requirements

#### 1.2 RELATED DOCUMENTS

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

#### 1.3 CONTRACTOR'S SAFETY GUIDE

- A. General: It is University policy to provide a working, teaching, and learning environment as free as possible of recognized hazards to the safety and health of students, faculty, staff, and visitors. All Contractors are required to comply with that policy. All safety, health, and fire protection rules, regulations, policies, and procedures that apply to UNC Charlotte personnel shall also apply to Contractors and their employees. Prior to initiating any contractual operations, the Contractor's on-site supervisors shall become thoroughly familiar with UNC Charlotte safety rules, procedures, emergency and disaster instructions plus all applicable state and federal safety and health regulations. Contractor shall establish and maintain a functioning safety program including safety meetings and site inspections for the purpose of controlling unsafe acts and conditions at the work site.
- B. Please refer to webpage for contract safety program: <http://safety.uncc.edu/contractors>

#### 1.4 UNIVERSITY SAFETY OFFICE REQUIREMENTS

- A. The following requirements have been established by the University Safety Officer:
  - 1. In case of fire, medical, ambulance, or safety concern dial 911 (off campus line 704-687- 2200).
  - 2. Hazard Communication notifications will be made to extension 2200.
  - 3. Notify UNC Charlotte of any hazardous or unusual operation.
  - 4. Notify UNC Charlotte of any impairment of fire protection.
  - 5. Barricades must be erected at a safe distance (at least 6 feet) from the perimeter of construction areas.
  - 6. A chemical spill prevention plan must be in effect.
  - 7. Accomplish regular removal of scrap and debris.
  - 8. All welding, cutting, or hot work must comply with appropriate safety standards.
  - 9. No parking on sidewalks except as necessary during a specific task.
  - 10. Designate a safety and health coordinator for the project or assign that responsibility to the on-site superintendent.
  - 11. Comply with UNC Charlotte posted "No Smoking" rules.

## **1.5 FACILITIES MANAGEMENT DEPARTMENT SAFETY REQUIREMENTS**

- A. Care shall be taken to protect all persons in the vicinity from injury and undue inconvenience. Contractor shall provide & maintain pedestrian and vehicular barricades as necessary for the situation.
- B. Pedestrian barricades shall be constructed of continuous temporary fencing completely containing the work area.
- C. Fencing shall be erected with sturdy bracing and shall extend from the ground to a minimum of 48” high and shall meet all ADA requirements for barricading for the visually impaired.
- D. Continuous, plastic mesh, orange safety fencing is acceptable. If the barricade blocks an existing pedestrian sidewalk, the contractor shall properly mark an alternate route by installing and maintaining neat legible signs. “Alternate Route” signs may be required at locations outside the Construction Limits.
- E. All workers and traffic control personnel shall wear “safety orange” vests or shirts while performing work in streets, parking lots, or other areas where there may be vehicular traffic.

## **1.6 FIRST AID KITS:**

- A. Each Prime Contractor and each Prime Subcontractor shall provide adequate provisioned first aid kits on the Project site for personnel employed by him and for the convenience of workmen employed by their Sub-subcontractors.

**END OF SECTION**

## **SECTION 01 40 00**

### **QUALITY REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. This Section includes administrative and procedural requirements for quality assurance and quality control.

##### **1.2 RELATED DOCUMENTS**

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

##### **1.3 DEFINITIONS**

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.

##### **1.4 QUALITY ASSURANCE**

- A. Perform quality assurance in accordance with governing Codes, referenced standards, established standards, or industry standards.
- B. Solely responsible for supervising and directing the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise necessary to perform the Work in accordance with the Contract. Solely responsible for the means, methods, techniques, sequences and procedures of construction and for coordinating portions of the Work under the Contract, except where otherwise specified in the Contract Documents. Solely responsible to the Owner that the finished Work complies with the Contract Documents.
- C. It is the intent under this contract that workmanship be of the best quality consistent with the materials and construction methods specified. The presence or absence of the Owner's or Engineer's representative in no way relieves the Contractor of his responsibility to furnish materials and construction in compliance with the drawings and specifications. The Owner and Engineer have the authority to judge the quality and require replacement of unacceptable work or personnel.

- D. Materials or methods described by words which, when applied, have a well-known technical or trade meaning are held to refer to such recognized standard. Standard specifications or manufacturer's literature, when referenced, are of the latest revision or printing unless otherwise stated, and are intended to establish the minimum requirements acceptable.
- E. When special makes or grades of material which are normally packaged by the supplier or manufacturer are specified or accepted, deliver materials to the site in original packages or containers with seals unbroken and labels intact and do not open until reviewed and accepted by the Engineer. Notify the Engineer prior to such material's delivery.
- F. Correct deficiencies identified by Engineer and non-conforming work within 24 hours of receipt of notification, either verbally or written, and submit a plan of action for addressing the deficiencies and non-conforming work. Do not proceed with further tear-off or commencement of other work until deficiencies and non-conforming work are properly addressed.
- G. Control of Installation
1. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
  2. The Contractor shall require the installer of each component to inspect both the substrate to which it is to be installed and the conditions under which the work is to be performed. Do not proceed with the installation until unsatisfactory conditions have been corrected to meet the requirements of the component and its manufacturer.
  3. The Contractor shall perform the installation work in accordance with the Contract Documents and the manufacturer's installation instructions and recommendations, the more explicit or more stringent requirements governing.
  4. Request clarification from Engineer before proceeding in the event manufacturers' instructions conflict with Contract Documents.
  5. Comply with specified standards as the minimum quality for the Work, except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
  6. Only allow Work performed by person qualified to produce workmanship of specified quality.
  7. The Contractor shall provide attachment and connection devices and methods necessary for installing the work in a secure condition. Install work true to required line and levelness. Allow for expansion and building movement.
  8. The Contractor shall inspect materials and equipment immediately upon delivery and again prior to installation. Damaged and defective items shall be rejected and removed from the Project.
  9. The Contractor shall provide uniform joint widths in exposed work of the same material. Joints shall be arranged in exposed work to obtain the best visual effect. Refer questionable choices to the Engineer for a final decision.
  10. Contractor shall recheck measurements and dimensions before starting each installation.
  11. The Contractor shall install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material to prevent deterioration.

12. The Contractor shall coordinate the installation of temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction work for inspection and testing.
- H. Tolerances:
1. Monitor tolerance control of installed products to produce acceptable work. Do not permit tolerances to accumulate.
  2. Comply with manufacturers' tolerances. Request clarification from Engineer in the event manufacturers' tolerances conflict with Contract Documents.
  3. Adjust products to appropriate dimensions; position before securing products in place.
- I. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
1. Be certified in writing for a minimum of two years by the roofing materials manufacturer to install the primary roofing products.
  2. Have a minimum of five (5) years' experience in installing the same or similar materials specified under the same firm name as that submitting the bid. If requested, submit a copy of firm's Articles of Incorporation to verify years in business. Crew workers on site are experienced and have a working knowledge of the system being installed.
  3. Principals of the firm to have a minimum of ten (10) years' experience in the estimating, supervision, management and administration of a contracting firm engaged in work similar to work as specified.
  4. Licensed by state work is occurring in for the type and dollar amount of work contemplated by these Contract Documents.
  5. Never filed bankruptcy or filed for protection from creditors.
  6. During the construction and completion of work covered by these Specifications, if the conduct of workers of the various crafts is determined unsuitable or a nuisance to the Owner or Engineer, or if the workman is considered incompetent or detrimental to the work, order such party removed from the grounds with the person not returning during the course of work on the project.
- J. Specialists: Certain sections of the Specifications require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists satisfy qualification requirements indicated and be engaged for the activities indicated.
- K. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- L. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.



## 1.5 QUALITY CONTROL

- A. The authorized representatives and agents of Owner permitted to inspect work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.
- B. Contractor's Responsibilities:
  - 1. Repair and protection of work and materials.
  - 2. Replace work or materials not conforming with requirements of the Specifications or damaged during the progress of the work before completion and acceptance of the project.
  - 3. Coordinate documents with manufacturer and perform such testing, reporting, and communication incidental to provisions of the warranty procedures.
  - 4. Inclement Weather:
    - a. In the event of temporary suspension of work during inclement weather, or whenever the Engineer recommends, protect carefully its work and materials against damage or injury from weather. If work or materials have been damaged by reason of failure to protect the work, replace such materials.
    - b. During inclement weather and temporary suspension of work, inspect the facility no later than 9:00 AM each day for leaks and perform temporary repairs if necessary. Make inspections daily during extended periods of inclement weather. Upon arrival at the facility, inform the Owner of his presence and purpose.
    - c. If inspection of the facility does not occur by 9:00 AM on days of inclement weather and there is one or more leaks attributable to the Work, at 9:15 AM the Owner can exercise his right to contact an outside contractor to perform temporary repairs as necessary to prevent damage to the building, its contents and to minimize disruption. Reimburse the outside contractor an equitable amount as determined solely by the outside contractor. If the Contractor arrives at the project site after the outside contractor has been contacted, but before temporary repairs are made, reimburse the amount contractor the fixed amount of \$500.00, each occasion, for mobilization and/or travel expenses.
    - d. In the event inclement weather occurs after normal business hours, Saturday, Sunday or holidays, make arrangements with the Owner to provide access to the building to inspect for leaks. Compensate Owner for providing personnel for the service on an hourly rate basis as determined solely by the Owner.
  - 5. Quality Control Plan

- a. The Contractor is responsible for quality control and shall establish and maintain an effective quality control system. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest-level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the owner, and shall be responsible for all construction and construction related activities at the site.
  - b. The Contractor shall furnish for review by the designer, not later than 20 days after receipt of notice to proceed, The Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The owner will consider an interim plan for the first 20 days of operation. The first application for payment will be processed only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started.  
 Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. The second application for payment will not be processed until acceptance of The Contractors CQC Plan.
  - c. The Contractor shall have a Qualified and Competent Supervisor present whenever workers are performing work. The Supervisor shall notify the Designated Designer's Representative of the work schedule for each day prior to initiating work.
- C. Manufacturer's Field Services: During construction and until substantial completion, perform quality assurance site visits monthly by manufacturer's technical representative to ensure materials are being properly installed and as required to obtain the specified warranty.
- 1. The first site visit performed within the first three (3) days of operations.
  - 2. Coordinate site visits with Engineer. Submit reports of findings within one week of inspection. Payment applications will be rejected until applicable reports are received.
  - 3. Inspections to be performed by an employee of the selected manufacturer that is assigned full time to their technical services department. Sales personnel are not acceptable for this function and may result in rejection of the work installed that does not fulfill this requirement.
  - 4. Manufacturer's final inspections performed only with REI personnel in attendance. A minimum of seven days' written notice is required. Manufacturer's final inspection conducted without REI personnel in attendance will be repeated at no additional cost to the Owner.
  - 5. Violation of these requirements results in the removal of that manufacturer for a period of not less than one year from the Engineer's accepted materials list.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01 50 00

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

##### 1.2 RELATED DOCUMENTS

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

##### 1.3 QUALITY ASSURANCE

- A. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- B. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures. Instruct personnel in methods and procedures. Post warnings and information.

#### PART 2 - PRODUCTS

##### 2.1 MATERIALS

- A. General: Provide new materials or utilize undamaged, previously used materials in serviceable condition if accepted by Engineer. Provide materials suitable for use intended.
- B. Fencing:
1. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 8 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide lockable vehicle and pedestrian gates. Provide non-permanent bases for support.
    - a. Provide green privacy mesh.
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Water: Potable.

- E. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material with a self-contained or standalone exterior handwashing station.
- F. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure and the requirements of the local Governing agency.
- G. Stair Tower: Build stair tower in its entirety; do not leave unfinished or in an unsafe condition. Tag stair tower to indicate the latest inspection. Tie stair tower into the structure as close to a 3:1 ratio as possible and repeat tie-ins to follow OSHA guidelines. Provide safe access with stairs; provide lockable door at scaffold access point to prevent unauthorized access. Include netting on upper levels if there is possibility for materials to fall over the toe boards, per OSHA guidelines.

## **PART 3 - EXECUTION**

### **3.1 TEMPORARY UTILITIES**

- A. Refer to General Conditions and Supplementary General Conditions.
- B. To the extent herein described there is no charge to Contractors for University provided utilities. The University will provide power at no cost for office trailers and small tools. The University will identify utility sources and The Contractor will be responsible for all costs associated with tie-in, metering, and distribution. Hot and cold water for HVAC equipment, if available, shall be metered by The Contractor. Contractor will be invoiced monthly at the current rate.
- C. Utilities outages must be coordinated with Facilities Management at least 30 days prior to the period of the outage. For some critical circuits, longer lead times may be necessary.
- D. Each Contractor using a yard hydrant, wall hydrant or hose bib must use the proper key or handle. A key or handle may be borrowed from Facilities Management. Damage from misuse or abuse will be billed to the offending Contractor. Fire hydrants will not be used for water supply (case-by-case exceptions may be made by Facilities Management if no other water is available).
- E. Leave access to fire hydrants. Should these hydrants be susceptible to damage caused by the operations of this Contract, they shall be protected by means approved by the governing authority.

### **3.2 CONSTRUCTION FACILITIES**

- A. Temporary construction facilities include the following:

1. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities. Located facilities at sites approved by Owner. Access inside the facility is not available.
  - a. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
  - b. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
  - c. Wash Facilities: Provide adequate hand washing stations.
  - d. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
2. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations at a location approved by the Owner. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Use of Owner's waste disposal facilities is not acceptable.
  - a. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material.
  - b. Comply with Section 01 74 00 "Cleaning and Waste Management" for progress cleaning requirements.

### **3.3 TEMPORARY CONTROLS**

- A. Provide chain link fencing with lockable gates and green mesh to enclose the materials storage and staging area.
- B. Provide and maintain suitable temporary sidewalks, closed passageways, fences, or other structures required by law so as not to obstruct or interfere with traffic in public streets, alley ways, or private right-of-way. Leave an unobstructed way along public and private places for pedestrians and vehicles.
- C. Provide walks over and around all obstructions in public places. Maintain from the beginning of twilight, through the whole of every night, sufficient light and guards to protect persons from injury.
- D. Provide emergency egress from existing occupied areas at all times as required by authorities having jurisdiction. Maintain egress path in compliance with requirements of North Carolina State Building Code requirements.

### **3.4 STORAGE AND PROTECTION**

- A. All products both stored and installed, shall be properly stored and protected from damage in accordance with the type of product and its manufacturer's recommendations. See Specification Sections for any special storage and protection requirements.

- B. Products that can be damaged by weather, dampness and sunlight shall be stored in a weatherproof building or similar enclosure. On-site yard storage on pallets under a canvas or plastic sheet or the like is NOT a substitution for a weatherproof building or similar enclosure. Products that will not be damaged by weather, dampness, and sunlight and that can be stored outside a weatherproof building or similar enclosure shall be stored off the ground and shall be protected from dirt, grime, mud, etc., with particular attention being given to those products that will be exposed to view in the finished work. Products that can also be damaged by high and/or low temperatures shall be stored in weatherproof building or similar enclosure where the proper storage temperature can be maintained as required by the product being stored. Stored products, when installed, shall be in a new, undamaged, and factory finished condition.

### **3.5 PROTECTION FACILITIES INSTALLATION**

- A. Provide environmental protection by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Water Control:
  - 1. The Contractor shall provide this water control for all work performed under the contract. Furnish all labor and necessary equipment and provide all necessary products for the temporary control of surface water and seepage water during construction. Furnish and operate pumps and other equipment required to keep all excavations, pits, and trenches free from water at all times. Dikes and ditches shall be constructed around excavations and elsewhere as necessary to prevent surface water from flooding the excavations or standing in areas adjacent to excavations, in work areas or in product storage areas. The Contractor shall take all necessary precautions to protect adjacent areas and properties from damage. He shall not divert water onto adjacent areas and properties at points other than that which would be considered the natural flow, prior to construction, without the expressed consent of the Owner in writing with a copy to Architect. He shall take steps to prevent the erosion of soil, earth and other material and the conduction of the eroded materials onto adjacent properties and shall be responsible for the removal of such materials, the restoration of adjacent areas to their original condition, and at the proper time, the removal of all water control means and methods.

### **3.6 TREE AND PLANT PROTECTION:**

- A. Contractors are hereby reminded and cautioned that care shall be exercised to protect trees and plants which are to remain during the progress of the Project. Suitable barriers shall be provided around all trees and plants that are to remain and which are in the construction area and product handling area. All damage to such trees and plants shall be repaired; broken limbs properly and neatly pruned and painted with pruning paint; all trunk damage neatly dressed and painted with pruning paint. Any trees and plants which are excessively damaged shall be replaced in like, kind, size, and species by The Contractor at no additional cost. All work shall be by a recognized and approved nursery.

1. All grading around trees and plants to remain shall be such that the root system shall not be disturbed. Earth shall not be temporarily piled around trees and plants, nor shall earth be graded to the trees and plants above the natural root depth for that particular species.
2. Established trees and plants, which are in the way of construction and which are in the material handling areas, shall be removed and stored for future replanting. The services of a recognized and approved nursery shall be employed to remove the trees and plants and prepare them for storage. Removed trees and plants shall be properly balled and burlapped in accordance with their size. During the time of storage, they shall be properly watered and cared for in accordance with the instructions from the nursery. After the construction work is completed, the stored trees and plants shall be replanted, and those trees and plants not replanted shall be disposed of as directed by the Owner.

### **3.7 CRANES, HOISTS AND LIFTING**

- A. Where cranes and other lifting equipment are required, develop and maintain a plan to execute the work in a safe manner including the following items at a minimum:
  1. Erection, climbing and dismantling process
  2. Inspection process for equipment and rigging
  3. Exclusion zones
  4. Maintenance processes
  5. Identification of Qualified/Competent persons
  6. Lifting plan
  7. Process for identifying and working around aerial hazards
  8. Signalmen communication
  9. Working around energized lines
  10. Ground conditions and underground hazards
- B. Ensure that cranes and lifting equipment are certified for use by a Qualified/Competent person prior to first use and annually (at a minimum).
- C. Ensure that cranes and lifting equipment are inspected as required by a third party Qualified/Competent person.

### **3.8 TRAFFIC CONTROLS**

- A. Obtain and erect street/parking lot signage as necessary to divert traffic away from staging areas, work area, etc. Coordinate signage requirements with the Owner and Engineer.
- B. Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.

### **3.9 DIESEL EMISSION REDUCTION STANDARDS:**

- A. Applicability: This guideline applies to any person or business that owns or operates any diesel fueled compression ignition vehicle engine, 25 horsepower or greater, that is used to provide motive power at any UNC Charlotte construction site or project location.



- B. No vehicle or engine subject to this standard shall idle for more than five consecutive minutes, except as allowed below. The idling limit does not apply to:
1. Idling necessary to ensure the safe operation of equipment, including idling to ensure the equipment is in safe operating condition and equipped as required by provisions of law, either as part of daily equipment inspection or as is otherwise needed.
  2. Idling required to bring the machine system to operating temperature.
  3. Idling when queuing if said queuing requires intermittent movement forward to perform work or a service, when shutting the engine off would impede the progress of the work or would otherwise be impractical to the queuing. This does not include the time an operator may wait motionless in line before the start of the workday or prior to the opening of a location where work or service will be performed; or
  4. Idling of any vehicle being used in an emergency or public safety capacity.
- C. Idling of a vehicle or engine that is owned by a rental company or third party is the responsibility of the renter, lessee, or other responsible operator.
- D. Equipment subject to this standard must be located away from sensitive receptors (building fresh air intakes, entrances to facilities, enclosed occupied areas, etc.).
- E. Equipment subject to this standard is required to meet or be modified to meet Tier 4 Emission Requirements as set forth by the EPA.
- F. Enforcement: It shall be incumbent upon the General Contractor to keep appropriate logs and data to validate the enforcement of this standard. For the purpose of inspecting and reporting equipment or to question compliance with these regulations, any individual has the right to observe, inquire and report any perceived violation of this standard.
- G. UNC Charlotte reserves the right to discharge without prejudice any tier contractor that willfully and knowingly violates the provisions of this guideline, with no additional payment for termination being due to the offending party.
- H. Nothing in this standard is intended to allow idling in excess of any applicable law, including but not limited to any local ordinance or requirement as or more stringent than this standard.
- I. The General Contractor shall be responsible to maintain a log of all equipment meeting the intent of this standard as soon as it is on the project site. Minimal documentation required shall be make, model and serial number of the equipment (and or engine) along with the rated horsepower.

**END OF SECTION**

## **SECTION 01 74 00**

### **CLEANING AND WASTE MANAGEMENT**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. Administrative and Procedural requirements for progress cleaning and construction waste management.

##### **1.2 RELATED DOCUMENTS**

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

##### **1.3 DEFINITIONS**

- A. Waste: Material that has reached the end of its intended use. Waste includes salvageable, returnable, recyclable and reusable material.
- B. Construction waste: Solid wastes including, but not limited to, building materials, packaging materials, debris and trash resulting from construction operations.
- C. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.
- D. Hazardous waste: Material or byproduct of construction that is regulated by the Environmental Protection Agency and cannot be disposed in a landfill or other waste end-source without adherence to applicable laws.
- E. Trash: Product or material unable to be returned, reused, recycled or salvaged.
- F. Landfill: Public or private business involved in the practice of trash disposal.

