

PROJECT MANUAL FOR:

# NEW THREE-BAY SALT STORAGE BUILDING, CHEROKEE COUNTY

MURPHY, NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

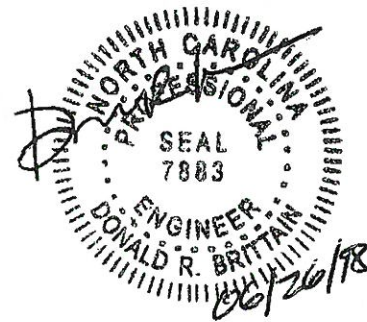
HIGHWAY DIVISION 14

SCO ID# 16-16175-01A



Architect :

FACILITIES DESIGN  
GENERAL SERVICES DIVISION, NCDOT  
1 SOUTH WILMINGTON STREET  
RALEIGH, NORTH CAROLINA 27601



JULY 13, 2018

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



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# STATE OF NORTH CAROLINA STANDARD FORM OF INFORMAL CONTRACT AND GENERAL CONDITIONS FOR

North Carolina Department of Transportation, Division of Highways  
Three-Bay Salt Storage Building, Cherokee County  
SCO ID# - 16-16175-01A

## SCOPE OF WORK

The successful bidder will be responsible for construction of a three-bay salt storage facility. The building is constructed of cast in place concrete walls bearing on a shallow concrete foundation, with wood truss roof. There is no plumbing or mechanical work included in this project. Electrical work is included in this contract.

## NOTICE TO BIDDERS

Sealed bids for this work will be received by: Jeffrey Alspaugh  
Highway Division 14  
253 Webster Road  
Sylva, NC 28779  
828-586-2141

up to **2:00 PM**, on **Tuesday, August 14, 2018** and immediately thereafter publicly opened and read aloud. A **MANDATORY** pre-bid meeting will be held for all interested bidders at **10:00 AM**, on **Tuesday, July 31, 2018** at the site. The site address is: 65 Folk Center Circle, Murphy, NC 28906 (GPS: +35.027617, -84.156855).

Plans and project manual will not be distributed in paper format. Complete plans and project manual can be obtained from the following web address: <https://connect.ncdot.gov/letting/Pages/Division14Letting.aspx>. All questions during the bid are to be directed to Michael Mountcastle via email to [mdmountcastle@ncdot.gov](mailto:mdmountcastle@ncdot.gov). All documentation during the bid period, will be posted on the web site. It is the responsibility of all participating in the bid to check the web site at intervals for addenda, list of registered general contractors, etc. The list of general contractors attending the pre-bid will be posted on the web site after the pre-bid meeting. Digital documents will be forwarded to the Associated General Contractors, Carolinas Branch, Charlotte, the local North Carolina offices of McGraw-Hill Dodge Corporation, and the Eastern Regional Office of Reed Construction Data in Norcross, GA, and to the following Minority Plan Rooms:

1. Hispanic Contractors Association of the Carolinas in the Winston-Salem, Charlotte, and Raleigh Areas (877-227-1680).
2. Cherokee Business Development Center, 810 Acquoni Road, Cherokee, NC 28719 (828-497-1665).

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

Contractors are hereby notified that they must have proper license under the State laws governing their respective trades and that North Carolina General Statute 87 will be observed in receiving and awarding contracts. General Contractors must have general license classification, at minimum, for Building-Limited.

A bid bond is not required. Performance and payment bonds and insurance must be provided by the contractor. No bid may be withdrawn after the opening of bids for a period of 30 days. The Owner reserves the right to reject any or all bids and waive informalities. Proposals shall be made only on the form provided herein with all blank spaces for bids properly filled in and all signatures properly executed.

Please note on the envelope – Bid Proposal: Attn: Jeffrey Alspaugh  
(Project Name)  
(Bid Date)  
(Contractor)  
(License Number)

# GENERAL CONDITIONS

## 1. GENERAL

It is understood and agreed that by submitting a bid that the Contractor has examined these contract documents, drawings and specifications and has visited the site of the Work, and has satisfied himself relative to the Work to be performed.