##### **1.4 CLOSEOUT SUBMITTALS**

A. Landfill charge tickets

#### **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 cause damage to finished surfaces.

## **PART 3 - EXECUTION**

### **3.1 PROGRESS CLEANING**

- A. This requirement shall be strictly enforced. The site in general and all areas in and around the Project construction shall be clear of waste at all times in order to present a clean and orderly appearance and prevent hazards to safety and health.
- B. Site:
  - 1. Maintain Project site free of waste materials and debris.
  - 2. Remove debris from the site when directed to do so by the Owner.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust impairs proper execution of the Work, broom-clean or vacuum the work area, as appropriate.
  - 3. If necessary, have a heavy-duty vacuum on site to remove small, loose debris from work area.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and do not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Final Acceptance.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site is not permitted. Washing waste materials down sewers or into waterways is not permitted.
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Final Acceptance.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to ensure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### **3.2 WASTE:**

- A. The general contractor shall be responsible for the collection and removal of waste on a daily basis and in a lawful manner. Burying and burning of waste on the property shall not be permitted. Washing waste down sewers or into waterways shall not be permitted. Waste shall not be allowed to accumulate and shall not be allowed to become hazards to safety and health.
- B. The General Contractor shall furnish rodent proof containers in each construction area for the workmen to deposit their garbage and similar waste. This waste shall be kept separate from all other waste and shall be so identified in order that it can be disposed of as required by local regulations. Upon evidence of pest infestation, the General Contractor shall provide extermination services as a part of the work.
- C. Hazardous and dangerous waste, as listed by the EPA, shall be kept separate from all other waste. The trade responsible for this waste shall be solely responsible for the handling, removal, and disposing, in accordance with the regulations pertaining to such waste, on a daily basis.
- D. The General Contractor shall be responsible for furnishing means and methods for preventing mud being brought into the building or onto the construction by workmen.
- E. All public streets adjacent to the site and all private ways at the site shall be kept clear of waste, spilled materials and products, and wet and dry earth at all times and shall be cleaned at the end of each working day. When wet earth is encountered, it shall be cleaned from the vehicles before they leave the site and enter the streets and private ways. All by the general contractor

### **3.3 CLEANING PRIOR TO INSTALLING FINISHES:**

- A. The General Contractor shall remove all debris and soot, smudges, dust, and other deposits from the walls, ceilings, floors, and other exposed surfaces prior to installing finishes. Do not perform any finishing work until such surfaces are properly clean.

### **3.4 FINAL CLEANING UP**

- A. Before the date of the preliminary review, the Work and the site shall be cleaned of all debris, boxes, cartons, crates, wrappings, etc. Only such cleaning materials and equipment absolutely required shall be allowed on the Project at this time. If approved beforehand by the Engineer, other materials may be stored on the Site in designated areas in a neat and orderly manner. Clean up shall include removal of all dirt and construction debris from the roof structure.
- B. Before the date the final review is made to determine completion of the Project, in accordance with the Contract Documents, all of The Contractor's products and equipment shall be removed from the site, the Project given a thorough cleaning, such as: Glass cleaning, carpets vacuumed, building surfaces and equipment washed as required, resilient tile waxed and buffed as required, paint splatter removed, general dusting, debris removed, resilient wall bases buffed, etc., and the Project made 100 percent complete and ready for the Owner's occupancy and use as intended. All other cleaning and preparation shall be in accordance with the specification sections.

**END OF SECTION**

## SECTION 01 78 39

### PROJECT RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - a. Project Record Documents.
  - b. Warranties.

##### 1.2 RELATED DOCUMENTS

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

##### 1.3 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Warranties: Submit copy of warranties to meet the requirements of their respective specification section.

##### 1.4 PROJECT RECORD DOCUMENTS

- A. Record Drawings: Maintain and submit one set of blue or black-line white prints of Contract Drawings and Shop Drawings.
  1. Mark Record Prints to show where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
    - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
  3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.

4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Note related Change Orders and Record Drawings, where applicable.
- C. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
1. Completed and signed Engineer's Punch List
  2. Copy of Manufacturer's Final Inspection Report
  3. Landfill Charge Tickets
  4. UL Letter of Findings for Lightning Protection
  5. Subcontractor/Supplier List: Each Contractor shall provide a comprehensive listing of subcontractors and suppliers showing the generic name of materials, work or equipment provided, trade or brand name, name, address, telephone number and contract person, and a reference to the drawings or specification.

## **1.5 WARRANTIES**

- A. Warranties to commence on the date of Final Acceptance of the project.
- B. Thermoplastic Single Ply Roofing System warranty as outlined in Section 07 54 00 "Thermoplastic Single Ply Roofing".
- C. Pre-finished Sheet Metal finish warranty as outlined in Section 07 62 00 "Sheet Metal Flashing and Trim".
- D. Elastomeric Coating warranty as outlined in Section 09 96 53 "Elastomeric Coating Restoration".
- E. Section 00 65 36 "Contractors Guarantee"

**END OF SECTION**

## SECTION 05 01 30

### STEEL ROOF DECK REPAIR AND SECUREMENT

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes
  - 1. Steel Deck Repair: Inspect, evaluate and remediate steel roof deck as follows:
    - a. Repair of surface rust in steel decking.
    - b. Repair of through holes in steel decking.
    - c. Overlay of damaged or deteriorated steel decking.
    - d. Replacement of damaged or deteriorated steel decking.
  - 2. Steel Deck Securement: Provide mechanical fasteners to secure steel decking to steel framing and to secure deck side and end laps.

##### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
  - 1. Section 06 10 00 "Rough Carpentry"
  - 2. Section 07 01 50 "Preparation for Reroofing"
  - 3. Section 07 22 16 "Roof Insulation"
  - 4. Section 07 54 00 "Thermoplastic Single Ply Roofing"
  - 5. Section 07 54 23 "Thermoplastic-Polyolefin Roofing"
  - 6. Section 22 14 26 "Roof Drains"

##### 1.3 REFERENCES

- A. American Iron and Steel Institute (AISI) Standard- North American Specification for the Design of Cold-Formed Steel Structural Members, 2001 Edition with Supplement 2004.
- B. Steel Deck Institute, Inc. (SDI) Design Manual for Composite Decks, Form Decks, and Roof Decks (No. 31, 2007).
- C. American Institute of Steel Construction (AISC) Steel Construction Manual.
- D. FM Global:
  - 1. Data Sheet 1-28 Wind Design.
  - 2. Data Sheet 1-29 Roof Deck Securement and Above Roof Deck Components.
- E. American Welding Society (ANSI/AWS) D1.3 Structural Welding Code/Sheet Steel - 98 Structural Welding Code - Sheet Steel.
- F. ASTM International



1. A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy - Coated (Galvannealed) by the Hot-Dip Process.
2. A924/A924M Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process.
3. A108 Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.

#### **1.4 SUBMITTALS**

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

#### **1.5 QUALITY ASSURANCE**

- A. Provide meticulous attention to the detail of installation and workmanship to ensure the assemblage of products in the highest grade of excellence by skilled craftsmen of the trade.

### **PART 2 - PRODUCTS**

#### **2.1 MATERIALS**

- A. Steel Deck Repair:
  1. Steel Deck: FM Approved or UL listed 22 gauge minimum; galvanized steel profile to conform to existing deck profile at end and side laps.
  2. Deck Repair Plates: 16 gauge, galvanized steel plates sized to extend a min. 8" beyond the through hole in existing decking with plate edges resting on a rib.
  3. Deck Repair Coating: High solids, low VOC, self-priming epoxy coating for use on steel structures.
    - a. PPG Amerlock 400
    - b. Devco Bar-Rust 231
    - c. Kryon Industrial High Build Epoxy Mastic 100
    - d. Benjamin Moore & Co. Surface Tolerant Epoxy Mastic Coating V160
- B. Steel Deck Securement:
  1. Deck-to-structural steel fasteners: FM Approved, self-drilling deck fasteners of length and type as required by fastener manufacturer for thickness of structural steel.
    - a. ITW Buildex Corp. 12-24 Tek 5
    - b. SFS Intec Impax 12-24 SD5
    - c. Blazer 1/4-20 DP5

2. Deck-to-deck side lap fasteners: FM Approved self-drilling deck side lap fasteners of length and type as required by fastener manufacturer for thickness of steel deck.
  - a. ITW Buildex Corp. 10-16 Tek 3
  - b. SFS Intec #10-16 SD3
  - c. Blazer #10-16 DP3
3. Washers: 3/4 inch diameter of same material as fastener or integral 1/2 inch diameter washer.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Inspect roof deck in work areas noted on roof plan. Notify engineer of additional damaged decking, or damaged structural elements.
- B. Before removing decking, cutting decking or fastening decking, inspect interior conditions under the deck to prevent cutting or damaging the joists, electrical conduit, sprinkler piping, fixtures and utilities. Ensure conditions are satisfactory before proceeding with the work, and continuously monitor interior and exterior work conditions during demolition and construction operations.
- C. Commencement of work signifies acceptance of conditions. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.
- D. The following descriptions indicate roof deck corrosion levels by degree. Inspect roof deck areas and assess corrosion level of 1 through 5. Following the assessment, conduct the appropriate Remediation Method in accordance with the deck corrosion level descriptions. Refer to Section 01 22 00 "Unit Prices"
  1. Corrosion Degree 1
    - a. Red rust or dark brown rust scaling on top flange only.
    - b. Dark brown rust scale removed by scraping/wire brushing to indicate minor pitting of the metal surface.
    - c. Deck flutes discolored.
  2. Corrosion Degree 2
    - a. Red rust or dark brown rust scale present on the deck surface.
    - b. Deck sections (flanges and flutes) have been or can be readily removed during examination or areas of decking are missing, up to 13" in any one direction.
  3. Corrosion Degree 3
    - a. Red rust or dark brown rust scale present on the deck surface.
    - b. Deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, from 13" to 24" in one dimension.

4. Corrosion Degree 4

- a. Red rust or dark brown rust scale present on the deck surface.
- b. Deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, 24" or greater in one dimension.

**3.2 PREPARATION**

- A. Remove and vacuum debris from deck surface and ribs to allow for inspection of deck, and to fasten decking.
- B. Remove and properly dispose of damaged decking (Corrosion Degree Level 4) and remove deck fasteners in the repair area.
- C. Take necessary precautions to prevent debris from entering building space, and coordinate operations with Engineer and Owner.
- D. Provide temporary protection of building interior and contents to prevent damage.

**3.3 STEEL DECK REMEDIATION**

- A. General:
  1. Remove loose dirt, rust, moisture, grease or other contaminants from the surface with a power wire brush.
  2. Vacuum the roof deck surface clean.
- B. Corrosion Degree 1:
  1. Properly mix deck repair coating according to manufacturer's recommendations.
  2. Do not mix more material than can be used in the materials expected pot life.
  3. Apply material at temperatures from 50° F to 90° F for optimum application.
  4. Brush or roller apply deck repair coating as recommended by manufacturer.
  5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.
- C. Corrosion Degree 2:
  1. Properly mix deck repair coating according to manufacturer's recommendations.
  2. Do not mix more material than can be used in the materials expected pot life.
  3. Apply material at temperatures from 50° F to 90° F for optimum application.
  4. Brush or roller apply deck repair coating as recommended by manufacturer.
  5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.
  6. Mechanically attach deck repair plate to deck ribs with deck to side lap fasteners 6 inches on center maximum or a minimum of 2 screws per side.
- D. Corrosion Degree 3:
  1. Properly mix deck repair coating according to manufacturer's recommendations.
  2. Do not mix more material than can be used in the materials expected pot life.
  3. Apply material at temperatures from 50° F to 90° F for optimum application.

4. Brush or roller apply deck repair coating as recommended by manufacturer.
5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.
6. Overlay steel deck to match existing profile extending a minimum of 6 inches beyond the deficient area.
7. Mechanically attach perimeter of overlay deck to existing deck ribs with deck to side lap fasteners 6 inches on center.
  - a. Where structural support is present, secure overlay deck to structural framing in accordance with the steel deck securement pattern.
  - b. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.
  - c. Follow deck Manufacturer's instructions and the latest edition of the Steel Deck Institute (SDI) Specifications and Commentary.

E. Corrosion Degree 4:

1. Examine underside of steel deck for conduit located directly below the deck surface, anything suspended or fastened to the deck surface, etc. If necessary, detach objects from the bottom side of the deck being removed.
2. Remove deck meeting Corrosion Degree 4.
3. Provide roof deck where existing is removed.
4. Overlay deck end laps no less than 6 inches and as required to secure through both panels and into the structural steel. Lap ends only over structural framing. Deck fasteners to penetrate deck panels no less than 2 inches from the edge of the panel.
5. Overlay deck side laps to nest flush into neighboring deck panel. Install a minimum of two deck side lap fasteners between framing members.
6. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.
7. Follow deck Manufacturer's instructions and the latest edition of the Steel Deck Institute (SDI) Specifications and Commentary.

### 3.4 STEEL DECK SECUREMENT

- A. Fasten steel deck panels to steel framing and steel deck side laps as indicated in the contract drawings.
- B. Fastener position/location:
  1. Drive deck fasteners in the center of the bottom of the deck rib. Drive the fasteners within +/-1/4 inch of the center of the structural steel bearing surface. Drive fasteners along the center of the structural steel member, not near the edge of the structural steel.
  2. Drive deck side lap fasteners into the deck rib such that both panels are penetrated. Locate the side lap fasteners along the center of the bottom of the rib.
- C. Utilize fastener with integral washer or provide washer for fasteners in Zone 2 (perimeter) and Zone 3 (corner).
- D. Apply weight over the area being fastened to prevent deck deflection and ensure contact between fasteners, deck and/or structural steel.

### **3.5 FIELD QUALITY CONTROL**

- A. Monitor the inside of the building during removal and replacement of damaged steel decking to prevent damage to building, equipment and occupancy.
- B. Monitor hot work operations in strict accordance with the Owners requirements and local Code. These operations include, but are not limited to, cutting, welding, soldering, brazing, grinding, etc. and other spark or flame producing operations.

**END OF SECTION**

## SECTION 06 10 00

### ROUGH CARPENTRY

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. Rough Carpentry work required to facilitate installation of roof assembly including:
  - a. Provide pressure treated wood nailers/blocking and plywood sheathing.
  - b. Resecure rough carpentry to remain in place.
  - c. Replace damaged, rotted or deteriorated rough carpentry with pressure treated rough carpentry.

##### 1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:

1. Section 05 01 30 "Steel Roof Deck Repair and Securement"
2. Section 07 01 50 "Preparation for Reroofing"
3. Section 07 22 16 "Roof Insulation"
4. Section 07 54 00 "Thermoplastic Single Ply Roofing"
5. Section 07 62 00 "Sheet Metal Flashing and Trim"
6. Section 22 14 00 "Storm Drainage"

##### 1.3 REFERENCES

A. Refer to the following references, current edition for specification compliance:

1. American Society for Testing and Materials (ASTM)
2. American Wood-Protection Association (AWPA)
  - a. AWPA E12 - Standard Method of Determining the Corrosion of Metal in Contact with Wood.
  - b. AWPA M4 - Standard for the Care of Preservative Treated Wood Products.
  - c. AWPA P5 - Standard for Waterborne Preservatives.
  - d. AWPA P23 - Standard for Chromated Copper Arsenate Type C (CCA-C).
  - e. AWPA P25 - Standard for Inorganic Boron (SBX).
  - f. AWPA P26 - Standard for Alkaline Copper Quat Type A (ACQ-A).
  - g. AWPA P27 - Standard for Alkaline Copper Quat Type B (ACQ-B).
  - h. AWPA P28 - Standard for Alkaline Copper Quat Type C (ACQ-C).
  - i. AWPA P29 - Standard for Alkaline Copper Quat Type D (ACQ-D).
  - j. AWPA P47 - Standard for DCOI/Imidacloprid/Stabilizer, Waterborne (EL2).
  - k. AWPA P48 - Standard for Copper Azole Type C (CA-C).

- l. AWWA T1 - Use Category System: Processing and Treatment Standard.
- m. AWWA U1 - Use Category System: User Specification for Treated Wood.
- 3. American Plywood Association (APA)
- 4. American National Standard
  - a. ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems
- 5. Underwriters Laboratories, Inc. (UL)
- 6. FM Global (FM)
  - a. Data Sheet 1-49 Perimeter Flashing

#### **1.4 DEFINITIONS**

- A. Rough Carpentry includes carpentry work not specified as part of other Sections and generally not exposed.
- B. KDAT: Kiln Dried After Treatment.

#### **1.5 SUBMITTALS**

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.

#### **1.6 QUALITY ASSURANCE**

- A. Inspect wood for damage, warping, splits, and moisture content as defined by the applicable wood products industry standards. Reject materials that do not comply.
- B. Rough carpentry to present a smooth, consistent substrate for roof system and flashing installation.
- C. Qualifications of workers: Provide sufficient, competent and skilled carpenters in accordance with accepted practices and supervisors present during execution of the work. Be thoroughly familiar with type of construction involved and related work and techniques specified.
- D. Moisture Content:
  - 1. Kiln Dry After Treatment (KDAT).
  - 2. Do not store or install treated lumber used in the roofing assembly in a manner exposing it to rain.
  - 3. Treated lumber: 19% or less before being covered/enclosed into roofing assembly.
  - 4. Plywood: 18% or less before being covered/enclosed into roofing assembly.
- E. Label: Bear the stamp of the AWWA Quality Mark, indicating compliance with the requirements of the AWWA Quality Control Program.

- F. Lumber Standards: Comply with PS 20 and applicable rules of respective grading and inspecting agencies for species and products indicated.
- G. Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel indicated.
- H. Installation of rough carpentry for roofing and flashing terminations to ensure plumb, uniform and level metal flashings.
- I. Install rough carpentry to ensure roof membrane flashing transitions are smooth for positive roof drainage and appearance.
- J. Installation of fasteners and associated materials to secure rough carpentry as detailed and specified.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Store a minimum of four inches above ground on framework or blocking. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks. Cover with protective waterproof covering providing for adequate air circulation and ventilation
- B. Avoid exposure to precipitation during shipping, storage or installation. If material does become wet, replace or permit to dry prior to covering or enclosure by other roofing, sheet metal or other construction materials (except for protection during construction).
- C. Upon delivery to job site, place materials in area protected from weather.
- D. Do not store seasoned materials in wet or damp portions of building.
- E. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Wood Nailers or Blocking:
  1. No. 2 or better spruce or southern yellow pine lumber.
  2. Sound, thoroughly seasoned, dressed to nominal finish dimension, and free of warpage, cupping, and bowing.
  3. Dimensions determined by job conditions or as indicated in detail drawings.
- B. Plywood Sheathing:
  1. Structural 1 rated.
  2. APA RATED SHEATHING grade-C or better and manufactured with exterior glue (exposure 1).
  3. Minimum thickness as indicated in Contract Drawings or as required to match existing.



C. Treatment:

1. Preservative Treatment:

- a. ACQ as manufactured for Viance in accordance with AWP A U1 and P5, P26, P27, P28, P29 as appropriate. Use 0.15 lb/cu ft (2.4 kg/m<sup>3</sup>) of ACQ in accordance with AWP A U1: (UC3B) as appropriate.
- b. Ecolife or EL2 as manufactured by Viance. Use 0.019 lb/cu ft (0.3 kg/m<sup>3</sup>) of Ecolife or EL2 (+ 0.2 lb/cu ft MCS) in accordance with AWP A U1 as appropriate.
- c. Engineers accepted equivalent.

## 2.2 FASTENERS

A. General:

1. Stainless steel or as accepted by Engineer.
2. Fasteners securing pressure treated lumber manufactured for corrosion resistance and exposures associated with pressure treated wood applications.
3. Do not use nails at roof edges to fasten rough carpentry, lumber, plywood, etc. Use screws, anchors, and/or machine bolts to secure rough carpentry at roof perimeter edges.
4. Do not use masonry screws, spikes, and drive-pins to fasten edge/perimeter nailers to concrete. Utilize minimum 1/2 inch diameter anchors or bolts to secure roof edge nailers to concrete.
5. Do not secure or fasten edge/perimeter wood nailers to hollow core concrete masonry; grout concrete masonry units and provide minimum embedment of fasteners to meet anchor manufacturer's installation instructions.
6. Do not secure edge/perimeter wood nailers to brick masonry as the primary securement method.

B. Screws: No. 10 or greater, stainless steel wood screws with flat head, or insulation screws. Length to embed into base substrate a minimum of 1-1/2 inches.

C. Self-Drilling Screws:

1. For steel deck and light gauge steel framing (16-ga. or less): #14-13 DP1, pancake or panhead, corrosion resistant, ASTM A153, FM Approved, self-drilling and self-tapping screw, length to provide minimum 3 pitches of thread through metal thicknesses or 3/4 inch through top flange of steel deck.
  - a. ITW Buildex Teks
  - b. Triangle Fasteners
  - c. SFS Intec
  - d. Engineers accepted equivalent.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Inspect substrates to receive rough carpentry, and ensure substrates are in satisfactory condition prior to installation of rough carpentry.

- B. Inspect rough carpentry including fasteners for material condition before proceeding with installation. Replace deteriorated, rotted, damaged, split, warped, twisted or wet materials.
  - 1. Refer to Section 01 22 00 "Unit Prices".
- C. Remove cants, tapered edge strips, debris, fasteners, etc. that interfere with the installation of rough carpentry.
- D. Notify Engineer in writing of unsatisfactory conditions.
- E. Commencement of work signifies acceptance of substrates. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

### **3.2 PREPARATION**

- A. Steel/Metal Substrates:
  - 1. Coat steel and metal with a uniform, heavy application of asphalt primer, or separate by membrane or other acceptable means to prevent contact between steel/metal and treated wood products.
- B. Roof Deck and Structure:
  - 1. Adjust substrates to receive rough carpentry to ensure completed rough carpentry installation is acceptable for roofing and sheet metal flashings.
  - 2. Coat steel decking with a uniform, heavy application of asphalt primer, or separate by membrane or other acceptable means to prevent contact between steel and treated wood products.
  - 3. Do not allow treated lumber to make direct contact with steel decking.

### **3.3 INSTALLATION**

- A. Replace damaged or deteriorated wood blocking, nailers, and curbs.
- B. Re-secure wood nailers at roof edges that are to remain with fastener type and spacing to comply with this section.
- C. Install wood blocking, nailers, and curbs to achieve a minimum 8 inch flashing height above the roof membrane.
- D. Install wood nailers at perimeter roof edges and low profile expansion joints to match insulation height while maintaining a constant nailer height along perimeter edges.
- E. Install wood blocking and nailers concurrently with roof system installation. Removal of insulation and/or folding back of roof membrane to install wood blocking and nailers at a later date is not acceptable.
- F. Set rough carpentry to required levels and lines, with members plumb, true to line, material cut to fit, and braced to hold work in proper position. Use a belt sander to remove obtrusive surface irregularities. Drive nails and spikes home; and pull bolt nuts tight with heads and washers in close contact with the wood.

- G. Fit rough carpentry to other construction, scribe and cope for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction. Install joints between wood for a smooth transition.
- H. Attachment:
1. Consult the fastener manufacturer's published literature and follow the recommended requirements for pre-drilling, cleaning, placement and compatibility of substrates. Follow manufacturer's requirements for fasteners spacing, substrate preparation and substrate embedment where not specified.
  2. Securely attach rough carpentry work to substrate with fasteners anchored to resist the required upward and outward design wind loads.
  3. Meet the requirements herein and that of the current FM Loss Prevention Data Sheet 1-49, Perimeter Flashing, for rough carpentry attachment.
  4. Install bolts flush with the top surface of nailers where possible to avoid countersinking. Bolt bottom nailers then fasten above nailers where possible. Countersink bolts, nuts and screws flush with wood surfaces only as detailed; countersink a maximum of one half the board thickness.
  5. Install fasteners without splitting wood. Pre-drill where necessary. Replace split or damaged wood to provide acceptable conditions.
  6. For anchors, pre-drill concrete and masonry units to prevent damage or cracking of the masonry. Consult fastener manufacturer's published guides. Repair or replace damaged masonry with fasteners re-installed in an acceptable location.
  7. Fastener spacing: Staggered in two rows 1/3 the board width when board is wider than 6 inches and installed within 3 to 4 inches of each end.
    - a. Screws: Securing wood to wood spaced as indicated below, staggered, with two screws installed within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints.
      - 1) Perimeter (Zone 2) spacing of 12 inches maximum.
      - 2) Corner (Zone 3) spacing of 6 inches maximum.
    - b. Self-Drilling Screws: Securing wood to steel spaced as indicated below, staggered, with one screw within 3 to 4 inches of each end of nailer lengths to prevent wood from twisting at board joints.
      - 1) Maximum spacing of 12 inches.
  8. Plywood Sheathing Securement: Secure at 12 inches on center in Perimeter (Zone 2) and 6 inches on center in Corner (Zone 3) staggered each direction.
- I. Select fasteners of size and length that are not exposed from the building interior and/or from the ground, or remove protruding fasteners, paint or finish to eliminate exposure.
- J. Thickness of wood nailers flush with adjacent insulation and other materials. Install additional fasteners to ensure nailers are flush.
- K. Unless otherwise detailed, install plywood used as blocking or shim below dimensional lumber such that the fastener head terminates at the dimensional lumber surface.
- L. Do not utilize wood nailers at roof perimeters, expansion joints, roof area dividers, etc. less than 3 feet long.

- M. When multiple nailers are installed stacked two high or more, offset nailers no less than 12" such that joints at nailer end do not line-up vertically.
- N. Fasten each end of nailers with additional fasteners to ensure a smooth transition at butted joints, and to prevent warping and/or twisting.
- O. Shims:
  - 1. Provide plywood and lumber shims as required for the specified height and thickness.
  - 2. Shims to make full contact with stacked rough carpentry. Partial shim contact, and small shim pieces spaced apart are not acceptable.
- P. Curbs:
  - 1. Adjust wood curbs to support rooftop piping, ducts, equipment, etc.
  - 2. Raise equipment to provide required flashing height for roofing.

### **3.4 CLEANING**

- A. Ensure the site and building are cleaned to meet pre-construction conditions, as accepted by the Owner.
- B. Clean the site and building of saw dust from lumber, fasteners and other debris.
- C. Repair or replace damages to the building, grounds, equipment and site to meet pre-construction conditions, as accepted by the Owner.

**END OF SECTION**

## SECTION 07 01 50

### PREPARATION FOR REROOFING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Complete preparatory work prior to roof installation including but not limited to:
    - a. Removal of roof assemblies down to the steel deck or concrete deck.
    - b. Raising of mechanical units and/or HVAC units to meet the required minimum flashing height.
    - c. Under Roof Deck Survey

##### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
  - 1. Section 05 01 30 "Steel Roof Deck Repair and Securement"
  - 2. Section 06 10 00 "Rough Carpentry"
  - 3. Section 07 22 16 "Roof Insulation"
  - 4. Section 07 54 00 "Thermoplastic Single Ply Roofing"
  - 5. Section 22 14 26 "Roof Drains"

##### 1.3 DEFINITIONS

- A. Removal: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain property of the Owner.
- B. Existing to remain: Protect construction indicated to remain against damage and soiling during demolition. When accepted by Engineer, items may be removed to a suitable, protected storage location during demolition, cleaned and reinstalled in their original locations.
- C. Material ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished items become the Contractor's property. Remove demolished items from the site.

##### 1.4 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

## **1.5 QUALITY ASSURANCE**

- A. Qualifications: Previous experience removing roof systems.
- B. Requirements: Comply with governing EPA regulations and hauling/disposal regulations of authorities having jurisdiction.

## **1.6 SCHEDULING**

- A. Do not disrupt Owner's operations during demolition. Provide 72 hours notification to Owner of activities that affect Owner's operations.

## **1.7 WARRANTIES**

- A. Repair or replace damage to existing items under warranty with materials acceptable to the Warrantor.

## **PART 2 - PRODUCTS**

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Survey conditions to determine extent of demolition.
- B. Record the conditions of items to be removed/reinstalled and items to be removed/salvaged.
- C. Do not remove elements that result in structural deficiency or collapse the structure or adjacent structures during demolition.
- D. Inspect substrate for soundness and notify Engineer in writing of deficiencies. Commencement of work signifies acceptance of site conditions.

### **3.2 PREPARATION**

- A. Do not begin demolition until utilities have been disconnected/sealed and have been verified as such in writing.
- B. Do not close off or obstruct streets, walks or other adjacent occupied facilities without permission from Owner and authorities having jurisdiction.
- C. Provide safe conditions for pedestrians. Erect temporary protection, walkways, fences, railings and canopies as required by OSHA and other governing authorities.
- D. Provide protection for adjacent building, appurtenances and landscaping to remain. Erect temporary fencing around trees to remain.
- E. Provide temporary weather protection as required to prevent water leakage and damaged to exterior or interior of adjacent structures.

### **3.3 UTILITIES/SERVICES**

- A. Maintain utilities that are to remain in service and protect them against damage during selective site demolition unless authorized in writing by the Owner and authorities having jurisdiction.
  - 1. Locate conduits and equipment attached to the underside of the decking prior to reroofing. Do not disturb conduits or interior components/equipment with insulation fasteners.
  - 2. If utilities serving occupied portions of the site are shut down, provide temporary services.
  - 3. Provide 72 hours' notice to Owner if shut down is required.
  - 4. Where services are removed, relocated or abandoned, provide necessary bypass connections to remaining occupied buildings and areas.

### **3.4 POLLUTION CONTROLS**

- A. Use water, mist, temporary enclosures and other suitable methods to limit the spread of dust and dirt. Comply with local EPA regulations.
  - 1. Do not use water where there is potential for damage to occur or where hazardous conditions, ice or flooding are created.

### **3.5 UNDER ROOF DECK SURVEY**

- A. Prior to work being performed, complete a survey of the under deck components.
- B. Locate and mark conduit, utilities, etc. that interfere with the replacement roof system.
- C. Determine the presence of spray applied fireproofing on the underside of the roof deck. If fireproofing is present, utilize caution when removing and replacing roof system to prevent fireproofing from dislodging. Survey interior of building during tear-off operations and at end of each day. Clean up debris daily. Report displaced fireproofing to the Owner/Engineer.
  - 1. Contractor is responsible to repair displaced fireproofing and repair any interior finishes damaged from the displaced fireproofing.
- D. Notify Owner and Engineer prior to survey being performed.

### **3.6 REMOVALS**

- A. Coordinate and sequence roof removal such that tear-off debris and materials are not stored on or trafficked over the replacement roof system and such that varying heights between roof assemblies does not adversely affect roof drainage.
- B. Demolish and remove construction only to the extent required.
- C. Remove roof membrane, flashings, roof insulation, sheet metal and discard.
- D. Remove or correct obstructions which interfere with the proper application of materials.

- E. Lift or remove equipment so that flashings can be replaced.
- F. Remove debris to provide clean, dry substrate.
- G. Remove and transport debris in a manner that prevents damage/spills to adjacent buildings and areas.
- H. Dispose of demolished items and materials on a daily basis. On-site storage of removed items is not permitted.
- I. Transport demolished materials off-site and dispose of materials in a legal manner.
- J. Perform progress inspections to detect hazards resulting from demolition activities.

### **3.7 FLASHING HEIGHTS**

- A. Permanently raise roof top equipment as required to achieve 8" minimum flashing height.
- B. Provide additional wood blocking to top of parapet walls and expansion joints to achieve minimum 8" flashing height.

### **3.8 COUNTERFLASHING PREPARATION**

- A. Receiver Flashing to Remain: Neatly bend receiver up at walls as required to replace flashings and counterflashing. After installation of flashings and counterflashings, neatly bend receiver flashing back in place using sufficient care to prevent deformation to the receiver flashing.

### **3.9 CLEANING**

- A. Inspect the site daily and clean up debris and hazards at the end of each day. Keep adjacent roads, drives and walkways in operation and free from construction materials debris.
- B. Clean adjacent structures of dust dirt and debris. Return adjacent areas to original conditions to the satisfaction of the Owner.

**END OF SECTION**



## SECTION 07 22 16

### ROOF INSULATION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes
  - 1. Roof Area A1:
    - a. Provide 1.5" Roof Insulation adhered in foam adhesive.
    - b. Provide Tapered Insulation System adhered in foam adhesive.
    - c. Provide Cover Board adhered in foam adhesive.
  - 2. Roof Areas A2, A5.1 and A5.2:
    - a. Provide 1.5" Roof Insulation adhered in foam adhesive.
    - b. Provide 1.5" Roof Insulation adhered in foam adhesive.
    - c. Provide Tapered Insulation Crickets and Saddles adhered in foam adhesive.
    - d. Provide Cover Board adhered in foam adhesive.
  - 3. Roof Areas A3, A4, A5.3, A6, A7, A8, A9 and A10 and Grounds Building:
    - a. Provide 1.5" Roof Insulation loose laid.
    - b. Provide 1.5" Roof Insulation mechanically attached.
    - c. Provide Tapered Insulation Crickets and Saddles adhered in foam adhesive where indicated in Contract Drawings.
    - d. Provide Cover Board adhered in foam adhesive.
  - 4. Roof Areas A11 and A12:
    - a. Provide Tapered Insulation System mechanically attached.
    - b. Provide Cover Board adhered in foam adhesive.

##### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
  - 1. Section 05 01 30 "Steel Roof Deck Repair and Securement"
  - 2. Section 06 10 00 "Rough Carpentry"
  - 3. Section 07 01 50 "Preparation for Reroofing"
  - 4. Section 07 54 00 "Thermoplastic Single Ply Roofing"
  - 5. Section 22 14 26 "Roof Drains"

##### 1.3 REFERENCES

- A. Refer to the following references for specification compliance:

1. National Roofing Contractors Association (NRCA)
2. FM Global
3. Underwriters Laboratories, Inc. (UL)

#### **1.4 PERFORMANCE REQUIREMENTS**

- A. R Value
  1. In accordance with the referenced Energy Conservation Code and ASHRAE 90.1.
  2. Minimum continuous R-value: 17 at outside of drainage sumps
  3. R value based on Long-Term Thermal Resistance (LTTR) for polyisocyanurate insulation and manufacturer's published data for other insulation components, as tested in accordance with ASTM C177, C236, C518 or C976.
- B. Wind Design: Install insulation system to meet the required wind uplift pressures as specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".

#### **1.5 SUBMITTALS**

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- D. Shop Drawings: Tapered insulation plan from material supplier with minimum R-value for each roof area.

#### **1.6 QUALITY ASSURANCE**

- A. Install insulation in accordance with their respective manufacturer's requirements.
- B. Reject insulation not bearing UL label at point of delivery.
- C. Remove insulation damaged or wetted before, during, or after installation from the job site no later than the next working day from the day such damage or moisture contamination is noted.

#### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging.
- B. Storage: Store materials out of direct exposure to the elements on pallets or dunnage at least 4 inches above ground level at location acceptable to Owner.
  1. Utilize tarps that cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
  2. Install vapor retarders under material storage areas located on the ground.
  3. Remove damaged or deteriorated materials from the job site.

- C. Handling: Handle material in such a manner to prevent damage and contamination with moisture or foreign matter.

## **1.8 PROJECT CONDITIONS**

- A. Do not apply insulation during precipitation. Take responsibility for starting installation in the event there is a probability of precipitation occurring during application.
- B. Take necessary action to restrict dust, asphalt, and debris from entering the structure.
- C. Do not remove more roofing than can be replaced with insulation, membrane and flashings in the same day to create a watertight installation.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Insulation Boards:

- 1. Roof Insulation:

- a. Rigid polyisocyanurate roof insulation board with factory applied coated polymer bonded glass fiber mat facers on the top and bottom complying with ASTM C1289 Type II, Class 2, Grade 2 and meeting the following requirements:

- 1) 24 hours minimum curing time, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
- 2) 2 percent maximum linear change dimensional stability when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
- 3) Maximum permissible insulation board size for mechanical attachment is 4 feet by 8 feet and for foam adhesive and hot asphalt attachment is 4 feet by 4 feet. Field cutting of larger boards is not acceptable.
- 4) Thickness: 1.5".

- 2. Tapered Insulation System:

- a. Rigid polyisocyanurate roof insulation board with factory applied coated polymer bonded glass fiber mat facers on the top and bottom complying with ASTM C1289 Type II, Class 2, Grade 2 and meeting the following requirements:

- 1) Curing time: 24 hours minimum, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
- 2) Dimensional stability: 2 percent maximum linear change when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
- 3) Board size s: 4 feet by 4 feet.

- 4) Slope: 1/4 inch per foot
- 5) Minimum thickness: 1.5".
- 6) Fill Insulation: Rigid polyisocyanurate meeting the above requirements with board size of 4 feet by 4 feet and thickness of 2 inches.
- 7) Crickets and Saddles: Rigid polyisocyanurate meeting the above requirements with a board size of 4 feet by 4 feet and 1/2 inch per foot slope.

3. Cover Board:

- a. Cover board approved by roof system manufacturer. Board Size: 4 feet by 8 feet. Minimum thickness as listed below or as required by roof system manufacturer.

- 1) Georgia Pacific 1/4 inch DensDeck Prime Roof Board
- 2) USG 1/4 inch Securock Glass-Mat Roof Board
- 3) DEXcell 1/4 inch Glass Mat Roof Board

B. Insulation Accessories:

1. Tapered Edge Strip:

- a. Polyisocyanurate: Closed-cell polyisocyanurate foam core integrally bonded to non-asphaltic, fiber-reinforced organic felt or inorganic coated-glass facers. Fabricated with 1 inch per foot slope and "zero edge" to provide transitions as required by field conditions.

- 1) Install at edges to make transitions as detailed in Contract Drawings.

C. Insulation Attachment Materials:

1. Steel/Plywood Deck Mechanical Fasteners and Stress Plates: Corrosion resistant 3-inch galvalume stress plate and corrosion resistant screw type fasteners for use with steel decks; approved by the insulation manufacturer for the insulation type, thickness and board size specified; fastener length as required by the fastener manufacturer for the insulation thickness specified, and to penetrate the deck a minimum of 3/4 inch and a maximum of 1 inch.
2. Foam Adhesive: One or two part, VOC compliant, moisture-cured polyurethane foamable adhesive designed as roof insulation adhesive and approved by insulation manufacturer.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Inspect substrate for soundness and notify Engineer in writing of deficiencies.
- B. Commencement of work signifies acceptance of substrates. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

## 3.2 PREPARATION

- A. Dry and broom roof deck clean of debris and foreign matter prior to installation of insulation system.

## 3.3 APPLICATION

### A. General

1. Apply in accordance with the insulation and roof system manufacturer's instructions and these specifications.
2. Install insulation in full boards, carefully fitted and pushed against adjoining sheets to form tight joints. Gaps exceeding 1/4 inch are not acceptable.
3. Saw cut or knife cut insulation and cover boards in a straight line, not broken. Utilize chalk lines to cut insulation. Uneven or broken edges are not acceptable.
4. Remove insulation dust and debris that develops during insulation cutting operations.
5. Offset joints between successive and adjacent layers of insulation a minimum of six inches.
6. Stagger joints of cover boards one foot (vertically and laterally) to ensure that joints do not coincide with joints from the previous or adjacent layer.
7. On steel decks, apply insulation boards with long dimension of units across deck ribs. Bear ends of insulation boards on top flange of steel deck.
8. For torch application, continue coverboard over combustible substrates.
9. Install crickets, saddles and tapered edge strips before the cover board.
10. Adhere tapered edge strips at transitions, terminations and/or penetrations as detailed or required in ribbons of foam adhesive to ensure smooth transitions are provided for the roof membrane and flashings.
11. Provide necessary modifications to insulation system or nailers at roof edges as required to ensure a flush and smooth transition is provided for the roof membrane and flashing.
12. Make field modifications of insulation, tapered insulation, tapered edge strips and cants where required to accommodate roof and flashing conditions and to prevent water dams and ponding water. Ponding water at scuppers and cricket valleys is not acceptable.
13. Provide necessary modifications to prevent standing water which is defined as 1/4 inch of water in a 4-square foot or larger area 24 hours or more after precipitation.

### B. Tapered Insulation System:

1. Install tapered insulation system to provide positive slope for roof drainage without ponding water.
2. Size crickets as shown in the Contract Drawings. Provide modifications to ensure positive slope and prevent standing water along the cricket valley.
  - a. Minimum length to width ratio of 2:1. Fabricate partial crickets with dimensions which result in a minimum length to width ratio of 2:1 if they were extended to full size.

- b. Unless otherwise noted, fabricate crickets from tapered stock as required to provide the specified minimum slope. For example, when roof slope is indicated as 1/4 inch per foot minimum, fabricate crickets with slope of 1/2 inch per foot minimum.
  - c. Construct crickets on up slope side of curbs to ensure positive drainage.
  - d. Install tapered edge strips at cricket edges to provide a smooth transition between the cricket and insulation system below.
3. Insulation boards may require mechanical fasteners and stress plates at slope transition of crickets to minimize bridging.

C. Roof Drainage:

1. Install drainage sumps as detailed.
2. Carefully lay out the tapered insulation, sumps, drain bowls and scuppers to ensure the finished roof provides drainage with no ponding water.
3. Fabricate miter-cut sumps at drains/scuppers to provide smooth transitions between the insulation system and the drains/scuppers.
4. Ensure sumps provide roof drainage and prevent water dams.
5. Adjust insulation, drains and scuppers to ensure roof drainage and satisfactory substrates for membrane and flashings.
6. Secure drain sump components using specified insulation fasteners or adhesives.
7. Circular sumps and sumps that do not provide smooth transition or that create standing water at the drains are not allowed.