## 2. DEFINITIONS

**Owner:** "Owner" shall mean, The State of North Carolina through NC Department of Transportation.

**Contractor:** "Contractor" shall mean the entity that will provide the services for the Owner.

**Designer:** 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 responsible for preparing the project plans and specifications. They will be referred to hereinafter as if each were of the singular number, masculine gender.

**Contract Documents:** "Contract Documents" shall consist of the Notice to Bidders; General Conditions of the Contract; special conditions if applicable; Supplementary General Conditions; the drawing and specifications, including all bulletins, addenda or other modifications of the drawings and specifications incorporated into the documents prior to their execution; the bid; the contract; the performance bond if applicable; and insurance certificates. All of these items together form the contract.

## 3. INTENT AND EXECUTION OF DOCUMENTS

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 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. In such cases where the nature of the work requires clarification by the Designer/ Owner, the Designer/ Owner shall furnish such clarification. Clarifications and drawings shall be consistent with the intent of the Contract Documents, and shall become a part thereof.

## 4. AS-BUILT MARKED-UP CONSTRUCTION DOCUMENTS

Contractor shall provide one complete set of legible "as-built" marked-up construction drawings and specifications recording any and all changes made to the original design during the course of construction. In the event no changes occurred, submit construction drawings and specifications set with notation "No Changes." The Designer/Owner must receive "As-built" marked-up construction drawings and specifications before the final pay request can be processed.

## 5. SUBMITTAL DATA

The Contractor awarded the contract shall submit all specified submittals to the Owner/Designer. A minimum number of copies as specified by the owner, of all required submittal data pertaining to construction, performance and general dimensional criteria of the components listed in the technical specifications shall be submitted. No material or equipment shall be ordered or installed prior to written approval of the submittals by the Designer/Owner. Failure to provide submittal data for review on equipment listed in the technical specifications will result in removal of equipment by the Contractor at his expense if the equipment is not in compliance with the specifications.

## 6. 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 five (5) days prior to the receipt of bids or by the date specified in the pre bid conference, 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.

## **7. WORKING DRAWINGS AND SPECIFICATIONS AT THE JOB SITE**

The contractor shall maintain, in readable condition at his job site 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 owner, designer or his authorized representative.

The contractor shall maintain at the job site, 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 acceptance of the project.

## **8. MATERIALS, EQUIPMENT, EMPLOYEES**

- a. The contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, 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; the designer prior to the opening of bids shall make such approval or disapproval. Alternate materials may be requested after the award if it can clearly be demonstrated that it is an added benefit to the owner and the designer and owner approves.
- e. The designer is the judge of equality for proposed substitution of products, materials or equipment.

- 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 to the owner or designer, or if any workman be considered detrimental to the work, the contractor shall order such parties removed immediately from grounds.
- g. The Contractor shall cooperate with the designer and the owner in coordinating construction activities.
- h. The Contractor shall maintain qualified personnel and effective supervision at the site at all times during the project, and exercise the appropriate quality control program to ensure compliance with the project drawings and specifications. The designer is responsible for determining compliance with the drawings and specifications.

## **9. CODES, PERMITS AND INSPECTIONS**

The Contractor shall obtain the required permits, if required, 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. 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 Owner, he shall bear all cost arising there from.

All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable.

Projects constructed by the State of North Carolina or by any agency or institution of the State are not subject to county or municipal building codes and may\* not be subject to inspection by county or municipal authorities. Where appropriate, the Contractor shall, cooperate with the county or municipal authorities by obtaining building permits. The contractor at no cost may obtain permits to the owner.

All fire alarm work shall be in accordance with the latest State Construction Office (SCO) *Guidelines for Fire Alarm Installation* (NFPA72). Where the contract documents are in conflict with the SCO guidelines, the SCO guidelines shall govern. The Contractor shall be responsible for all the costs for the correction of the work where he installs it in conflict with the latest edition of the SCO *Guidelines for Fire Alarm Installation*..