D. Ponding Water: The ponding of water on the roof surface after installation of the roofing system is not acceptable and is grounds for rejection of the roof. Ponding is herein defined as precipitation remaining in a four-square foot area or larger, 1/4 inch or deeper for a period of 24 hours from the termination of precipitation. Provide modifications to roof system to ensure proper drainage including but not limited to reinstallation of roof system or installation of additional tapered insulation.

E. Insulation Mechanical Attachment:

1. Fastener quantity and spacing as required to comply with the requirements of roof system manufacturer's approved, tested assembly.
2. Install fasteners using manufacturer's recommended equipment and in accordance with the manufacturer's requirements.
3. Set fasteners and stress plates secure and tight against the insulation surface and do not over drive.
4. Fasteners to engage the top flange of steel decks only.

F. Foam Adhesive:

1. Position and space adhesive beads as required to comply with the requirements of the roof system manufacturer's approved, tested assembly.
2. Size adhesive beads in accordance with the adhesive manufacturer's guidelines.
3. Place insulation boards onto the beads and "walk" and/or "weight" into place. Place insulation boards into the adhesive in accordance with the adhesive manufacturer's guidelines.
4. Ensure adhesion of insulation and take whatever steps necessary to achieve adhesion, including but not limited to temporary ballasting of insulation until adhesive sets.

**END OF SECTION**

## SECTION 07 26 13

### SELF-ADHERED VAPOR RETARDER

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Prime concrete deck.
  - 2. Provide self-adhered vapor retarder.

##### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:
  - 1. Section 06 10 00 "Rough Carpentry"
  - 2. Section 07 01 50 "Preparation for Reroofing"
  - 3. Section 07 22 16 "Roof Insulation"
  - 4. Section 07 54 00 "Thermoplastic Single Ply Roofing"
  - 5. Section 22 14 26 "Roof Drains"

##### 1.3 REFERENCES

- A. Refer to the following references, current edition for specification compliance:
  - 1. National Roofing Contractors Association - NRCA
    - a. NRCA Roofing and Waterproofing Manual
  - 2. ASTM International
  - 3. Asphalt Roofing Manufacturers Association - ARMA
  - 4. Underwriters Laboratories, Inc. - UL
    - a. UL 580 - Test for Uplift Resistance of Roof Assemblies
    - b. UL 790 - Tests for Fire Resistance of Roof Covering Materials
    - c. UL 1897 - Uplift Resistance for Roof Covering Systems

##### 1.4 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.



## **1.5 QUALITY ASSURANCE**

- A. Inspected by the Contractor and Manufacturer's technical representative and repair and prepare to meet the Manufacturer's requirements prior to installing the roof insulation system.
- B. Included in roof system manufacturer's test reports specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".

## **1.6 DELIVERY, STORAGE AND HANDLING**

- A. Delivery. Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.
- B. Storage: Store materials out of direct exposure to the elements on pallets at least 4 inches above ground level at site location acceptable to the Owner.
  - 1. Storage trailers are acceptable provided they are equipped with a lock and located at a site location acceptable to the Owner.
  - 2. Utilize tarps that cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
  - 3. Install vapor retarders under material storage areas located on the ground.
  - 4. Store roll goods on end on a clean flat surface.
  - 5. Remove damaged or deteriorated materials from the job site.
- C. Handling. Handle materials in such manner as to preclude damage and contamination with moisture or foreign matter.

## **1.7 JOB CONDITIONS**

- A. Environmental Requirements
  - 1. Do not apply during precipitation and do not start in the event there is a probability of precipitation during applications.
  - 2. Do not apply at or below the dew point temperature.
  - 3. When conditions are damp and where adjacent roof areas have moisture or dew, dry roof to prevent tracking water over the membrane substrates.
  - 4. At ambient temperatures of 40°F and below, including wind chill, take precautions to ensure adhesives and other materials maintain the minimum acceptable temperature at the point of roofing application as recommended by the membrane manufacturer.
- B. Protection
  - 1. Protect against staining and mechanical damage of adjacent surfaces and work areas during application. Staining, mechanical damage, or discoloration of the membrane is cause for rejection.
  - 2. Protect materials being installed and storage of materials against wind related damage.

## **1.8 WARRANTY**

- A. Manufacturer's Guarantee: Included in the roof system warranty specified in Section 07 54 00 "Thermoplastic Single Ply Roofing".

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Vapor Retarder: 32-mil, self-adhesive SBS modified bitumen with a tri-laminated woven polyethylene facer; adhesive backing covered with a silicone release liner.
  - 1. Sika Sarnafil Sarnavap Self-Adhered
  - 2. Soprema Sopravap'r
  - 3. Fibertite VaporTite
  - 4. Siplast SA Vapor Retarder
- B. Primer: Manufacturer's approved polymer emulsion-based primer as recommended by substrate conditions.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Conduct a pre-job conference including the Engineer, Contractor, and the membrane manufacturer's representative prior to the application of the roofing.
- B. Verify work penetrating the roof deck or affecting the roofing has been properly completed.

### **3.2 PREPARATION**

- A. Prepare surfaces clean, sound, dry, and free of loose materials, contaminants, water, frost, ice, oil and grease that interfere with proper adhesion.
- B. Prepare concrete surfaces to achieve a Concrete Surface Profile CSP 3 to CSP 5 in accordance with the International Concrete Repair Institute (ICRI) Technical Guideline No. 310.2R-2013.

### **3.3 APPLICATION**

- A. Apply in accordance with manufacturer's instructions.
- B. Primer:
  - 1. Primer is required on substrates except for steel.
  - 2. Shake or stir primer before applying.
  - 3. Primers can be rolled, brushed or sprayed.
  - 4. Let the primer dry.

- C. Begin the installation at the low point of the roof. Unroll vapor retarder onto the substrate for alignment. Overlap each sheet by 3 in on the side lap and 6 in on the end laps.
- D. Once the roll is aligned, peel back a portion of the silicone release film and press vapor retarder onto the substrate. When securely adhered, remove the remaining release film from the roll.
- E. Use a minimum 100 lb. steel roller to press the vapor retarder onto the substrate including the laps. Use the roller to push out air bubbles in the membrane. Do not cut the membrane to remove a bubble.
- F. Apply trowel grade adhesive to seal around penetrations, T-joints, and fish mouths. Do not apply trowel grade adhesive where it comes into direct contact with the roof membrane.
- G. Inspect application each day. Repair deficiencies daily prior to beginning or resuming other work.

### **3.4 CLEAN UP**

- A. Remove debris and excess material from the roof area. Pick-up loose fasteners and sheet metal scraps.
- B. Clean off/remove excess adhesive, sealant, stains and residue on the membrane and flashing surfaces.

**END OF SECTION**

## SECTION 07 54 00

### THERMOPLASTIC SINGLE PLY ROOFING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. Provide an adhered, fleeceback, thermoplastic membrane and flashings to provide a permanently watertight system.

##### 1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:

1. Section 05 01 30 "Steel Roof Deck Repair and Securement"
2. Section 06 10 00 "Rough Carpentry"
3. Section 07 01 50 "Preparation for Reroofing"
4. Section 07 22 16 "Roof Insulation"
5. Section 07 62 00 "Sheet Metal Flashing and Trim"
6. Section 22 14 26 "Roof Drains"

##### 1.3 REFERENCES

A. Refer to the following references, current edition for specification compliance:

1. ASTM International
2. National Roofing Contractors Association (NRCA)
3. Underwriters Laboratory (UL)
4. FM Global
5. Single Ply Roofing Institute

##### 1.4 PERFORMANCE REQUIREMENTS

- A. Install roofing system to meet UL 790 Class A Fire Rating.
- B. Wind Design: Provide an approved, tested roof assembly to resist the design wind uplift pressures specified in the Contract Drawings.

##### 1.5 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

- D. Roof System Assembly Letter: Letter from roof system manufacturer listing roof assembly components along with their method of attachment and acceptance of the specified roof system warranty terms. Assembly letter should match the submitted test report documentation and specified assembly.
- E. Test Reports: Submit documentation of approved, tested roof system to meet the specified requirements for the following:
  - 1. Wind uplift pressures
  - 2. UL Fire Resistance Rating
- F. Shop Drawings:
  - 1. Submit manufacturer approved drawings and details for conditions not depicted in Contract Drawings including but not limited to inside corners, outside corners, lap seams, etc.

## **1.6 QUALITY ASSURANCE**

- A. Manufacturer Requirements:
  - 1. Written contractor/installer approval program.
  - 2. Products manufactured by other manufacturers and private labeled are not acceptable.
- B. Contractor Requirements:
  - 1. Install roof system by a Contractor authorized by the membrane manufacturer for a minimum of two years with manufacturer's highest certification level.
  - 2. Application of the roofing system accomplished by primary roofing contractor, his roofing foreman, and sufficient applicator technicians who have been trained and approved by the manufacturer of the single ply roofing system. Submit evidence of qualification from the manufacturer.
- C. No deviations made from the Contract Documents or the accepted shop drawings without prior written acceptance by the Engineer.
- D. Complete work by personnel trained and authorized by the membrane manufacturer.
- E. Upon completion of the installation, provide inspection by a representative of the membrane manufacturer to review the installed roof system and document deficiencies.
- F. Provide manufacturer written verification indicating seams have been probed and are watertight.

## **1.7 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging and in quantities required to allow continuity of application.
- B. Storage: Store materials out of direct exposure to the elements on pallets or dunnage at least 4 inches above ground level at location acceptable to Owner.

1. Utilize tarps that cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
  2. Install vapor retarders under material storage areas located on the ground.
  3. Remove damaged or deteriorated materials from the job site.
  4. Store membrane rolls lying down on pallets and protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions affecting the ease of membrane weldability.
  5. Store adhesives at temperatures approved for the product.
  6. Store flammable materials in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.
  7. Remove damaged materials and replace at no cost to the Owner.
- C. Handling: Handle materials in such a manner as to prevent damage and contamination with moisture or foreign matter.

## **1.8 PROJECT CONDITIONS**

- A. Do not apply roofing during precipitation. Contractor assumes responsibility for starting installation in the event there is a probability of precipitation occurring during application.
- B. Only install as much of the roofing as can be made weathertight each day, including flashing and detail work. Clean and hot air weld seams before leaving the job site that day.
- C. Schedule and execute work without exposing the interior building areas to the effects of inclement weather. Protect the building and its contents against risks.
- D. Ensure surfaces to receive insulation, membrane or flashings are dry. Provide the necessary equipment to dry the surface prior to application.
- E. Secure construction, including equipment and accessories, in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.
- F. Install uninterrupted waterstops at the end of each day's work and remove before proceeding with the next day's work. Do not allow waterstops to emit dangerous or unsafe fumes and remain in contact with the finished roof as the installation progresses. Replace contaminated membrane at no cost to the Owner.
- G. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, provide necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Provide a protection layer of plywood over insulation board for roof areas that receive rooftop traffic during construction.
- H. Prior to and during application, remove dirt, debris and dust from surfaces, either by vacuuming, sweeping, blowing with compressed air and/or similar methods.
- I. Do not allow contaminants, grease, fats, oils, and solvents to come into contact with the roofing membrane. Report rooftop contamination that is anticipated or that is occurring to the Engineer and membrane manufacturer to determine the corrective steps necessary.

- J. If unusual or concealed condition is discovered; stop work and notify Engineer of such condition in writing within 24 hours.
- K. Do not install the roofing membrane under the following conditions without consulting the membrane manufacturer's technical department for precautionary steps:
  - 1. The roof assembly permits interior air to pressurize the membrane underside.
  - 2. The wall/deck intersection permits air entry into the wall flashing area.
- L. Refer to Section 01 14 00 "Work Restrictions" for precautions when using membrane adhesives at or near rooftop vents or air intakes. Keep lids on unused cans.

## **1.9 WARRANTIES**

- A. **Manufacturer's Guarantee:** Manufacturer's standard form, non-pro-rated, without monetary limitation or deductibles, 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 or breaches in the primary roof membrane causing moisture to enter the substrate below (even if visible leaks are not observed inside the facility).
  - 1. Warranty to include but not be limited to membrane, insulation, adhesives, fasteners, sealants, flashings, polymer clad sheet metal, etc.
  - 2. Warranty Period: 30 years from date of Substantial Completion
  - 3. Warranty to remain in effect for wind speeds up to 72 mph.
  - 4. Warranties requiring the Owner's signature are not acceptable.
- B. **Contractor's Warranty:**
  - 1. **Two Year Warranty:** Manufacturer's Representative and Contractor's Representative will attend post construction field inspection no earlier than one month prior to the expiration date of the Contractor's Warranty. Submit a written report within seven (7) days of the site visit to the Engineer listing observations, conditions and recommended repairs or remedial action.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURER**

- A. Subject to compliance with requirements herein, provide roof system from a single source. Manufacturers:
  - 1. Sika Sarnafil
  - 2. Fibertite
  - 3. Siplast
  - 4. Soprema

### **2.2 MEMBRANE MATERIALS**

- A. **Membrane:** Thermoplastic membrane with fiberglass and/or polyester reinforcement meeting ASTM D 4434 or ASTM D 6754 and factory applied fleece backing. Acceptable products:

1. Sika Sarnafil 80-mil G410 Feltback
  2. Fibertite 60-mil SM-FB
  3. Siplast Parasolo PVC Kee Fleeceback 80-mil
  4. Soprema Sentinel P200HFB
- B. Flashing/Stripping Membrane: Non fleeceback, thermoplastic membrane reinforced with fiberglass. Utilize asphalt resistant flashing membrane where in contact with residual asphaltic materials or as required by the manufacturer.
1. Sika Sarnafil 60-mil G410
  2. Fibertite 45-mil SM
  3. Siplast Parasolo PVC Kee Smooth 60-mil
  4. Soprema Sentinel P150 Membrane
- C. Membrane and Flashing Membrane Color: White.

### 2.3 ADHESIVES

- A. Membrane Adhesive: Membrane manufacturer's solvent based adhesive.
1. Sika Sarnafil Sarnacol 2170
  2. Fibertite FTR 290
  3. Siplast Parafast Adhesive T
  4. Soprema Sentinel S Bonding Adhesive
- B. Flashing Adhesive: Membrane manufacturer's solvent-based adhesive.
1. Sika Sarnafil Sarnacol 2170
  2. Fibertite FTR 190e
  3. Siplast Parasolo PVC Bonding Adhesive
  4. Soprema Sentinel S Bonding Adhesive

### 2.4 RELATED MATERIALS

- A. Fluid Applied Flashing: Roof system manufacturer's approved, reinforced, PMMA liquid applied flashing.
1. Products:
    - a. Sika Sarnafil Liquid Flashing
    - b. Fibertite - Soprema Alsan RS
    - c. Siplast Parapro 123 Flashing System
    - d. Soprema Alsan RS 230 Flash
  2. Stripping Ply: Provide self-adhered, SBS, modified bitumen ply sheet exceeding requirements of ASTM D 6163 or ASTM D 6164, Type I or II. Provide with PMMA primed surface if offered by manufacturer.
    - a. Siplast Paradiene 20 SA P
    - b. Soprema Sopralene Stick
- B. T-joint Patch: Membrane manufacturer's circular patch welded over T-joints formed by overlapping thick membranes.



- C. Corner Flashing: Membrane manufacturer's pre-formed inside and outside flashing corners that are hot-air welded to membrane or polymer clad metal base flashings.
- D. Pipe Flashing: Membrane manufacturer's pre-formed pipe boot flashing that is hot-air welded to membrane and secured with a stainless-steel draw band and sealant.
- E. Termination Bar: Manufacturer's 1/8 inch by 1 inch mill finish extruded aluminum bar with pre-punched slotted holes.
- F. Counterflashing Bar: Prefabricated extruded aluminum metal counterflashing and termination bar. 0.10-0.12 inch thick bar with 2-1/4 inch profile, pre-drilled holes 8 inchs on center and sealant kick out at top edge.
- G. Sealant: Manufacturer's multi-purpose sealant.
- H. Primary Membrane Cleaner: High-quality solvent cleaner provided by membrane manufacturer for use as a general membrane cleaner.
- I. Pre-weld Cleaner: High-quality solvent based seam cleaner with moderate evaporation rate as recommended and provided by membrane manufacturer.
- J. Walkway Pad: Walkway pad by manufacturer of membrane.
- K. Polymer Clad Metal: Refer to Section 07 62 00 "Sheet Metal Flashing and Trim".

## **2.5 FASTENERS**

- A. Flashing Membrane Termination Screws: #12 corrosion resistant hex or pan head screws with length to penetrate substrate a minimum of 1-1/2 inch.
- B. Concrete and Masonry Flashing Membrane Termination Anchors:
  - 1. 1/4 inch diameter metal-based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2 inch.
  - 2. Masonry screws approved by membrane manufacturer, 1/4 inch minimum diameter, corrosion resistant, with Phillips flat head. Length to provide minimum 1-1/2 inch embedment into substrate.
- C. Steel Deck Fasteners and Plates: #12 corrosion resistant approved by membrane manufacturer of length to penetrate top flange of steel deck a minimum of 1 inch with galvalume plates approved for membrane attachment.
- D. Solid Concrete Deck Fasteners and Plates:
  - 1. #14 corrosion-resistant fastener used with approved plates for membrane attachment with shank diameter of 0.190 inch, a thread diameter of 0.245 inch and a #3 Phillips drive head with a diameter of 0.435 inch.
  - 2. Nail-in, non-threaded fasteners with split bulb tip designed for securement of membrane and insulation to structural concrete roof decks, length to penetrate deck a minimum of 1 inch with plates as approved by roof membrane manufacturer.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Inspect the surface of the insulation or substrate prior to installation of the roof membrane.
- B. Verify that the substrate is dry, clean, smooth, and free of debris, loose material, oil, grease, or other foreign matter. Remove sharp ridges and other projections and accumulations of bitumen to ensure a smooth surface before roofing.
- C. Replace broken, delaminated, wet or damaged insulation boards.
- D. Repair deteriorated substrates.
- E. Beginning installation means acceptance of prepared substrate.

### **3.2 PREPARATION**

- A. Remove, cover or flash using compatible, approved materials substrates containing asphalt. Do not allow PVC to contact substrates containing asphalt materials.
- B. Provide necessary protection from adhesive vapors to prevent interaction with foamed plastic insulation.

### **3.3 MEMBRANE INSTALLATION (ADHERED)**

- A. Over the properly installed and prepared substrate, spread membrane adhesive in accordance with the manufacturer's instructions and application rates utilizing equipment as required by the manufacturer.
  - 1. Do not allow adhesive to skin-over or surface-dry prior to installation of roof membrane.
  - 2. Do not utilize water based membrane adhesive if temperatures below 40° F (5° C) are expected during application or subsequent drying time.
  - 3. Comply with the manufacturer's published requirements for adhesive application rates.
  - 4. Count the amount of pails of adhesive used per area per day to verify conformance to the specified adhesive rate.
  - 5. Do not apply adhesive in seam areas.
  - 6. Replace notched squeegees daily or as notches are reduced below 1/4 inch.
- B. Place roof membrane into the adhesive in accordance with manufacturer's instructions.
- C. Shingle seams with flow of water. Overlap upslope, adjacent rolls 3 inches over previous roll. This process is repeated throughout the roof area.
- D. After placement of membrane, press roll into place with the manufacturer's recommended roller by frequent rolling in two directions.
- E. Weld membrane coverstrips at fleeceback membrane seams without a factory selvage edge.

### **3.4 MEMBRANE TERMINATION**

- A. Terminate membrane at walls and curbs as shown in the contract drawings.
  - 1. Roof Deck: Mechanically terminated using specified fasteners and plates 6 inches on center.
  - 2. Wood Wall Substrate: Turn membrane up wall 1 inch and mechanically terminate using specified screws 8 inches on center with a termination bar.
  - 3. Concrete/Masonry Wall Substrate: Turn membrane up wall 1 inch and mechanically terminated using specified anchors 8 inches on center with a termination bar.
- B. Terminate membrane at penetrations as shown in the contract drawings.
  - 1. Fasten membrane 6 inches on center or a minimum of 4 fasteners per penetration into the structural deck using fasteners and plates as approved by the membrane manufacturer for the deck substrate.
- C. Extend membrane over roof edge a minimum of 2 inches below the perimeter wood blocking. If fleecback membrane is utilized, trim membrane flush with outside edge of roof and hot-air weld a non fleecback flashing membrane to extend over the roof edge.

### **3.5 FLASHING INSTALLATION**

- A. General
  - 1. Install flashings concurrently with the roof membrane as the job progresses.
  - 2. Temporary flashings are not allowed.
  - 3. Do not tape seams as temporary measure; hot-air weld seams before the end of each day.
  - 4. Adhere flashings to compatible, dry, smooth, and solvent-resistant surfaces.
  - 5. Where substrates are incompatible with adhesives and PVC materials, remove the incompatible materials and replace with a compatible substrate or install compatible PVC flashing materials.
  - 6. Use caution to ensure adhesive fumes are not drawn into the building.
- B. Adhesive for Flashing Membrane
  - 1. Over the properly installed and prepared flashing substrate, apply flashing adhesive according to manufacturer's installation instructions. Apply adhesive in smooth, even coats with no gaps, globs or similar inconsistencies.
  - 2. Press the sheet firmly in place with a hand roller to ensure bond and adhesion.
  - 3. Do not apply adhesive in seam areas that are to be welded.
- C. Mechanically terminate flashings a minimum of 8 inches above the finished roofing surface using specified method indicated in the Contract Drawings.
- D. Cut and provide hot-air welded corner flashing at interior and exterior corners.
- E. Hot-air weld flashings at their joints and at their connections with the roof membrane.
- F. Provide additional securement for flashings that exceed 24 inches in height. Consult Manufacturer's Technical Department for securement methods.