## **10. PROTECTION OF WORK, PROPERTY, THE PUBLIC AND SAFETY**

- 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, except as indicated in the Supplemental General Conditions.
- 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 it. 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. 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 13(b).
- h. Any and all costs associated with correcting damage caused to adjacent properties of the construction site or staging area shall be borne by the contractor. These costs shall include but not be limited to flooding, mud, sand, stone, debris, and discharging of waste products.

## **11. SUBCONTRACTS AND SUBCONTRACTORS**

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.

## **12. CONTRACTOR-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. The Owner reserves the right to limit the amount of portions of work to be subcontracted as hereinafter specified.

## **13. CHANGES IN THE WORK AND CLAIMS FOR EXTRA COST**

- a. The owner may have changes made in the work covered by the contract. These changes will not invalidate and will not relieve or release the contractor from any guarantee given by him pertinent to the contract provisions. These changes will not affect the validity of the guarantee bond and will not relieve the surety or sureties of said bond. All extra work shall be executed under conditions of the original contract.
- b. Except in an emergency endangering life or property, no change shall be made by the contractor except upon receipt of approved change order from the designer, countersigned by the owner authorizing such change. No claim for adjustments of the contract price shall be valid unless this procedure is followed. Should a claim for extra compensation by the contractor be denied by the designer or the owner, the contractor may pursue his claim in accordance with G.S. 143-135.3.

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

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

1. Where the extra work involved is covered by unit prices quoted in the proposal, or subsequently agreed to by the Contractor, Designer, Owner and State Construction Office the value of the change shall be computed by application of unit prices based on quantities, estimated or actual as agreed of the items involved, except in such cases where a quantity exceeds the estimated quantity allowance in the contract by one hundred percent (100%) or more. In such cases, either party may elect to proceed under subparagraph c (2) herein. If neither party elects to proceed under c (2), then unit prices shall apply.
  2. The contracting parties shall negotiate and agree upon the equitable value of the change prior to issuance of the change order, and the change order shall stipulate the corresponding lump sum adjustment to the contract price.
- d. Under Paragraph "b" and Methods "c(2)" above, the allowances for overhead and profit combined shall be as follows: all contractors (the single contracting entity (prime), his subcontractors (1<sup>st</sup> tier subs), or their sub-subcontractors (2<sup>nd</sup> tier subs, 3<sup>rd</sup> tier subs, etc.) shall be allowed a maximum of 10% on work they each self-perform; the prime contractor shall be allowed a maximum of 5% on contracted work of his 1<sup>st</sup> tier sub; 1<sup>st</sup> tier, 2<sup>nd</sup> tier, 3<sup>rd</sup> tier, etc. contractors shall be allowed a maximum of 2.5% on the contracted work of their subs. ; Under Method "c(1)", no additional allowances shall be made for overhead and profit. In the case of deductible change orders, under Method "c(2)" and Paragraph (b) above, the contractor shall include no less than five percent (5%) profit, but no allowances for overhead.
- e. The term "net cost" as used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein shall be limited to the following:
1. The actual costs of materials and supplies incorporated or consumed as part of the work;
  2. The actual costs of labor expended on the project site; labor expended in coordination, change order negotiation, record document maintenance, shop drawing revision or other tasks necessary to the administration of the project are considered overhead whether they take place in an office or on the project site.
  3. The actual costs of labor burden, limited to the costs of social security (FICA) and Medicare/Medicaid taxes; unemployment insurance costs; health/dental/vision insurance premiums; paid employee leave for holidays, vacation, sick leave, and/or petty leave, not to exceed a total of 30 days per year; retirement contributions; worker's compensation insurance premiums; and the costs of general liability insurance when premiums are computed based on payroll amounts; the total of which shall not exceed thirty percent (30%) of the actual costs of labor;
  4. The actual costs of rental for tools, excluding hand tools; equipment; machinery; and temporary facilities required for the work;
  5. The actual costs of premiums for bonds, insurance, permit fees and sales or use taxes related to the work.
- Overtime and extra pay for holidays and weekends may be a cost item only to the extent approved by the owner.
- f. Should concealed conditions be encountered in the performance of the work below grade, or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the contract documents, the contract sum and time for completion may be equitably adjusted by change order upon claim by either party made within thirty (30) days after the condition has been identified. The cost of such change shall be arrived at by one of the foregoing methods. All change orders shall be supported by a unit cost breakdown showing method of arriving at net cost as defined above.
- g. Change orders shall be submitted by the contractor in writing to the owner/designer for review and approval. The contractor will provide such proposal and supporting data in suitable format. The designer shall verify correctness. Delay in the processing of the change order due to lack of proper

submittal by the contractor of all required supporting data shall not constitute grounds for a time extension or basis of a claim. Within fourteen (14) days after receipt of the contractor's accepted proposal including all supporting documentation required by the designer, the designer shall prepare the change order and forward to the contractor for his signature or otherwise respond, in writing, to the contractor's proposal. Within seven (7) days after receipt of the change order executed by the contractor, the designer shall, certify the change order by his signature, and forward the change order and all supporting data to the owner for the owner's signature. The owner shall execute the change order, within seven (7) days of receipt.

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."

- h. A change order, when issued, shall be full compensation, or credit, for the work included, omitted or substituted. It shall show on its face the adjustment in time for completion of the project as a result of the change in the work.
- i. 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 cost together with all proper invoices, payrolls and supporting data. Upon completion of the work a change order will be prepared with allowances for overhead and profit per paragraph d. above and "net cost" and "cost" per paragraph e. above. Without prejudice, nothing in this paragraph shall preclude the owner from performing or to have performed that portion of the work requested in the change order.

#### **14. 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 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 (if applicable) 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 contractor, or the surety (if applicable) 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 (if applicable). 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 (if applicable) 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 (if applicable) shall be liable and shall pay to the owner the amount of said excess.

#### **15. TERMINATION FOR CONVENIENCE**

- a. Owner may at any time and for any reason terminate Contractor's services and work at Owner's convenience, after notification to the contractor in writing via certified mail. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement.
- b. Upon such termination, Contractor shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement; plus, (2) such other costs actually incurred by Contractor as approved by Owner; (3) plus ten percent (10%) of the cost of the balance of the work to be completed for overhead and profit. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Contractor prior to the date of the termination of this Agreement. Contractor shall not be entitled to any claim or claim of lien against Owner for any additional compensation or damages in the event of such termination and payment.

## 16. 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.

## 17. REQUESTS FOR PAYMENT

Contractor shall refer to the Supplemental General Conditions for specific directions on payment schedule, procedures and the name and address where to send applications for payments for this project. It is imperative that invoices be sent only to the above address in order to assure proper and timely delivery and handling.

The Designer/Owner will process all Contractor pay requests as the project progresses. The Contractor shall receive payment within thirty (30) consecutive days after Designer/Owner's approval of each pay request. Payment will only be made for work performed as determined by the Designer/Owner.

Retainage:

- a. Retainage withheld will not exceed 5% at any time.
- b. The same terms apply to general contractor and subcontractors alike.
- c. Following 50% completion of the project no further retainage will be withheld if the contractor/subcontractor has performed their work satisfactorily.
- d. Exceptions:
  1. Owner/Contractor can reinstate retainage if the contractor/subcontractor does not continue to perform satisfactorily.
  2. Following 50% completion of the project, the owner is authorized to withhold additional retainage from a subsequent periodic payment if the amount of retainage withheld falls below 2.5%.

Final payment will be made within forty-five (45) consecutive days after acceptance of the work, receipt of marked-up "as-built" drawings and specifications and the submission both of notarized Contractor's affidavit and final pay request. All pay requests shall be submitted to the Designer/Owner for approval.