- G. Seal off Polymer Clad sheet metal incorporated into the roofing system with a hot-air welded stripping ply. Extend stripping ply four inches beyond sheet metal onto roof membrane and fit closely to edge of sheet metal.
- H. At expansion joints, extend flashing membrane over joint and dip into cavity to allow for expansion.
- I. Roof Drain:
  - 1. Mechanically attach membrane 6 inches on center into structural deck around drain sump. Adhere flashing membrane and hot-air weld to membrane a minimum of 4 inches.
  - 2. Set flashing membrane in bed of sealant under the clamping ring.
  - 3. Refer to Section 22 14 26 "Roof Drains".
- J. Soil Pipe/Pipe Penetration:
  - 1. Provide field wrapped pipe penetration flashing or manufacturer's prefabricated pipe boot as shown in detail drawing.
  - 2. Apply aluminum tape to penetration if asphalt contamination is present.
  - 3. Hot-air weld horizontal flashing membrane a minimum of four inches onto the membrane.
  - 4. Adhere vertical flashing membrane adhered to pipe penetration and extend a minimum of 1.5 inches horizontal at the base of penetration. Hot-air weld vertical flashing membrane to horizontal flashing membrane.
  - 5. Install stainless steel draw band and sealant or hot-air weld flashing cap to terminate top edge of pipe flashing.

### **3.6 HOT-AIR WELDING OF SEAM OVERLAPS**

- A. General
  - 1. Hot-air weld seams.
    - a. Minimum 3 inch wide membrane overlap when automatic machine-welding.
    - b. Minimum 4 inch wide membrane overlap when hand-welding, except for certain details.
    - c. Minimum width of hot-air weld is 1-1/2 inches.
    - d. Provide wider membrane overlaps or width of welds as required by the roof membrane manufacturer.
  - 2. Provide welding equipment by or approved by the membrane manufacturer. Mechanics intending to use the equipment to have successfully completed a training course provided by a membrane manufacturer's technical representative prior to welding.
  - 3. Clean and dry membrane to be hot-air welded.
- B. Hand-Welding
  - 1. Complete hand-welded seams in two stages. Allow hot-air welding equipment to warm up prior to welding.

2. Weld the back edge of the seam with a narrow but continuous weld to prevent loss of hot air during the final welding.
  3. Insert nozzle into the seam at a 45-degree angle to the edge of the membrane. Once the proper welding temperature has been reached and the membrane begins to "flow," the hand roller is positioned perpendicular to the nozzle and pressed lightly. For straight seams, the 1-1/2 inchwide nozzle is recommended for use. For corners and compound connections, the 3/4 inchwide nozzle is recommended for use.
- C. Machine Welding
1. Machine welded seams are achieved by the use of automatic welding equipment. When using this equipment, follow instructions from the manufacturer and local codes for electric supply, grounding and over current protection. Dedicated circuit house power or a dedicated portable generator is recommended. Do not operate other equipment off the generator.
  2. Metal tracks may be used over the deck membrane and under the machine welder to minimize or eliminate wrinkles.
- D. Quality Control of Hot-Air Welded Seams
1. Check hot-air welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane. Provide on-site evaluation of welded seams daily and to locations as directed by the Engineer or membrane manufacturer's representative.
  2. Take 1-inch-wide cross-section samples of hot-air welded at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Patch test cut areas.

### **3.7 WALKWAY PAD INSTALLATION**

- A. Check membrane seams that are to be covered by walkway pad with rounded screwdriver and repair deficiencies prior to walkway pad installation.
- B. Clean and dry roof membrane to receive walkway pad.
- C. Place chalk lines on sheet to indicate location of Walkway.
- D. Apply a continuous coat of membrane adhesive to the sheet and the back of walkway pad in accordance with membrane manufacturer's technical requirements and press walkway pad into place with a water-filled, foam-covered lawn roller.
- E. Clean the membrane in areas to be welded. Hot-air weld perimeter of the walkway to the roof membrane.
- F. Check welds with a rounded screwdriver. Repair deficiencies.
- G. Provide walk pads where indicated in Contract Drawings and at the following locations:
  1. Around roof hatches.
  2. At base and top of fixed wall access ladders.
  3. Around HVAC units.

4. At door access to roof areas.

### **3.8 TEMPORARY CUT-OFF**

- A. Install flashings concurrently with the membrane in order to maintain a watertight condition as the work progresses.
- B. When a break in the day's work occurs in the central area of the project, install a temporary watertight seal. Provide an 8-inch strip of flashing membrane welded 4 inches to the field membrane. Seal the remaining 4 inches of flashing membrane to the deck or the substrate so that water can not travel under the membrane. Seal the edge of the membrane with a continuous, heavy, 6 inch width application of pourable sealer. When work resumes, remove the contaminated membrane. Do not reuse these materials.
- C. If inclement weather occurs while a temporary water stop is in place, monitor the situation to maintain a watertight condition.
- D. If water is allowed to enter under the completed system, replace the affected area.

### **3.9 CLEANING**

- A. Ensure trash and debris is removed from the roof daily.
- B. Keep metal scraps, nails, screws and other sharp damaging debris off of the roof membrane surface during construction.
- C. Clean off/remove excess adhesive, sealant, stains and residue on the membrane and flashing surfaces.
- D. Remove temporary coverings and masking protection from adjacent work areas upon completion.

### **3.10 PROTECTION**

- A. Protect the roof from construction related damages during the Work.
- B. Replace damaged membrane, flashings and other membrane components. Repair in accordance with the membrane manufacturers repair instructions to comply with the specified warranty.

**END OF SECTION**

## SECTION 07 62 00

### SHEET METAL FLASHING AND TRIM

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes
  - 1. Sheet metal flashings and trim to provide a permanently watertight condition.

##### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
  - 1. Section 06 10 00 "Rough Carpentry"
  - 2. Section 07 54 00 "Thermoplastic Single Ply Roofing"

##### 1.3 REFERENCES

- A. Refer to the following references for specification compliance:
  - 1. ASTM International
  - 2. National Roofing Contractors Association (NRCA)
  - 3. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
    - a. Architectural Sheet Metal Manual, Seventh Edition - January 2012
  - 4. ANSI/SPRI ES-1
  - 5. FM Global
    - a. Data Sheet 1-49, Perimeter Flashing

##### 1.4 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- D. Shop Drawings: For any transitions and/or terminations not depicted in Contract Drawings.
- E. Color Charts:
  - 1. Pre-finished Sheet Metal
  - 2. Polymer Clad Sheet Metal

3. Sealants

**1.5 MOCK-UPS**

- A. Provide mock-ups of the following sheet metal components prior to fabrication of the components:
  - 1. Coping: Provide minimum 10 foot length of coping mock-up including applicable fascia covers. Include at least one seam of the configuration specified.
  - 2. Metal Edge and Fascia Cover: Provide minimum 10 foot length of gravel stop/metal edge and fascia cover. Include at least one lap of each component.

**1.6 QUALITY ASSURANCE**

- A. Install in accordance with the Contract Drawings.
- B. Ensure work is free of leaks.
- C. Fabricate metal edge (where no gutter is present) and coping in accordance with ANSI/SPRI ES-1 requirements.
- D. Provide first-class workmanship. Assemble and secure sheet metal work in accordance with these specifications, roof system manufacturer's requirements and referenced standards.

**1.7 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.
- B. Storage: Store materials within areas designated by the Owner. Ensure materials remain dry, covered and not in contact with the ground.
- C. Handling: Handle material in such manner as to preclude damage and contamination with moisture or foreign matter.

**1.8 PROJECT CONDITIONS**

- A. Environmental: Protect building and its components from the elements.
- B. Coordination and Scheduling: Coordinate phases of work to allow continuity of work without delays.

**1.9 WARRANTY**

- A. Provide pre-finished sheet metal manufacturer's thirty (30) year finish warranty from the date of substantial completion.



## **PART 2 - PRODUCTS**

### **2.1 PRIMARY SHEET METAL**

- A. Pre-finished Galvalume: 24-gauge, galvalume coated steel meeting or exceeding AZ50 per ASTM A792. Manufacturer's smooth finish, pre-finished color coatings consisting 70% Kynar 500 fluorocarbon (Polyvinylidene Fluoride PVF2) coating over a urethane primer on the finish side, with primer and a wash coat on the reverse. Measurements per NCCA Technical Bulletin II-4 or ASTM D1005. Protect the finish during fabrication and installation with a strippable plastic film. Manufacturer's standard color selected by Owner.
1. Slip Flashing
  2. Counterflashing
  3. Coping
  4. Fascia Cover
  5. Metal Edge
  6. Crimped On Metal Edge
  7. Scupper Face Plate

### **2.2 GALVALUME**

- A. 22-gauge, galvalume coated steel meeting or exceeding AZ50 per ASTM A792:
1. Continuous Cleat

### **2.3 STAINLESS STEEL**

- A. 26-gauge, Type 304 as tested in accordance with ASTM A 167.
1. Watertight Umbrella
  2. Multiple Pipe Enclosure Components
    - a. Pipe Enclosure Flashing
    - b. Closure Cap
  3. Equipment Support Curb Cover
  4. Drip Edge (at Inside of Parapet Walls)
- B. 24-gauge, Type 304 as tested in accordance with ASTM A 167.
1. Continuous Cleat (for Drip Edge at Inside of Parapet Walls)
- C. Compression Bar: 1/4 inch x 1.5 inches, stainless steel, flat bar.

## 2.4 POLYMER CLAD METAL

- A. Heat-weldable, 24 gauge, AISI G90 galvanized steel sheet with a 20-mil unsupported thermoplastic membrane coating to match the flashing membrane composition laminated on one side. Polymer-Clad metal manufactured by, and included in the warranty of, the single-ply membrane Manufacturer utilized in Section 07 54 00 "Thermoplastic Single Ply Roofing" Color selected by Owner.
1. Flange/Sleeve
  2. Pitch Pan
  3. Drip Edge (at Removable Roof Curb)
  4. Scupper Liner
  5. Low Profile Expansion Joint
  6. Base Flashing Closure

## 2.5 FASTENERS

- A. Roofing Nails: Minimum 12-gauge stainless steel ring shank roofing nails with diamond point, minimum 3/8 inch diameter head and length as required to penetrate substrate a minimum of 1-1/4 inches.
- B. Screws:
1. Sheet metal to wood attachment (exposed): #12 stainless steel, 5/16 HWH with length to penetrate substrate a minimum of 1-1/2 inches. Provide with bonded EPDM washer or washer specified below. Factory painted heads to match the sheet metal color.
  2. Sheet metal to wood attachment (concealed): #10 stainless steel, low profile pancake head with length to penetrate substrate a minimum of 1-1/2 inches.
  3. Sheet metal to sheet metal attachment (exposed): 1/4 inch x 7/8 inch carbon steel, self-drilling point, self-tapping, zinc alloy hex head screws with bonded EPDM tubular washer under head of fastener; screw heads to match color of wall panel by means of factory applied coating. Factory painted heads to match the sheet metal color.
  4. Sheet metal to light gauge steel attachment (concealed): #14-13 DP1 stainless-steel low-profile pancake head of length as required for three threads to penetrate metal substrate or min. 1 inch penetration though wood substrates.
- C. Concrete and Masonry Anchors: 1/4 inch diameter metal-based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2 inches. Factory painted heads to match the sheet metal color.
- D. Washers: Stainless steel with neoprene gasket backing.
1. 9/16 inch diameter for use with #12 screws
  2. 5/8 inch diameter for use with 1/4 inch diameter concrete and masonry anchors.
- E. Rivets: #44 stainless steel rivets with stainless steel mandrel and factory painted head to match adjacent sheet metal. Length to properly fasten particular sheet metal components.

## 2.6 RELATED MATERIALS

- A. Polyurethane Sealant: One-component elastomeric gun grade polyurethane sealant conforming to ASTM C 920, Type S, Grade NS, Class 25, and use NT, M, A, G, or O as required by substrate conditions. Color to match sheet metal color selected by Owner.
- B. Silicone Sealant: One-component, non-sag, neutral cure, low-modulus, UV resistant, high performance silicone sealant meeting ASTM C 920, Type S, Grade NS, Class 100/50, Use NT, M, G, A or O. Color to match sheet metal color selected by Owner. Acceptable Manufacturers include:
  - 1. Dow 790 Building Sealant
  - 2. Pecora 890 NST Silicone
  - 3. Sikasil-WS 290
  - 4. Triangle Fastener Corporation Ultra 1000
- C. Sealant Tape: Minimum 1/2 inch wide, non-skinning, butyl sealant tape.
- D. Butyl Sealant: Gun grade, non-skinning, non-hardening, flexible blend of butyl rubber and polyisobutylene sealant.
- E. Solder: 80-20 lead-TIN alloy conforming to ASTM B32.
- F. Flux: Muriatic acid killed with zinc or an accepted brand of commercial soldering flux designed for use with 80-20 solder.
- G. Non-Shrink Grout: High early strength, non-rusting non-shrink grout conforming to ASTM C 1107 Grade C (modified for rapid-setting grout):
  - 1. ThoRoc (ChemRex) 747 Rapid Setting Grout
  - 2. US Mix Multi-Purpose Non-Shrink Grout
  - 3. Sika Sikagrout 212
- H. Pourable Sealer: One-part, moisture curing, pourable, polyether sealant designed for use in pitch pans.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Coordinate with other work for correct sequencing of items.
- B. Ensure substrates are installed, secured and modified to accommodate sheet metal flashings.
- C. Report deficiencies associated with the sheet metal substrates to Engineer before beginning sheet metal work. Correct deficiencies before installing sheet metal flashings.

### 3.2 INSTALLATION

- A. General:

1. Lock and seal joints of pre-finished sheet metal.
2. Solder joints of stainless steel sheet metal.
3. Provide for thermal movement (expansion and contraction) of sheet metal.
4. Where dissimilar metals contact, prevent galvanic action by means of heavy coat of asphalt primer or separate with sheet metal underlayment.
5. Prime sheet metal surfaces (top and bottom) to receive bituminous materials. Allow primer to dry before application of bituminous materials.
6. Install metal flanges on top of membrane, adhere and fasten as indicated in detail drawings, specified herein, and in accordance with membrane manufacturer's requirements.
7. Provide uniform sheet metal sections with corners, joints and angles mitered, sealed and secured.
8. Hem (return) exposed edges for strength and appearance.
9. Fit sheet metal close and neat.
10. Provide cleats or stiffeners and other reinforcements to make sections rigid and substantial.
11. Fabricate, support, cleat, fasten and join sheet metal to prevent warping, "oil canning", and buckling.

B. Sheet Metal Laps: Unless otherwise indicated:

1. Notch and lap ends of adjoining sheet metal sections not less than 4 inches; apply sealant tape or two bead of butyl sealant between sections.
2. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2 inches on center.

C. Polymer Clad Sheet Metal:

1. Secure flanges of polymer clad sheet metal into roof deck at 12 inches on center.
2. Sheet Metal Laps:
  - a. Leave a 1/4 inch opening between sheet metal sections.
  - b. Center aluminum tape over joint opening.
  - c. Hot-air weld 4-inch wide strip of stripping membrane over joint.
  - d. At inside and outside corners, lap miters a minimum of 1 inch and rivet at 2 inches on center; strip in with 4-inch wide strip of stripping membrane over joint.

D. Fasteners:

1. Size and type required.
2. Fasteners compatible with materials being joined.
3. Exposed Fasteners:
  - a. Install screws with 5/16 inch predrilled, oversized holes.
  - b. Install Concrete and Masonry Anchors with 11/32 inch predrilled, oversized holes.
  - c. Exposed horizontal surface fasteners are not acceptable.

E. Slip Flashing:

1. Fabricate at curbs as shown in detail drawings in 10 foot lengths.
2. Extend a minimum of 2 inches below base flashing termination and fit tightly against curb.

3. Secure at 12 inches on center of a minimum of two fasteners per side of the curb. If slip flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.
- F. Equipment Support:
1. Fabricate Equipment Support Curb Cover at curbs as shown in detail drawings in one continuous piece of sheet metal.
  2. Secure at eighteen inches on center.
  3. Provide soldered end caps.
- G. Pipe Penetration:
1. Fabricate flange/sleeve and watertight umbrellas as shown in detail drawings. Refer to SMACNA Architectural Sheet Metal Manual Figure 8-9C.
  2. Strip in flange as specified.
  3. Install watertight umbrella with stainless steel draw band and sealant properly tooled to ensure adhesion and slope to shed water.
  4. Vertical leg of umbrella flashing to extend a minimum of 2 inches below the sleeve top and be positioned as low as possible on the sleeve.
  5. Clean and solder seams.
- H. Counterflashing:
1. Fabricate counterflashing as shown in detail drawings in 10 foot lengths.
  2. Install counterflashing as indicated in detail drawings and secure to receiver flashing 12 inches on center. If counter flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.
  3. Stagger receiver anchors with counter flashing fasteners.
  4. Extend counter flashing a minimum of 1.5 inches below base flashing termination.
- I. Fascia Cover:
1. Provide fascia cover secured to wood blocking 12 inches on center where indicated in detail drawings.
  2. Lock fascia cover onto continuous cleat if present and hand tong metal edge onto continuous cleat.
- J. Coping:
1. Fabricate coping in 10 foot lengths. Fabricate coping a maximum of 1/2 inch wider than the width of the wall; field verify parapet wall width prior to sheet metal fabrication. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-4A.
  2. Install continuous cleat fastened to substrate 6 inches on center in vertical leg. Locate fasteners no greater than 2 inches from the bottom hem.
  3. Lock outside face of coping onto continuous cleat and secure inside face as follows:
    - a. For coping widths up to and including 12 inches, secure with screws through waterproof washers and oversized holes at 18 inches on center.

- b. For coping widths greater than 12 inches, secure inside face with continuous cleats. Secure cleat through vertical face of cleat to blocking with fasteners at 6 inches on center. Locate fasteners no greater than 2 inches from the bottom hem.

4. Coping Seams:

- a. Provide drive seam at adjoining coping sections. Turn cover ends back a minimum of 1 inch onto itself. Allow 1/4 inch space between coping sections for expansion and contraction and install sealant. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-2, type 4.

5. Provide one-piece coping section at corners, four-way intersections and tee intersections. Locate joints within 24 inches from inside corner.
6. Turn coping ends up a minimum of 2 inches at elevation walls and cover termination with surface mounted counterflashing.

K. Drip Edge (at Inside of Parapet Walls):

1. Fabricate metal edge as shown in detail drawings in 10 foot lengths. Refer to SMACNA Architectural Sheet Metal Manual Figure 2-1 except for continuous cleat dimensions as shown in Contract Drawings.
2. Install continuous cleat as indicated in detail drawings fastened to substrate 6" on center. Locate fasteners no greater than 1-3/4 inch from the break at the bottom hem.
3. Lock metal edge onto continuous cleat and secure flange of metal edge to wood blocking 3 inches on center staggered with first row 1 inch from edge of flange and second row offset 1/2 inch from first row.
4. Leave a 1/4 inch opening between metal edge sections. Center cover plates over opening, set in roof cement, and install two nails through the center of the cover plate between metal edge sections. Refer to SMACNA Architectural Sheet Metal Manual Figure 2-5A.
5. Strip-in flange of metal edge as specified.
6. Hand tong metal edge onto continuous cleat.

L. Crimped On Metal Edge:

1. Fabricate metal edge and continuous cleat as shown in detail drawings in 8 foot or 10 foot lengths.
2. Terminate membrane at roof edge and hot-air weld flashing membrane strip to extend down the outside vertical face over the wall.
3. Provide sealant tape at base of flashing membrane on outside of wall to prevent moisture infiltration.
4. Install a continuous cleat as indicated in detail drawings fastened to substrate 6 inches on center in vertical face and secure flange of metal edge to wood blocking 3 inches on center staggered with first row 1 inch from edge of flange and second row offset 1/2 inch from first row. Locate fasteners no greater than 1-3/4 inch from the break at the bottom hem.
5. Strip flange of continuous cleat with hot-air welded stripping membrane as specified.
6. Lock metal edge onto continuous cleat crimp as shown.
7. Hand tong metal edge onto continuous cleat.
8. Metal Edge Joints:

- a. Leave a 1/4 inch opening between metal edge sections.
- b. Center 6-inch minimum width cover plate over or back-up plate under joint opening.
- c. Set cover plate in butyl sealant tape on each side of joint.

M. Drip Edge (at Removable Roof Curb):

1. Fabricate drip edge as shown in detail drawings in 10 foot lengths. Refer to SMACNA Architectural Sheet Metal Manual Figure 2-1 except for continuous cleat dimensions as shown in Contract Drawings.
2. Terminate membrane at roof edge and hot-air weld flashing membrane strip to extend down the outside vertical face over the wall.
3. Provide sealant tape at base of flashing membrane on outside of wall to prevent moisture infiltration.
4. Secure flange of drip edge to wood blocking 3 inches on center staggered with first row 1 inch from edge of flange and second row offset 1/2 inch from first row.
5. Strip flange of metal edge with hot-air welded stripping membrane as specified in the Contract Drawings.
6. Hand tong metal edge onto continuous cleat.
7. Metal Edge Joints:
  - a. Leave a 1/4 inch opening between metal edge sections. Install two roofing nails in the end of the flange, and one roofing nail in the end of the vertical face of each metal edge section.
  - b. Center aluminum tape over joint opening (flange and face).
  - c. Hot-air weld 4-inch wide strip of stripping membrane over joint.
  - d. Strip in flange of metal edge as described above.
  - e. Center 6-inch wide cover plate over joint locking onto notched drip edges of metal edge sections. Refer to SMACNA Architectural Sheet Metal Manual Figure 2-5A, and Figure 2-5, Detail 1.
  - f. Strip flange of cover plate with hot-air welded flashing membrane. Extend flashing membrane 2 inches beyond the cover plate flange on 3 interior sides.

N. Multiple Pipe Penetration:

1. Fabricate pitch pan, pipe enclosure flashing, and closure cap as shown in detail drawings. Refer to SMACNA Architectural Sheet Metal Manual Figure 8-8B or 8-9A depending upon direction of pipes.
2. Size pitch pan minimum 2 inches larger than the penetration. Provide a 4-inch minimum flange and double walls with minimum depth of 6 inches.
3. Strip-in flange of pitch pan as indicated in the Contract Drawings.
4. Install 2 inch wide aluminum tape around pitch pan extending 1/2 inch above top edge.
5. Fill pitch pan with non-shrink grout to a depth of 2 inches from the top of the tape.
6. Fill pitch pan with pourable sealer to the top of the tape. Slope to shed water.
7. Secure pipe enclosure flashing and cap as indicated in detail drawings.
8. Clean and solder seams of enclosure and cap.

O. Base Flashing Closure:

1. Install closures where base flashings abruptly end.
2. Hot-air weld joints watertight.
3. Install closures over membrane and under finish ply of base flashing.
4. Extend closures up under counterflashings or copings.
5. Install closures to seal ends of base flashings, membrane and cants as well as end joints of edge metal.

### **3.3 CLEANING AND PROTECTION**

- A. Clean sheet metal work of asphalt, flux, scrapes and dust.
- B. Replace sheet metal components with scratches through the metal finish.

**END OF SECTION**



## SECTION 07 72 36 - SMOKE VENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes:
  - 1. Alternate No. 2: Replace smoke vents.

#### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
  - 1. Section 07 54 00 "Thermoplastic Single Ply Roofing"
  - 2. Section 07 62 00 "Sheet Metal Flashing and Trim"

#### 1.3 REFERENCES

- A. Refer to the following references, current edition, for specification compliance:
  - 1. International Building Code for venting requirements, version as adopted by State project is located in.
    - a. Section 410 for Stages and Platforms
    - b. Section 910 for Factory and Storage occupancies
    - c. Section 1207 Sound Transmission
  - 2. Underwriters Laboratories Inc, UL 793 Listed for Heat and Smoke Vents
  - 3. FM Global, Factory Mutual, FM 4430 Heat and Smoke Vents for Roofs
  - 4. Reference NFPA 204 for general maintenance of Heat and Smoke vents.

#### 1.4 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a watertight installation.
- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

#### 1.5 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

- D. Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected Work.
1. Hatch Units: Show types, elevations, thickness of metals, and full size profiles.
  2. Hardware: Show materials, finishes, locations of fasteners, types of fasteners, locations and types of operating hardware, and details of installation.
  3. General: Show connections of units and hardware to other Work. Include schedules showing location of each type and size of unit.

## **1.6 CLOSEOUT SUBMITTALS**

- A. Installation, Operating and Maintenance manuals

## **1.7 DELIVERY, STORAGE AND HANDLING**

- A. Deliver materials to Project site ready use.
- B. Exercise proper care in handling of Work so as not to disrupt finished surfaces.
- C. Store materials under cover in a dry and clean location off the ground.

## **1.8 WARRANTY**

- A. Provide manufacturer's standard 5 year warranty. Roof hatches and smoke vents shall be free from manufacturing defects in materials and fabrication for a period of 5 years from the date of shipment. Should a product fail to function in normal use within this period, manufacturer shall furnish a replacement or new part at Nystrom's discretion.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURER**

- A. Acceptable Manufacturers:
1. Nystrom
  2. Bilco
  3. Engineers accepted equivalent

### **2.2 HEAT AND SMOKE VENTS**

- A. Hatch-Type Heat and Smoke Vents: For emergency heat and smoke removal
1. Type and Size: SmokEscape metal lids used in all smoke venting applications, SV.
    - a. Certification: Smoke vent to have official UL label for testing to UL 793 Smoke and Heat Vents and FM 4430 Approved.
    - b. Performance:
      - 1) Loads: 40-lbf/sq. ft. live load with a maximum deflection of 1/150th of the span 90 lbf/sq. double door, quad door wind uplift

- 2) When release is actuated lid shall open against 10 lbf/sq. snow load
- c. Hatch Material:
- 1) Cover: 0.07895-inch galvanized steel
  - 2) Cover Insulation: 1-inch Polyisocyanurate insulation
  - 3) Curb/Frame: 0.07895-inch galvanized steel. Curb height to provide minimum 8-inch flashing height above finished roof surface with integral counterflashing. Continuous 3.5-inch mounting flange with 5/8 inch mounting holes
  - 4) Curb Insulation: 1-inch rigid Polyisocyanurate insulation
- d. Finish: ANSI 70 powder coat steel.
- e. Latch: Positive hold zinc plated steel rotary latch assembly. Upon latch releases, vent covers are closed manually at rooftop level.
- 1) Release:
    - a) Latch released manually via internal and external pull handles with cables.
    - b) Latch released automatically by UL 33 listed fusible melt-out link at temperature of 165 deg F.
- f. Springs: Gas spring with integrated damper.
- g. Hinge: Pintle type with stainless steel hinge pin.
- h. Hold Open Device: Automatic hold open arm with red vinyl grip handle release.
- i. Weather Stripping: Extruded EPDM adhesive backed gasket seal continuous around perimeter of cover.
- j. Options and Accessories:
- 1) Manual Winch: Operation allowing remote closing of smoke vent from the floor area.
  - 2) Optional latch release with electrical Belimo motor actuator: 24 V DC/AC.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verification of Conditions: Examine areas and conditions under which Work is to be performed and identify conditions detrimental to proper or timely completion.
- B. Verify that deck, curbs, roof membrane, base flashing, and other items affecting Work of this Section are in place and positioned correctly.
- C. Verify tolerances and correct improper condition
- D. Identify conditions detrimental to providing proper quality and timely completions of work.
- E. Do not proceed with installation until detrimental conditions have been corrected.

### **3.2 INSTALLATION**

- A. Comply with manufacturer's recommendations.
- B. Coordinate installation of components of this Section with installation of roof deck, roof structure, roofing membrane, and base flashing.
- C. Coordinate installation of sealant and roofing cement with Work of this Section to ensure water tightness.
- D. Securely anchor roof accessories in compliance with manufacturer's instructions.
- E. Set units plumb, level, and true to line without warp or rack. Separate metal from incompatible metal or corrosive substrates, including wood, by coating concealed surfaces, at locations of contact, with bituminous coating or providing other permanent separation.
- F. Flange Seals: Unless otherwise indicated, set flanges of accessory units in a thick bed of roofing cement to form a seal

### **3.3 FIELD QUALITY CONTROL**

- A. Smoke Vent Testing: Test for proper operation after installation by one or all of the operational methods:
- B. Melting fusible link for inside at smoke vent level recommend using hand held propane tank torch. Replace fusible link, then close vents from the exterior at the roof top level.
- C. Pull internal and/or external manual pull handles and then close vents from the exterior at the roof top level.
- D. If applicable; open the vents using an electrical signal for fire alarm, push button or other, then close vent from the exterior at the roof top level.
- E. Do not paint the internal mechanisms, especially moving parts such as spring/dampers, rotary latches and especially the fusible links. Painting any of these components may damage the vents and will void the warranty.

### **3.4 ADJUSTING**

- A. Adjust movable parts for smooth operation.
- B. Operational Units: Test-operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.

### **3.5 CLEANING**

- A. Clean exposed surfaces per manufacturer's written instructions. Touch up damaged metal coatings.

**END OF SECTION**

## SECTION 09 24 01

### PORTLAND CEMENT PLASTERING (STUCCO) REPAIR

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Provide repairs to Portland cement plaster (Stucco) on exterior walls of Grounds Building.

##### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:
  - 1. Section 09 01 90 "Elastomeric Coating Restoration"

##### 1.3 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

##### 1.4 QUALITY ASSURANCE

- A. Stucco Thickness:
  - 1. Direct Application to Concrete or Concrete Masonry:
    - a. Do not exceed 1/2 inch applied in one or two coats.
    - b. Do not not exceed 5/8 inch applied in three coats.
  - 2. Application to Metal Plaster Bases:
    - a. Galvanized diamond mesh metal lath:
      - 1) 1.75 lb/yd<sup>2</sup>: stucco thickness of 1/2 inch applied in one or two coats.
      - 2) Minimum 2.5 lb/yd<sup>2</sup>: stucco thickness of 1/2 inch to 7/8 inch. 1/2 inch thickness applied in one or two coats. Thicknesses in excess of 1/2 inch up to 7/8 inch applied in two coats.
    - b. Woven wire fabric lath: stucco thickness applied in one or two coats.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

#### **A. Stucco Repair:**

1. Stucco: Factory proportioned, fiber reinforced portland cement based stucco for trowel or pump application, field mixed with graded sand and water.
2. Finish Coat: Acrylic or silicone enhanced acrylic textured wall finish.
3. Accessories:
  - a. Perforated or expanded flanges designed with grounds for the specified thickness of stucco.
4. Job mixed ingredients:
  - a. Water: clean and potable.
  - b. Clean, well graded sand free of deleterious materials in compliance with ASTM C 897 or ASTM C144.
5. Mixing:
  - a. Stucco: mix 200 lbs. of sand to an 80 lbbag of Stucco and approximately 4 gallons of clean water in a paddle type mortar mixer. Add 1/2 to 2/3 of the required water, 1/2 of the sand, and one bag of Stucco in a paddle type mortar mixer. Then add the rest of the sand and sufficient water to achieve a uniform mix of workable consistency. Mix for 3• 5 minutes after materials are in the mixer. Stucco material can be retempered once in the first hour after mixing. Avoid retempering after the first hour and discard material older than 1.5 hours. Keep mix ratio consistent from batch to batch and mix each batch separately. Use only the amount of water necessary for a workable mix. Use of excess water is detrimental to performance.
  - b. Finish: mix with a clean, rust-free high speed mixer to a uniform consistency. Add a small amount of water to adjust workability. Limit addition of water to amount needed to achieve the finish texture.
  - c. Mix only as much material as can readily be used.
  - d. Do not use anti-freeze compounds or other additives.
6. Crack Repair Material: Embed glass fiber mesh in acrylic based, non-dag filler designed for use for cracks in excess of 1/8• width.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Provide stucco to repair area. Install to provide a straight line between the existing and new.
- B. Follow manufacturer's guidelines for mixing and application of stucco.

- C. Surface Preparation: Remove projecting joint mortar so it is even with the plane of the wall. Remove surface contaminants, efflorescence, paint or other bond inhibiting material by sandblasting, waterblasting, wire brushing, chipping or other appropriate means. Pre-moisten the surface with water just prior to placement of stucco, or apply one uniform coat of bonding agent by brush or roller.
- D. Installation over cast-in-place concrete or concrete masonry units:
1. Install foundation weep screed at the base of the wall.
  2. Install casing beads at stucco terminations• , doors, windows and other through wall penetrations. Install two piece expansion joints (or back-to-back casing beads) at joints in the supporting construction, building expansion joints, where the stucco is installed over dissimilar construction or substrates, at changes in building height, at floor lines, columns, and cantilevered areas. Install one piece expansion joints at corners of windows, doors and similar through wall penetrations, and every 250 ft<sup>2</sup>. Install corner bead at outside corners and corner lath at inside corners. Install accessory pieces where possible avoiding small pieces. Seal adjoining pieces by embedding ends in sealant. Abut horizontal into vertical joint accessories. Attach at no more than 7 inches on center into concrete/masonry with appropriate fasteners.
  3. Pre-moisten concrete masonry units and absorbent concrete prior to the placement of stucco (unless bonding agent has been applied to the CMU surface).
  4. Scratch Coat: apply the stucco with sufficient pressure to ensure intimate contact with the substrate and coverage to an approximate thickness of 1/4 inch. Score the stucco horizontally upon completion of panels in preparation for a second coat.
  5. Brown Coat: as soon as the first coat is firm enough to receive the second coat without damage, apply the second coat. Alternatively, moist cure the first coat up to 48 hours and dampen the scratched surface with water before applying the second coat. Apply the second coat with sufficient pressure to ensure intimate contact with the first coat to an approximate thickness of 1/8 or 1/4 inch and as needed to bring the stucco to the desired thickness. Use a rod or straight edge to bring the surface to a true, even plane. Fill depressions in plane with stucco. Do not exceed 1/2 inch final thickness.
  6. After the stucco has lost sufficient moisture so that the surface sheen has disappeared, float the surface lightly with a darby or wood float to densify the surface and to provide a smooth, even surface. Float before the stucco becomes so rigid that it cannot be moved beneath the float.
  7. Moist cure after the stucco has set by lightly fogging the surface for at least 48 hours. Fog as frequently as required during the 48 hour period to prevent loss of moisture from the stucco. Avoid eroding the stucco surface with excess moisture. If relative humidity exceeds 75% the frequency of moist-curing can be diminished.
- E. Finish Installation:
1. Apply finish to primed stucco and foam build-outs when dry. Apply finish by spraying or troweling with a stainless steel trowel, depending on the finish specified. Follow these general rules for application of finish:
    - a. Avoid application in direct sunlight.

- b. Apply finish in a continuous application, and work a wet edge towards the unfinished wall area. Work to an architectural break in the wall before stopping to avoid cold joints.
- c. Weather conditions affect application and drying time. Hot or dry conditions limit working time and accelerate drying. Adjustments in the scheduling of work are required to achieve desired results; cool or damp conditions extend working time and retard drying and require added measures of protection against wind, dust, dirt, rain and freezing. Adjust work schedule and provide protection.
- d. Float "R" (rilled texture) finishes with a plastic float to achieve their rilled texture.
- e. Do not install separate batches of finish side-by-side.
- f. Do not apply finish into or over joints or accessories. Apply finish to outside face of wall only.
- g. Do not apply finish over irregular or unprepared surfaces, or surfaces not in compliance with the requirements of the project specifications.

**END OF SECTION**



## **SECTION 09 91 13**

### **EXTERIOR PAINT**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. Section Includes:
  - 1. Prepare substrates, prime and paint in accordance with Manufacturer's instructions for building components specified. Substrates included in the Work are as follows:
    - a. Alternate No. 4: Smoke Vents.
  - 2. Completing sampling, testing and abatement requirements for existing lead-based paint included in Work.

##### **1.2 RELATED DOCUMENTS**

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

##### **1.3 SUBMITTALS**

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- D. Samples: Submit color chart that represents Manufacture's color samples available for Owner's selection.
- E. Mockup: Submit mockup of paint system before starting work as required by Owner for color selection/acceptance.

##### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver Manufacturer's unopened containers to the work site labeled with the following list of information:
  - 1. Product name, type (description)
  - 2. Application & use instructions
  - 3. Surface preparation
  - 4. VOC content
  - 5. Environmental issues
  - 6. Batch date
  - 7. Color number

- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per Manufacturer's instructions. Protect from freezing.
- C. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.
- D. Provide fire safety and prevention requirements for materials.

## **1.5 PROJECT CONDITIONS**

- A. Ensure or maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by Manufacturer for optimum results. Do not apply coatings under environmental conditions outside Manufacturer's absolute limits.
- B. Provide sampling, testing and abatement requirements for existing lead-based included in the Work.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers:
  - 1. The Sherwin-Williams Company
  - 2. Duron, Inc.
  - 3. PPG Paints
- B. Manufacturer's exterior primer and paint system for optimum performance for exposed, exterior building type, compatible with the following substrate surfaces.
  - 1. Galvanized Metal

### **2.2 MATERIALS**

- A. Paints and Coatings: Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with Manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in Manufacturer's product instructions.
- B. Primers: Where the Manufacturer offers options on primers for a particular substrate, use primer categorized for optimum performance by the Manufacturer.

### **2.3 ACCESSORIES:**

- A. Coating Application Accessories: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per Manufactures printed requirements.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Do not begin application of coatings until substrates have been properly prepared. Notify Engineer of unsatisfactory conditions before proceeding.
- B. Proceed with work only after conditions have been corrected otherwise application of coatings is considered acceptance of surface conditions.

### **3.2 PREPARATION**

- A. Comply with lead-based paint abatement requirements where lead-based paint is encountered in the Work.
- B. Consult Manufacturer to ensure proper product selection, surface preparation, and application for optimum coating performance. Provide proper product selection, surface preparation, and application.
- C. Ensure surface is dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint, coatings, or other contamination to ensure good adhesion.
- D. Remove mildew before painting by washing with a solution of 1-part liquid household bleach and 3 parts of warm water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry 48 hours before painting.
- E. Do not paint after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50°F, unless products are designed specifically for these conditions. Follow Manufacturer's printed instructions.
- F. Methods:
  - 1. Galvanized Metal: Clean using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast to remove these treatments.

### **3.3 INSTALLATION**

- A. Apply coatings and materials in accordance with Manufacturer printed recommendations. Apply a no less than a single coat of primer, and two coats of paint. Thickness determined by Manufacturer's printed requirements for optimum or Óbest• performance.
- B. Do not apply coatings to wet or damp surfaces, during periods of fog, or at or below the dew point temperature.
- C. Apply coatings using methods and application tools recommended by Manufacturer.
- D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.

- E. Apply coatings at spreading rate required to achieve the Manufacturers recommended dry film thickness.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- G. Time between primer and coats as required by Manufacturer's printed requirements.

### **3.4 PROTECTION**

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged coatings after substantial completion, following manufactures recommendation for touch up or repair of damaged coatings. Repair defects that hinder the performance of the coatings.

### **3.5 CLEANING**

- A. Clean-up and remove spills, and coatings on adjacent substrates to the Owner's satisfaction.
- B. Dispose of containers and waste in a legal manner.

**END OF SECTION**

## SECTION 09 96 53

### ELASTOMERIC COATING RESTORATION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. Prepare walls and provide finish coating for vertical, above-grade stucco (Portland cement plaster) on Grounds Building.

##### 1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections apply to this Section, including but not limited to:

1. Section 09 24 00 "Portland Cement Plastering (Stucco) Repair"

##### 1.3 SUBMITTALS

A. Refer to Section 01 33 00 "Submittal Procedures".

B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.

C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.

D. Color Samples: For Owner selection of mock-up coatings.

E. Provide 4' x 4' mock-up of coating of up to five color options for Owner selection.

##### 1.4 REFERENCES

A. ASTM International:

1. C 1305, Crack Bridging
2. D 412, Tensile Strength, Elongation, and Recovery
3. D 522, Mandrel Bend Flexibility
4. D 2247, Moisture Resistance
5. D 3273, Mold Resistance
6. D 4541, Direct Tensile Bond
7. E 96, Water Vapor Permeability, wet cup method

B. EN 1062, Carbon Dioxide Diffusion

C. EPA Method 24, VOC

D. Federal Specification TT C 555 B

- E. SWRI Priority Property Profile for Elastomeric Wall Coatings

## **1.5 QUALITY ASSURANCE:**

### **A. Qualifications:**

1. **Manufacturer Qualifications:** Company with minimum 10 years of experience in manufacturing of specified products and systems.
2. **Applicator Qualifications:** Company with minimum of 5 years experience in application of specified products and systems on projects of similar size and scope, and is acceptable to product manufacturer.

### **B. Field Sample:**

1. Install at pre-selected area of building an area for field sample, minimum 4 feet by 4 feet, using specified system.
2. Apply material in strict accordance with manufacturer's written application instructions for surface preparation, repair, and workmanship.
3. Field sample becomes standard for judging workmanship on remainder of Project.
4. Maintain field sample during construction for workmanship comparison.
5. Obtain Engineer's acceptance of field sample before start of material application, including approval of aesthetics, color, texture, and appearance.

### **C. Preconstruction Field-Adhesion Testing:**

1. Perform adhesion per ASTM D3359, Measuring Adhesion by Tape, Method A. Minimum adhesion rating of 4A is required on 0 to 5 scale.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50 and 85 degrees F. Protect from direct sunlight. Protect from freezing. Protect from extreme heat (> 90 degrees F).
- C. Handle products in accordance with manufacturer's printed recommendations.