**THE CONTRACTOR'S FINAL PAYMENT AFFIDAVIT SHALL STATE:** "THIS IS TO CERTIFY THAT ALL COSTS OF MATERIALS, EQUIPMENT, LABOR, SUBCONTRACTED WORK, AND ALL ELSE ENTERING INTO THE ACCOMPLISHMENT OF THIS CONTRACT, INCLUDING PAYROLLS, HAVE BEEN PAID IN FULL."

## 18. PAYMENTS WITHHELD

The designer with the approval of the Owner may withhold payment for the following reasons:

- a. Faulty work not corrected.

- b. The unpaid balance on the contract is insufficient to complete the work in the judgment of the designer.
- c. To provide for sufficient contract balance to cover liquidated damages that will be assessed.
- d. The secretary of the Department of Administration may authorize the withholding of payment for the following reasons:
  - i. Claims filed against the contractor or evidence that a claim will be filed.
  - ii. Evidence that subcontractors have not been paid.

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 as provided in 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.

**19. MINIMUM INSURANCE REQUIREMENTS**

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

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

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

b. **Public Liability and Property Damage**

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

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

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

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

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

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

contractor shall effect and maintain similar property insurance on portions of the work stored off the site when request for payment per articles so includes such portions.

d. **Deductible**

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

e. **Other Insurance**

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

f. **Proof of Carriage**

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

## **20. ASSIGNMENT**

No assignment of the Contractor's obligations or the Contractor's right to receive payment hereunder shall be permitted. However, upon written request approved by the Owner and solely as a convenience to the Contractor, the Owner may: (1) forward the Contractor's payment check directly to any person or entity designated by the Contractor, and (2) include any person or entity designated by Contractor as a joint payee on the Contractor's payment check. In no event shall such approval and action obligate the Owner to anyone other than the Contractor, and the Contractor shall remain responsible for fulfillment of all contract obligations.

## **21. CLEANING UP AND RESTORATION OF SITE**

The Contractor shall keep the sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the project, the Contractor shall thoroughly clean the sites, and completely prepare the project and site for use by the Owner.

At the end of construction, the contractor shall oversee and implement the restoration of the construction site to its original state. Restoration includes but not limited to walks, drives, lawns, trees and shrubs, corridors, stairs and other elements shall be repaired, cleaned or otherwise restored to their original state.

## **22. GUARANTEE**

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 final acceptance of the work 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 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.

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.

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

## **23. STANDARDS**

All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate State inspector which customarily requires the label or re-examination listing or identification marking of appropriate safety standard organization, such as the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and/or National Electrical Manufacturers Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type of device offered and furnished. Further, all items furnished shall meet all requirements of the Occupational Safety and Health Act (OSHA), and State and federal requirements relating to clean air and water pollution. **All equipment and products must be independent third party tested and labeled (UL, FM, or CTS) before final connections to Owner services or utilities.**

## 24. TAXES

- a. Federal excise taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3442(3)).
- b. Federal transportation taxes do not apply to materials entering into state work (Internal Revenue Code, Section 3475(b) as amended).
- c. North Carolina sales tax and use tax, as required by law, do apply to materials entering into state work and such costs shall be included in the bid proposal and contract sum.
- d. Local option sales and use taxes, as required by law, do apply to materials entering into state work as applicable and such costs shall be included in the bid proposal and contract sum.
- e. **Accounting Procedures for Refund of County Sales & Use Tax**

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

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

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

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

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

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

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

Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant.

Contractors are not to include any tax paid on supplies, tools and equipment which they use to perform their contracts and should include only those building materials, supplies, fixtures and equipment which actually become a part of or annexed to the building or structure.