## **1.7 PROJECT CONDITIONS:**

- A. Ensure that substrate surface and ambient air temperature are minimum of 40 degrees F (4 degrees C) and rising at application time and remain above 40 degrees F (4 degrees C) for at least 24 hours after application. Ensure that frost or frozen surfaces are thawed and dry.
- B. Do not apply material if snow, rain, fog, and mist are anticipated within 12 hours after application. Allow surfaces to attain temperature and conditions specified before proceeding with coating system application.
- C. Do not apply over sealant joints.

- D. Do not apply to horizontal traffic-bearing surfaces.

## 1.8 WARRANTY

- A. Provide manufacturer's standard written warranty against defects of materials for their standard warranty length, beginning with date of substantial completion of the project.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Whenever a particular make of material, trade name and/or manufacturer's name is specified herein, it is indicative of the minimum standard of quality and performance characteristics required. Follow specific manufacturer's requirements in regard to preparation, application, etc. if differing from the specified requirements. Acceptable Manufacturers:
  - 1. BASF Senergy Senerlastic Coating
  - 2. Sto Stolastic Smooth
  - 3. Dryvit Weatherlastic Smooth
- B. Specifications and Drawings are based on manufacturer's proprietary literature from Sto Corporation. Comply with minimum levels of material, color selection, and detailing indicated in Specifications and Drawings required by other manufacturers. Engineer will be sole judge of acceptance of substitutions.

### 2.2 MATERIALS

- A. Concrete and stucco substrate primer: Acrylic-based, tinted, high-pH compatible primer/sealer:
  - 1. Performance and Physical Properties: Meet or exceed the following values for material cured at 73 degrees F and 50 percent relative humidity (unless otherwise specified).
    - a. Application: Spray, roller, or brush.
    - b. Working time: 10-20 minutes, depending on ambient conditions.
    - c. Adhesion to concrete: 680 psi, ASTM D 4541
    - d. Flame Spread Index: 0, ASTM E 84,
    - e. Smoke Developed: 10, ASTM E 84
    - f. Water vapor transmission: 30 perms (1720 ng/Pa·s·m<sup>2</sup>), tested at 3 dry mils applied in one coat, ASTM E 96, wet cup method.
    - g. VOC: less than 0.84 lb/gal, EPA 24
- B. Acrylic-based, weatherproofing colored coating: Single component acrylic-based coating, containing acrylic polymer, and colored pigments.
  - 1. Performance and Physical Properties: Meet or exceed the following values for material cured at 73 degrees F and 50 percent relative humidity (unless otherwise specified).
    - a. Application: Spray, roller, or brush.

- b. Working Time: 10-30 minutes.
- c. Crack Bridging: No cracking at -15 degrees F (-26 degrees C), ASTM C 1305
- d. Tensile Strength: 420 psi, minimum. ASTM D 412
- e. Elongation: 415 percent, minimum, at break, ASTM D 412.
- f. Moisture Resistance: No defects attributable to adhesion, discoloration, blistering, cracking, flaking, ASTM D 2247, 14 day exposure.
- g. Flexibility Mandrel Bend: No cracking at 70 degrees F and -14 degrees F (-26 degrees C), ASTM D 522.
- h. Mold Resistance: No Mold Growth at 90 days, ASTM D 3273
- i. Adhesion to Concrete: 345 psi, ASTM D 4541
- j. Water Vapor Permeability: 41 perms (2350 ng/Pa·s·m<sup>2</sup>) tested at 4 dry mils, applied in one coat, and 32 perms (1720 ng/Pa·s·m<sup>2</sup>) tested at 11 dry mils, applied in two coats, ASTM E 96, wet cup method.
- k. Carbon Dioxide Diffusion Resistance Coefficient: 496,000 EN 1062
- l. Carbon Dioxide Diffusion Resistance: 144 m, EN 1062
- m. VOC: 0.6 lb/gal, EPA 24
- n. Resistance to wind-driven rain: No penetration, weight gain less than 0.5 lbs, TT C 555 B.

- 2. Comply with SWRI Priority Property Profile for Elastomeric Wall Coatings.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing and handling of materials.

### **3.2 PREPARATION**

- A. Protect adjacent Work areas and finish surfaces from damage during coating system application.
- B. Ensure that substrate is sound, clean, dry, and free of dust, dirt, oils, grease, laitance, efflorescence, mildew, fungus, biological residues, chemical contaminants, and other contaminants that prevent proper adhesion.
- C. Comply with manufacturer's printed instructions and the following:
  - 1. Clean surface by using high-pressure waterblasting.
  - 2. Ensure area being repaired is structurally sound and cured.
  - 3. Remove blisters and loose or delaminated areas.
  - 4. Wash down prepared surfaces and allow to dry.
- D. Chalky Surfaces: Treat chalky surfaces, as defined by ASTM D4214, Test Method A, with water cleaning and application of primer approved by coating manufacturer.



### **3.3 MIXING**

- A. Comply with manufacturer's printed instructions and the following.
  - 1. Precondition to temperature of 70 plus or minus 5 degrees F (21 plus or minus 2.5 degrees C) prior to application.
  - 2. Mix using a mechanical mixer to achieve a uniform consistency prior to use.

### **3.4 APPLICATION**

- A. Comply with manufacturer's printed instructions and the following. Use approved equipment for application.
  - 1. Apply when ambient and surface temperatures are 40 degrees F and rising.
  - 2. Do not apply in freezing conditions or during precipitation.
  - 3. Do not apply if the surface temperature is less than 5 degrees F above the ambient dew point temperature.
  - 4. Concrete and stucco substrates: Apply 805 primer in one coat by brush, roller, or spray to a thickness of 5 wet mils.
  - 5. Allow primer to dry before applying finish coating.
  - 6. Apply one coat, 12-14 wet mils, coating to primed surface. Allow first coat to dry, and apply a second coat, 12-14 wet mils. Provide thickness based upon manufacturer's recommendation.
  - 7. Protect installed materials from rain, freezing, and continuous high humidity until dry.
  - 8. Do not overcoat with solvent-based materials.

### **3.5 CURING**

- A. Drying time to touch is 6 hours at 70 degrees F and 50 percent relative humidity if applied at 18 to 20 mils WFT. Recoat in minimum of 12 to 24 hours.

### **3.6 CLEANING**

- A. Clean tools and equipment with soapy water.
- B. Clean up and properly dispose of debris remaining on Project site related to application.
- C. Remove temporary coverings and protection from adjacent Work areas.

**END OF SECTION**

**SECTION 22 14 00**  
**STORM DRAINAGE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Provide exterior, below-grade storm drainage system.

**1.2 REFERENCES**

- A. Refer to the following references for specification compliance:
  - 1. ASTM International
    - a. ASTM D 2665 Specification for PVC Plastic Drain, Waste and Vent Pipe and Fittings.
    - b. ASTM D 2564 Solvent Cements for PVC Pipe and Fittings.
  - 2. International Association Plumbing & Mechanical Officials - IAPMO

**1.3 SUBMITTALS**

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- D. Shop Drawings: Include plans, elevations, sections and details.

**1.4 QUALITY ASSURANCE**

- A. Ensure plumbing systems and components are installed by licensed, qualified personnel.
- B. Ensure roof drains, couplings, piping, supports, fixtures, pipe hangers, fasteners, fittings, etc. are installed in compliance with the referenced plumbing code, and installed in accordance with the component manufacturer's published guidelines and instructions, and referenced standards.
- C. Field test completed storm drain systems as required by the referenced plumbing code.
- D. Prior to excavating, contact local utility locator to pinpoint gas and utility lines.

## **1.5 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging.
- B. Storage: Store materials to prevent damage and not encumber Owner's operations.
- C. Handling: Handle materials in such a manner as to prevent damage and contamination.

## **1.6 PROJECT CONDITIONS**

- A. Environmental Requirements:
  - 1. Install roof drains and associated plumbing during periods of no precipitation to prevent water from entering the building.
  - 2. Prevent damage to the building and contents during drain and associated plumbing installations.
  - 3. Comply with applicable rules and regulations of Authorities Having Jurisdiction pertaining to storm sewage systems.
- B. Protection:
  - 1. Ensure drainage systems remain in service and restore to operational before leaving the site.
  - 2. Repair drain piping clogged by construction debris at no cost to the Owner.
  - 3. Protect building interior and exterior surfaces during construction.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Below Grade PVC Drainage Pipe:
  - 1. Manufactured from PVC compound with a cell class of 12454 per ASTM D-1784 and conform to National Sanitation Foundation (NSF) standard 14.
  - 2. PVC schedule 40: iron pipe size (IPS) conforming to ASTM D-1785 and ASTM D-2665.
  - 3. Fittings conform to ASTM D-2665.
  - 4. Pipe and fittings produced by a single manufacturer and installed in accordance with manufacturer's recommendations and local code requirements.
  - 5. Solvent cements conform to ASTM D 2564
  - 6. Primer conform to ASTM F-656.
  - 7. The system is intended for non-pressure drainage applications where the temperature does not exceed 140°F.
- B. Downspout Boot:
  - 1. Cast iron downspout boot, 3 inch by 4 inch inlet size and 4 inch diameter outlet size. Provide no-hub connection to below grade storm drainage system.
  - 2. Masonry screws, 1/4-inch minimum diameter, Type 410 stainless steel. Length as required to provide minimum 1 inch embedment into substrate, or as required by the fastener manufacturer to achieve required withdrawal load; provide stainless steel flat washer as necessary. Acceptable manufacturers include:

- a. Tapcon by ITW Buildex
- b. KWIK-CON II by Hilti
- c. Engineers accepted equivalent.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Conduct a pre-job conference including the Engineer, Contractor, and the Owner's representative prior to the installation of roof drains and associated piping and plumbing fixtures.
- B. Verify that conditions are acceptable to begin the installation.
- C. Inspect daily the plumbing installation to ensure conditions remain satisfactory.

### **3.2 PREPARATION**

- A. Inspect building components and conditions before proceeding with plumbing installation.
- B. Inspect the piping route to ensure conditions are satisfactory to install piping and associated plumbing fixtures for the completed drainage system.
- C. Route piping to maintain working spaces around electrical equipment by NEC.
- D. Route piping and fixtures to not interfere with the service of in-place equipment and systems.
- E. Do not close off or obstruct streets, walks or other adjacent occupied facilities without permission from Owner, Engineer, and Authorities Having Jurisdiction. Coordinate with the Owner and Engineer prior to cutting into asphalt pavement, concrete walks or driveways. Return paving, sidewalks, and landscaping to original condition.

### **3.3 BELOW GRADE PIPING INSTALLATION**

- A. Conform to local plumbing, building, fire code requirements and manufacturers recommendations.
- B. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated on Contract Drawings.
  1. Install piping a minimum of 24 inches below grade.
- C. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream.
  1. Provide system with minimum 2-percent slope for horizontal piping.

- D. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- E. Install fittings for changes in direction. Use fittings for branch connections unless direct tap into existing drainage lines is indicated.
- F. Ensure piping is supported by compacted soil and provide equal compaction on each side of the piping.
- G. Provide a 50/50 mixture of Class II and Class III soil compacted to 95% proctor density.
- H. Apply grass seeding and ground cover to protect area from erosion.

### **3.4 FIELD QUALITY CONTROL**

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of the Project.
  - 1. Submit separate reports for each system inspection.
  - 2. Defects requiring correction include the following:
    - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    - b. Deflection: Flexible piping with deflection that prevents passage of ball of cylinder of size not less than 92.5 percent of piping diameter.
    - c. Crushed, broken, cracked or otherwise damaged piping.
    - d. Infiltration: Water leakage into piping.
    - e. Exfiltration: Water leakage from or around piping on watertight joints.
  - 3. Replace defective piping and repeat inspections.
  - 4. Reinspect and repeat procedure until results are satisfactory.

### **3.5 CLEANING**

- A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

**END OF SECTION**

## **SECTION 22 14 26**

### **ROOF DRAINS**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

A. Section Includes:

1. Water test of below grade storm drain leaders and roof drains.
2. Replacement of existing roof drain components.
3. Replacement of existing overflow roof drain components.

##### **1.2 RELATED SECTIONS**

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications sections apply to this section, including but not limited to:

1. Section 05 01 30 "Steel Roof Deck Repair and Securement"
2. Section 06 10 00 "Rough Carpentry"
3. Section 07 01 50 "Preparation for Reroofing"
4. Section 07 22 16 "Roof Insulation"
5. Section 07 54 00 "Thermoplastic Single Ply Roofing"
6. Section 07 62 00 "Sheet Metal Flashing and Trim"

##### **1.3 REFERENCES**

A. Refer to the following references for specification compliance:

1. American Society of Mechanical Engineers - ASME
  - a. ASME A112.21.2 Roof Drains
2. International Association Plumbing & Mechanical Officials - IAPMO
3. ASTM International

##### **1.4 SUBMITTALS**

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- D. Shop Drawings: Include plans, elevations, sections and details.

## **1.5 QUALITY ASSURANCE**

- A. Ensure plumbing systems and components are installed by licensed, qualified personnel.
- B. Ensure roof drains, couplings, piping, supports, fixtures, pipe hangers, fasteners, fittings, etc. are installed in compliance with the referenced plumbing code, and installed in accordance with the component manufacturer's published guidelines and instructions, and referenced standards.
- C. Field test completed storm drain systems as required by the referenced plumbing code.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Deliver materials in the manufacturer's original sealed and labeled packaging.
- B. Storage: Store materials to prevent damage and not encumber Owner's operations.
- C. Handling: Handle materials in such a manner as to prevent damage and contamination.

## **1.7 PROJECT CONDITIONS**

- A. Environmental Requirements:
  - 1. Install roof drains and associated plumbing during periods of no precipitation to prevent water from entering the building.
  - 2. Prevent damage to the building and contents during roof drain and associated plumbing installations.
  - 3. Comply with applicable rules and regulations of Authorities Having Jurisdiction pertaining to storm sewage systems.
  - 4. Flood test roof drain systems to verify functional operation prior to roof replacement operations and report deficiencies to Engineer and Owner.
- B. Protection:
  - 1. Ensure roof drainage systems remain in service and restore to operational before leaving the site.
  - 2. Protect building interior and exterior surfaces during construction.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Existing Roof Drains: Replace clamping ring and strainer dome to match existing drain manufacturer and model with cast iron clamping ring and strainer dome. Replace bolts with stainless steel clamping ring bolts. Restore threads as necessary using taps to ensure positive fastening; clean metal shavings, chips and debris before fastening clamping ring.
  - 1. Overflow Roof Drains: Meet the above requirements with a 2 inch high external water dam.

## **PART 3 - EXECUTION**

### **3.1 INSPECTION**

- A. Conduct a pre-job conference including the Engineer, Contractor, and the Owner's representative prior to the installation of roof drains and associated piping and plumbing fixtures.
- B. Verify that conditions are acceptable to begin the installation.
- C. Inspect daily the plumbing installation to ensure conditions remain satisfactory.

### **3.2 PREPARATION**

- A. Inspect building components and conditions before proceeding with plumbing installation.
- B. Inspect the piping route and hanger attachment points to ensure conditions are satisfactory to install piping and associated plumbing fixtures for the completed drainage system.
- C. Do not route piping and fixtures to interfere with the service of in-place equipment and systems.
- D. Do not close off or obstruct streets, walks or other adjacent occupied facilities without permission from Owner, Engineer, and Authorities Having Jurisdiction.

### **3.3 DRAIN LEADERS AND ROOF DRAINS**

- A. Prior to commencement of work on the project inspect leaders and roof drains for damage and water flow.
  - 1. Clean drains of accumulated debris and loose gravel.
  - 2. Clean drain bowl and drain outlet of bitumen build-up to bare metal by hand scraping.
  - 3. Power vacuum debris, loose gravel, and bitumen scrapping down to the first elbow in the drain line.
  - 4. After cleaning bitumen from the drain bowl, inspect the bowl carefully for cracks, and the drainpipe connection for possible deterioration.
  - 5. Flood test leaders and roof drains to determine that there are no plumbing leaks unrelated to the existing roof system and to verify proper function and flow.
  - 6. Complete inspection and testing prior to roofing tear-off. If deficiencies or damages are observed, record the deficiency on a Roof Plan and forward to the Engineer. The Engineer will notify the Owner accordingly. Allow 48 hours after notification for corrective work by the Owner.
  - 7. If no deficiencies or damages are reported to the Owner prior to commencement of work, assume responsibility for the condition and operation of the leaders and drains including the connection between the roof drain and associated plumbing/leaders.



- B. Install temporary drain plugs during roofing activities to prevent foreign materials from entering drainage system. Remove drain plugs at the end of each workday to maintain drains in operational condition.
- C. Reinstall clamping rings, bolts and strainer domes at the end of each working day.
- D. Repair drain piping clogged by construction debris at no cost to the Owner.
- E. Repair leaks associated with damage, following successful flood testing, to the roof drain connection to associated plumbing at no cost to the Owner.

### **3.4 ROOF DRAIN INSTALLATION**

- A. Install roof drains and associated components in accordance with the drain manufacturer's published instructions.
- B. Install roof drains, piping and associated plumbing to meet applicable requirements of the local plumbing, building and fire code.

### **3.5 CLEANING**

- A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

**END OF SECTION**

## SECTION 33 46 16.16

### GEOCOMPOSITE SUBDRAINAGE

#### PART 1 - GENERAL

##### 1.1 SUMMARY

A. Section Includes:

1. Provide perforated pipe in gravel bed wrapped in filter fabric routed to nearest discharge point as indicated in Contract Drawings.

##### 1.2 PERFORMANCE REQUIREMENTS:

A. The specified properties of drainage panels must be supported by test results from an independent laboratory, documenting the specified flow rate in the plane of the core and creep performance of the polymer core in accordance with ASTM D-4716 as follows:

1. Hydraulic Gradient: 1.0 for vertical installations and 0.05 for horizontal installations.
2. Normal Pressure (pressure imposed perpendicular to the plane of the core): Equal to 3600 psf.
3. Creep: Model long-term compression of the prefabricated drainage composite system and determine if the drain product flow channels become restricted with time. Long-term creep/drainage performance shall be determined by measuring flow after 300 continuous hours under the above referenced normal pressure. The test method shall utilize a loading system that models the soil/drainage product interaction.
4. Flow Direction: Flow shall be measured on only one side of the core. Where the core geometry differs in principal directions, flow shall be measured in both directions, simulating water flowing vertically down a wall and horizontally across the face of the wall to accurately determine maximum flow rate in critical principal direction.

##### 1.3 SUBMITTALS

- A. Refer to Section 01 33 00 "Submittal Procedures".
- B. Product Data: Manufacturer's Product Data Sheets for materials specified certifying material complies with specified requirements.
- C. Manufacturer's Instructions: Latest edition of the Manufacturer's current material specifications and installation instructions.
- D. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including accessories for drainage composites.
- E. Test Reports: submitted products to meet the above listed Performance Requirements.

## **1.4 QUALITY ASSURANCE**

- A. Qualifications:
  - 1. Installer Qualifications: Installer experienced to perform work of this section, who has specialized in the installation of work similar to that required for this project, who can comply with manufacturer's warranty requirements, and who is an authorized applicator as determined by drainage manufacturer.
  - 2. Manufacturer Qualifications: Manufactured at an ISO 9001:2000 Facility.
- B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.
- C. Pre-Installation Testing: In accordance with manufacturer's recommendations and warranty requirements, conduct pre-installation testing of substrates to receive drainage composites.

## **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Schedule deliveries to avoid construction delays but minimize jobsite storage.

## **1.6 PROJECT CONDITIONS/SITE CONDITIONS**

- A. When Prefabricated Drainage Composite is installed in conjunction with a waterproofing product, the Prefabricated Drainage Composite must be compatible with the waterproofing product and installed by methods acceptable to the waterproofing product manufacturer.
- B. The outfall for any drainage pipe used with the drainage panels shall be coordinated with the site drainage.

## **1.7 WARRANTY**

- A. Upon completion and acceptance of the work required by this section, the manufacturer will issue a warranty agreeing to promptly replace defective materials for a period of 5 years.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. PVC Discharge Pipe:
  - 1. Minimum 6 inch diameter solid polyvinyl chloride pipe conforming to ASTM D 2729 furnished complete with necessary bends, reducers, adaptors, couplings, collars and joint materials and conform to National Sanitation Foundation (NSF) standard 14.

2. PVC schedule 40: iron pipe size (IPS) conforming to ASTM D 1785 and ASTM D 2665.
3. Fittings conform to ASTM D 2665.
4. Pipe and fittings produced by a single manufacturer and installed in accordance with manufacturer's recommendations and local code requirements.
5. Solvent cements conform to ASTM D 2564
6. Primer conform to ASTM F 656.
7. The system is intended for non-pressure drainage applications where the temperature does not exceed 140°F.

**B. Perforated PVC Pipe:**

1. Minimum 6 inch diameter solid polyvinyl chloride pipe conforming to ASTM D 2729 furnished complete with necessary bends, reducers, adaptors, couplings, collars and joint materials and conform to National Sanitation Foundation (NSF) standard 14.
2. PVC schedule 40: iron pipe size (IPS) conforming to ASTM D 1785 and ASTM D 2665.
3. Fittings conform to ASTM D 2665.
4. Pipe and fittings produced by a single manufacturer and installed in accordance with manufacturer's recommendations and local code requirements.
5. Solvent cements conform to ASTM D 2564
6. Primer conform to ASTM F 656.
7. The system is intended for non-pressure drainage applications where the temperature does not exceed 140°F.
8. Perforations:
  - a. Three rows of minimum 1/2 inch diameter holes.
  - b. Circumferential hole spacing of +/- 60 degrees
  - c. Longitudinal hole spacing maximum of 5 inches on center.

**C. Washed Stone Back Fill: Open-graded, self-compacting aggregate blend of size 5, 6, & 7 stone, per AASHTO No. 57 specifications as follows:**

1. coarse aggregate stone has 100% passing 1-1/2 inch screen
2. 95-100% passing 1 inch screen
3. 25-60% passing 1/2 inch screen
4. 0-10% passing #4 screen
5. 0-5% passing #8 screen

**D. Fabric Wrap: 4 oz., non-woven polypropylene geotextile fabric manufactured for use in ground contact.**

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Site Verification of Conditions:** Verify substrate conditions are acceptable for product installation in accordance with manufacturer's instructions. Do not proceed with drainage installation until substrate conditions are acceptable for compliance with manufacturer's warranty requirements.

### **3.2 PREPARATION**

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during installation operations.
- B. Concrete Surface Preparation: Prepare concrete surfaces to receive drainage composite. Surfaces shall be smooth, free of depressions, voids, protrusions, clean and free of other surface contaminants that may impair the performance of drainage and manufacturer's warranty requirements.
  - 1. Cast-in-Place Concretes: Decks shall be monolithic, smooth, free of voids, spalled areas, laitance, honeycombs, and sharp protrusions. Refer to Division 3 Concrete Section for concrete strength, density, finish, curing methods and other concrete requirements.
  - 2. Precast Concrete Decks: Decks shall be mechanically secured to minimize differential movement and each joint between precast units shall have an installed backer rod. Grout precast units as recommended by manufacturer.
  - 3. Shotcrete: Surface shall be monolithic and smooth with no undulations, irregularities or exposed wire mesh.
- C. Substrate Cleaning: Clean substrate that is to receive drainage. Remove loose debris and other harmful contaminants that will affect performance of drainage composite.

### **3.3 DISCHARGE DRAINAGE**

- A. PVC Perforated Pipe: Place the drain pipe next to the core surrounded in Washed Stone Back Fill. Wrap the stone combination with an auxiliary piece of filter fabric.
  - 1. Washed Stone Back Fill: Add back fill in 6 inch lifts and orient stone facets using a plate compactor, jumping jack, or other vibratory compaction devices following membrane installation.
- B. Plaza Drains: Create openings in the prefabricated drainage composite core to correspond with all discharge holes in the drain at the structural deck level. Fabric must be placed over these holes to prevent intrusion of soil, grout, sand, or concrete into the drainage core.
- C. Terminal Connections and Protrusions: Cover all terminal edges with the integral fabric flap by tucking it around the edge of the core and securing it. At protrusions, cut the core around the protrusion, cut an "X" in the fabric, and tape the fabric around the protrusion. Dirt and concrete must not infiltrate the core.
- D. PVC Discharge Drainage
  - 1. Connect Perforated PVC Drain Pipe to PVC Discharge Drainage and route where indicated in Contract Drawings.
  - 2. Conform to local plumbing, building, fire code requirements and manufacturers recommendations.
  - 3. Drawing plans and details indicate general location and arrangement of underground storm drainage piping.
  - 4. Install piping a minimum of 24 inches below grade.
  - 5. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream.

6. Provide system with minimum 2-percent slope for horizontal piping.
7. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
8. Install fittings for changes in direction. Use fittings for branch connections unless direct tap into existing drainage lines is indicated.
9. Ensure piping is supported by compacted soil and provide equal compaction on each side of the piping.

### **3.4 CLEANING AND PROTECTION**

- A. **Cleaning:** Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
- B. **Protection:** Protection installed products finished surfaces from damage during construction.

**END OF SECTION**

# FORM OF PROPOSAL

Roof Replacements – Multiple Bldgs. (Robinson and Grounds Bldgs.) Contract: Single Prime  
University of North Carolina at Charlotte Bidder: \_\_\_\_\_  
SCO-ID #. 22-25769-01A 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 Charlotte  
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  
Roof Replacements – Multiple Bldgs. (Robinson and Grounds Bldgs.)  
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 the  
University of North Carolina at Charlotte and REI Engineers, Inc.  
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: \_\_\_\_\_ 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.

**ALTERNATES:**

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" or "deducted from" the base bid. (Strike out "Add" or "Deduct" as appropriate.)

Owner Preferred Alternate No. 1: Provide roof system manufactured by Sika Sarnafil

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

Alternate No. 2: Provide roof replacement, exterior wall restoration and drainage improvements on Grounds Building.

(Add) \_\_\_\_\_ Dollars(\$)

Alternate No. 3: Replace smoke vents on Robinson Hall.

(Add) \_\_\_\_\_ Dollars(\$)

Alternate No. 4: Properly prepare, prime, and paint smoke vents on Robinson Hall.

(Add) \_\_\_\_\_ Dollars(\$)

**UNIT PRICES**

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.

**GENERAL CONTRACT:**

- No. 1. Repair Corroded Steel Deck with Coating SF Unit Price (\$) \_\_\_\_\_
- No. 2. Repair Steel Deck with Steel Plates SF Unit Price (\$) \_\_\_\_\_
- No. 3. Overlay Deteriorated Steel Deck with Steel Deck SF Unit Price (\$) \_\_\_\_\_
- No. 4. Replace Deteriorated Steel Deck SF Unit Price (\$) \_\_\_\_\_
- No. 5. Replace Deteriorated Wood Blocking BF Unit Price (\$) \_\_\_\_\_
- No. 6. Replace Deteriorated Plywood SF Unit Price (\$) \_\_\_\_\_
- No. 7. Provide manufacturer's walk pad material LF Unit Price (\$) \_\_\_\_\_

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Supplementary General Conditions Article 23. Applicable liquidated damages amount is also stated in the Supplementary General Conditions Article 23.



## **MINORITY BUSINESS PARTICIPATION REQUIREMENTS**

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*Provide with the bid* - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

**NOTE:** A contractor that performs all of the work with its own workforce may submit an Affidavit (**B**) to that effect in lieu of Affidavit (**A**) required above. The MB Participation Form must still be submitted even if there is zero participation.

*After the bid opening* - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary; \* **OR** \*

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

**Note:** Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit **A** **or** Affidavit **B**, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

# Proposal Signature Page

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The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of \_\_\_\_\_

\_\_\_\_\_  
(Name of firm or corporation making bid)

WITNESS:

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

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

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

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

Address \_\_\_\_\_

ATTEST:

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

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

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

Federal I.D. No. \_\_\_\_\_

Email Address: \_\_\_\_\_

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 \_\_\_\_\_ Addendum No. 3 \_\_\_\_\_ Addendum No. 5 \_\_\_\_\_ Addendum No. 6 \_\_\_\_\_

Addendum No. 2 \_\_\_\_\_ Addendum No. 4 \_\_\_\_\_ Addendum No. 6 \_\_\_\_\_ Addendum No. 7 \_\_\_\_\_



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

County of \_\_\_\_\_

(Name of Bidder)

Affidavit of \_\_\_\_\_

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

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

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

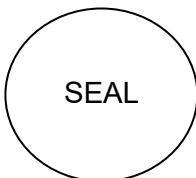
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure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

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

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

Title: \_\_\_\_\_



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

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

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

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

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

County of \_\_\_\_\_

Affidavit of \_\_\_\_\_

(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the \_\_\_\_\_ contract.

(Name of Project)

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

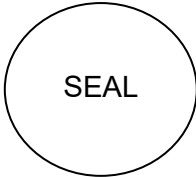
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

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

Title: \_\_\_\_\_



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

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

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

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

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

County of \_\_\_\_\_

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

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

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

\_\_\_\_\_ (Project Name)  
 Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

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

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

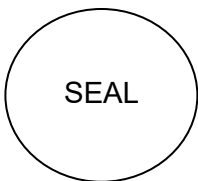
\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

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

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

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_



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

Title: \_\_\_\_\_

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

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

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

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

# State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of \_\_\_\_\_

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

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

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

Project ID# \_\_\_\_\_ (Project Name) Amount of Bid \$ \_\_\_\_\_

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

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

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

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

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

- 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.

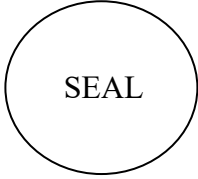
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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 \_\_\_\_\_



**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 the University of North Carolina at Charlotte as obligee, in the penal sum of \_\_\_\_\_ DOLLARS, lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this \_\_\_\_ day of \_\_\_\_ 20\_\_

WHEREAS, the said principal is herewith submitting proposal for and the principal desires to file this bid bond in lieu of making the cash deposit as required by G.S. 143-129.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that if the principal shall be awarded the contract for which the bid is submitted and shall execute the contract and give bond for the faithful performance thereof within ten days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so execute such contract and give performance bond as required by G.S. 143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by G.S. 143-129.1

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

**FORM OF CONSTRUCTION CONTRACT**

(ALL PRIME CONTRACTS)

THIS AGREEMENT, made the \_\_\_\_\_ day of \_\_\_\_\_ in the year of 20\_\_ by and between \_\_\_\_\_ hereinafter called the Party of the First Part and the \*State of North Carolina, through the University of North Carolina at Charlotte 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:

Roof Replacements – Multiple Bldgs. (Robinson and Grounds Bldgs.)

Consisting of the following sheets:

G-001, G-002, XR101, XR301, XR501, XR502,

XR503, XR504, XR505

Dated: June 12, 2023 and the following addenda:

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

2. That the Party of the First Part shall commence work to be performed under this agreement on a date to be specified in a written order of the Party of the Second Part and shall fully complete all work hereunder within 90 consecutive calendar days from said date. For each day in excess thereof, liquidated damages shall be as stated in Supplementary General Conditions. The Party of the First Part, as one of the considerations for the awarding of this contract, shall furnish to the Party of the Second Part a construction schedule setting forth planned progress of the project broken down by the various divisions or part of the work and by calendar days as outlined in Article 14 of the General Conditions of the Contract.

3. The Party of the Second Part hereby agrees to pay to the Party of the First Part for the faithful performance of this agreement, subject to additions and deductions as provided in the specifications or proposal, in lawful money of the United States as follows:

---

( \$ \_\_\_\_\_ )

Summary of Contract Award:

4. In accordance with Article 31 and Article 32 of the General Conditions of the Contract, the Party of the Second Part shall review, and if approved, process the Party of the First Party's pay request within 30 days upon receipt from the Designer. The Party of the Second Part, after reviewing and approving said pay request, shall make payments to the Party of the First Part on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the First Party, less five percent (5%) of the amount of such estimate which is to be retained by the Second Party until all work has been performed strictly in accordance with this agreement and until such work has been accepted by the Second Party. The Second Party may elect to waive retainage requirements after 50 percent of the work has been satisfactorily completed on schedule as referred to in Article 31 of the General Conditions.

5. Upon submission by the First Party of evidence satisfactory to the Second Party that all payrolls, material bills and other costs incurred by the First Party in connection with the construction of the work have been paid in full, final payment on account of this agreement shall be made within thirty (30) days after the completion by the First Party of all work covered by this agreement and the acceptance of such work by the Second Party.

6. It is further mutually agreed between the parties hereto that if at any time after the execution of this agreement and the surety bonds hereto attached for its faithful performance, the Second Party shall deem the surety or sureties upon such bonds to be unsatisfactory, or if, for any reason, such bonds cease to be adequate to cover the performance of the work, the First Party shall, at its expense, within five (5) days after the receipt of notice from the Second Party so to do, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the Second Party. In such event no further payment to the First Party shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Second Party.

7. The Party of the First Part attest that it and all of its subcontractors have fully complied with all requirements of NCGS 64 Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

IN WITNESS WHEREOF, the Parties hereto have executed this agreement on the day and date first above written in 4 counterparts, each of which shall without proof or accounting for other counterparts, be deemed an original contract.

Witness:

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

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

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 Charlotte \_\_\_\_\_  
(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 Roof Replacements – Multiple Bldgs. (Robinson and Grounds Bldgs.)

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 4 counterparts.

Witness:

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

Attest: (Corporation)

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

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

(Corporate Seal)

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

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

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

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

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

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

(Surety Corporate Seal)

Witness:

\_\_\_\_\_

Countersigned:

\_\_\_\_\_

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

\_\_\_\_\_

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

\_\_\_\_\_

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

**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 Roof Replacements – Multiple Bldgs. (Robinson and Grounds Bldgs.)

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 4 counterparts.

Witness:

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

Attest: (Corporation)

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

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

(Corporate Seal)

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

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

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

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

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

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

(Surety Corporate Seal)

Witness:

\_\_\_\_\_

Countersigned:

\_\_\_\_\_

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

\_\_\_\_\_

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

\_\_\_\_\_

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



# Sheet for Attaching Power of Attorney

# Sheet for Attaching Insurance Certificates

# APPROVAL OF THE UNIVERSITY ATTORNEY

STATE OF NORTH CAROLINA  
 COUNTY SALES AND USE TAX REPORT  
 SUMMARY TOTALS AND CERTIFICATION

CONTRACTOR: \_\_\_\_\_

Page  1  of      

PROJECT: \_\_\_\_\_

FOR PERIOD: \_\_\_\_\_

	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL ALL COUNTIES
CONTRACTOR							
SUBCONTRACTOR(S)*							
COUNTY TOTAL							

\* Attach subcontractor(s) report(s)  
 \*\* Must balance with Detail Sheet(s)

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
 Signed

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

My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
 Print or Type Name of Above

Seal

NOTE:  
 This certified statement may be subject to audit.

STATE OF NORTH CAROLINA  
SALES AND USE TAX REPORT DETAIL

CONTRACTOR: \_\_\_\_\_

Page  2  of      

SUBCONTRACTOR \_\_\_\_\_

FOR PERIOD: \_\_\_\_\_

PROJECT: \_\_\_\_\_

PURCHASE DATE	VENDOR NAME	INVOICE NUMBER	TYPE OF PROPERTY	INVOICE TOTAL	COUNTY TAX PAID	COUNTY OF SALE *
				\$	\$	
				<b>TOTAL:</b>	<b>\$</b>	

\* If this is an out-of-state vendor, the County of Sale should be the county to which the merchandise was shipped.

**SECTION 316**

Owner

Designer

Contractor  Code \_\_\_\_\_ Item \_\_\_\_\_

Surety

Other

CONTRACTOR'S

AFFIDAVIT OF

RELEASE OF LIENS

For Use with State of North Carolina Projects

\_\_\_\_\_  
TO: (OWNER)

CONTRACT FOR:

CONTRACT DATE:

SCO PROJECT ID:

PROJECT INFORMATION:  
(Name & Location)

\_\_\_\_\_  
State of:

County of:

The undersigned, pursuant to Article 36 of the General Conditions of the Contract, hereby certifies that to the best of his knowledge, information and belief, the Releases or Waivers of Lien attached hereto include the contractor, all subcontractors, all suppliers of materials and equipment, and all performers of work, labor or services who have or may have liens against any property of the owner arising in any manner out of the performance of the contract referenced above.

SUPPORTING DOCUMENTS

ATTACHED HERETO:

CONTRACTOR:

Address:

By

Subscribed and sworn to before me  
this            day of            20

Signature Notary Public:

Printed Name of Notary Public:

My Commission Expires:

**CONTRACTOR'S  
AFFIDAVIT OF PAYMENT  
OF DEBTS AND CLAIMS**

Owner   
Designer   
Contractor  Code \_\_\_\_\_ Item \_\_\_\_\_  
Surety   
Other

For Use with State of North Carolina Projects

\_\_\_\_\_  
TO (OWNER)

CONTRACT FOR:

CONTRACT DATE:

PROJECT INFORMATION:  
Name & Location:

\_\_\_\_\_  
State of:

County of:

The undersigned, pursuant to Article 36 of the General Conditions of the Contract, hereby certifies that, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the contractor for damages arising in any manner in connection with the performance of the contract referenced above for which the owner or his property might in any way be held responsible.

**SUPPORTING DOCUMENTS ATTACHED HERETO:**

1. Consent of Surety to Final Payment. Whenever surety is involved, Consent of Surety is required. Indicate attachment: (yes ) (no ).  
The following supporting documents should be attached hereto if required by the owner:
  - a. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
  - b. Separate Releases or Waivers of Liens from subcontractors and material and equipment suppliers to the extent required by the owner, accompanied by a list thereof.
  - c. Contractor's Affidavit of Release of Liens.

**CONTRACTOR:**  
Address:

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

Signature of Notary Public:

Printed Name of Notary Public:

My Commission Expires:

Owner

Designer

Contractor  SCO ID # \_\_\_\_\_

Surety

Other

CONSENT OF SURETY

COMPANY TO FINAL

PAYMENT

For Use with State of North Carolina Projects

\_\_\_\_\_  
PROJECT Name & Location:

TO: (OWNER)

CONTRACT FOR:

CONTRACT DATE:

CONTRACTOR:

In accordance with the provisions of the contract between the owner and the contractor as indicated above, the (here insert name and address of surety company)

SURETY COMPANY

on bond of (here insert name and address of contractor)

CONTRACTOR

hereby approves of the final payment to the contractor, and agrees that final payment to the contractor shall not relieve the surety company of any of its obligations to (here insert name and address of owner)

OWNER

as set forth in said surety company's bond.

IN WITNESS WHEREOF,  
the surety company has hereunto set its hand this      day of 20

\_\_\_\_\_  
Surety Company

\_\_\_\_\_  
Signature of Authorized  
Representative

Attest:

\_\_\_\_\_  
Title

(Visible Seal):



**ROOF MANUFACTURER'S ACKNOWLEDGMENT**

Owner: UNC Charlotte

Project Name: Roof Replacements - Multiple Bldgs. (Robinson and Grounds Bldgs.)

Project Address: 9027 Mary Alexander Rd., Charlotte, North Carolina 28223

Roofing Contractor: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated June 12, 2023, the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions to the Engineer through the contractor before five (5) days of the bid due date or as otherwise outlined in the Instructions to Bidders, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

\_\_\_\_\_  
Print or type name of manufacturer's designated Liaison on this project

\_\_\_\_\_  
Telephone and Email

\_\_\_\_\_  
Roof Manufacturer's Company Name

\_\_\_\_\_  
Roof Manufacturer Representative's Signature      Date

\_\_\_\_\_  
Roof Manufacturer Representative's Name      Title

\_\_\_\_\_  
Roof Manufacturer's Address

**END OF SECTION**

**CONTRACTORS GUARANTEE**

Know all men by these presents, that we, (Contractor) \_\_\_\_\_, having installed roofing system, flashings and sheet metal on the Roof Replacements - Multiple Bldgs. (Robinson and Grounds Bldgs.) under contract between UNC Charlotte (Owner) and Contractor, unconditionally guarantee materials and workmanship against patent defects arising from faulty materials, faulty workmanship or negligence for a period of 12 months following the date of final acceptance of the work which occurred on \_\_\_\_\_, 20\_\_\_\_; and shall replace such defective materials or workmanship without cost to the Owner. Where items of equipment or material carry a manufacturer's warranty for any period in excess of 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. 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 final acceptance, whichever occurred first, in accordance with the applicable law.

We, Contractor, warrant the materials and workmanship of the roofing system, flashings and sheet metal against leakage and defects due to faulty materials, workmanship and contract negligence for a period of 24 months following the date of final acceptance of the work.

We, Contractor, agree that should any leakage occur in the work we will perform emergency repairs within 24 hours' notice and perform permanent repairs promptly in a manner to restore the work to a watertight condition by methods compatible to the system, acceptable under industry standards and general practice, and acceptable to the Manufacturer, all at no expense to the Owner. We, Contractor, further agree that for the period specified below, we will make repairs at no expense to the Owner to defects which may develop in the work in a manner compatible to the system, acceptable under industry standards and general practice as established by the Engineer and acceptable to the Manufacturer.

We, Contractor, agree to attend one post construction field inspection no earlier than one month prior to the Guarantee expiration date and to complete corrective actions requested by Owner, Engineer, or Manufacturer at no additional cost to the Owner.

Signature: \_\_\_\_\_ Title: \_\_\_\_\_

\_\_\_\_\_(State), County of \_\_\_\_\_

I, \_\_\_\_\_, a Notary Public for \_\_\_\_\_ County, \_\_\_\_\_ (State), do hereby certify that \_\_\_\_\_ personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public (OFFICIAL SEAL)

My commission expires \_\_\_\_\_, 20\_\_\_\_.

**END OF SECTION**