**25. 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.

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

**26. 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.

For construction contracts with a value of less than \$300,000, the Owner has the responsibility to make a good faith effort to solicit minority bids and to attain the goal. The contractor shall include with his bid a completed Identification of HUB Certified/Minority Business Participation form. Contractor shall submit completed Appendix E MBE Documentation for Contract Payments form with final payment request.

**27. ACCESS TO PERSONS AND RECORDS**

The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by the Owner in accordance with General Statute 147-64.7. 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 Owner and/or its project representatives.

**28. GOVERNING LAWS**

This contract is made under and shall be governed by and construed in accordance with the laws of the State of North Carolina. The Contractor shall comply with all applicable federal, State and local laws, statutes, ordinances and regulations including, but not limited to, the Omnibus Transportation Act of 1991 and its implementing regulations.

**29. 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 projects. In addition to final evaluation, an interim evaluation may be prepared during the progress of project. The owner may request the contractor's comments to evaluate the designer.



# SUPPLEMENTARY GENERAL CONDITIONS

## TIME OF COMPLETION

The Contractor shall commence work to be performed under this Contract on a date to be specified in written order from the Designer and shall fully complete all work hereunder within (133) consecutive calendar days from the Notice to Proceed for base bid contract. For each day in excess of the above number of days, the Contractor shall pay the Owner the amount of two-hundred dollars (\$200) as liquidated damages reasonably estimated in advance to cover the losses to be incurred by the Owner should the Contractor fail to complete the Work within the time specified.

If the Contractor is delayed at any time in the progress of his work by any act or negligence of the Owner, his employees or his separate contractor, by changes ordered in the work; by abnormal weather conditions; by any causes beyond the Contractor's control or by other causes deemed justifiable by Owner, then the contract time may be reasonably extended in a written order from the Owner upon written request from the contractor within ten days following the cause for delay. Time extensions for weather delays, acts of God, labor disputes, fire, delays in transportation, unavoidable casualties or other delays which are beyond the control of the Owner do not entitle the Contractor to compensable damages for delays. Any contractor claim for compensable damages for delays is limited to delays caused solely by the owner or its agents.

## PAYMENTS

Monthly applications for payment may be made using standard AIA forms. See also Section 01 2000.

## ROOFING GUARANTEE

The following paragraph is hereby added and shall become a part of the Guarantee of the General Conditions of the Contract. The substitution of an equal or longer term manufacturer's warranty in lieu of this requirement will not be accepted.

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 acceptance of the project by the Owner."

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 ten (10) years following acceptance of the project by the Owner.

## UTILITIES

Water and electrical service are available at the site for the Contractor's use. The Contractor will be responsible for providing on-site toilet facilities.

## USE OF SITE

The county maintenance yard is typically open from 7:00 A.M. to 3:30 P.M., Monday through Friday. The yard may be available if requested by the contractor, as permitted by the Owner.

## PERFORMANCE AND PAYMENT BONDS

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** (Forms 307 & 308). An authorized agent of the bonding company who is licensed to do business in North Carolina shall countersign all bonds.

## MINORITY BUSINESS PARTICIPATION

The state-wide goal is 10% participation by HUB certified subcontractors. Certified contractors may be found at [www.doa.nc.gov](http://www.doa.nc.gov).



**SECTION 01 2000**  
**PRICE AND PAYMENT PROCEDURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Procedures for preparation and submittal of applications for progress payments.

**1.02 SCHEDULE OF VALUES**

- A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
- B. Forms filled out by hand will not be accepted.
- C. Submit Schedule of Values via email within 20 days after date established in Notice to Proceed.
- D. Revise schedule to list approved Change Orders, with each Application For Payment.

**1.03 APPLICATIONS FOR PROGRESS PAYMENTS**

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Execute certification by signature of authorized officer.
- E. Submit one copy of each Application for Payment.
- F. Include the following with the application:
  - 1. Affidavits attesting to off-site stored products.
- G. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

**1.04 APPLICATION FOR FINAL PAYMENT**

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
  - 1. All closeout procedures specified in Section 01 7000.

**END OF SECTION**

**SECTION 01 3000**  
**ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Construction progress schedule.
- D. Coordination drawings.
- E. Submittals for review, information, and project closeout.
- F. Number of copies of submittals.
- G. Submittal procedures.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PRECONSTRUCTION MEETING**

- A. Architect will schedule a meeting after Notice of Award.
- B. Attendance Required:
  - 1. Owner.
  - 2. Architect.
  - 3. Contractor.

**3.02 PROGRESS MEETINGS**

- A. Architect will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- B. Attendance Required:
  - 1. Contractor.
  - 2. Owner.
  - 3. Architect.
  - 4. Contractor's Superintendent.
  - 5. Major Subcontractors.

**3.03 CONSTRUCTION PROGRESS SCHEDULE**

- A. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- B. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
- C. Within 10 days after joint review, submit complete schedule.

**3.04 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product data.
  - 2. Shop drawings.
  - 3. Samples for selection.
  - 4. Samples for verification.
- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

### **3.05 SUBMITTALS FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

### **3.06 SUBMITTALS FOR PROJECT CLOSEOUT**

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout:
  - 1. Project record documents.
  - 2. Operation and maintenance data.
  - 3. Warranties.
  - 4. Bonds.
  - 5. Other types as indicated.
- D. Submit for Owner's benefit during and after project completion.

### **3.07 NUMBER OF COPIES OF SUBMITTALS**

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
  - 1. After review, produce duplicates.
  - 2. Retained samples will not be returned to Contractor unless specifically so stated.

### **3.08 SUBMITTAL PROCEDURES**

- A. Shop Drawing Procedures:
  - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
  - 2. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and coordinate submission of related items.
- F. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- G. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- H. Provide space for Contractor and Architect review stamps.
- I. When revised for resubmission, identify all changes made since previous submission.

- J. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- K. Submittals not requested will not be recognized or processed.

**END OF SECTION**

**SECTION 01 4000**  
**QUALITY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Control of installation.
- B. Tolerances.
- C. Defect Assessment.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 3000 - Administrative Requirements: Submittal procedures.

**PART 3 EXECUTION**

**2.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

**2.02 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

**2.03 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not conforming to specified requirements.

**END OF SECTION**

**SECTION 01 6000**  
**PRODUCT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations and procedures.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 4000 - Quality Requirements: Product quality monitoring.

**1.03 SUBMITTALS**

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

**PART 2 PRODUCTS**

**2.01 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by the Contract Documents.

**2.02 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

**PART 3 EXECUTION**

**3.01 SUBSTITUTION PROCEDURES**

- A. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- B. A request for substitution constitutes a representation that the submitter:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Agrees to provide the same warranty for the substitution as for the specified product.
  - 3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension that may subsequently become apparent.

**3.02 TRANSPORTATION AND HANDLING**

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.



- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.03 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

**SECTION 01 7000**  
**EXECUTION AND CLOSEOUT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Cutting and patching.
- C. Surveying for laying out the work.
- D. Cleaning and protection.
- E. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

**1.02 QUALIFICATIONS**

- A. For survey work, employ a land surveyor registered in North Carolina and acceptable to Architect. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.
- B. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in North Carolina.

**1.03 PROJECT CONDITIONS**

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
  - 1. Minimize amount of bare soil exposed at one time.
  - 2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
  - 3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
  - 4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

**1.04 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate completion and clean-up of work of separate sections.

**PART 2 PRODUCTS**

**2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 LAYING OUT THE WORK**

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.
- C. Contractor is responsible for building layout and elevations. Building location is to be coordinated with Owner on site.
- D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- E. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
- G. Utilize recognized engineering survey practices.
- H. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, ground floor elevations.
- I. Periodically verify layouts by same means.
- J. Maintain a complete and accurate log of control and survey work as it progresses.

### **3.04 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.05 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.
  - 3. Provide openings for penetration of mechanical, electrical, and other services.
  - 4. Match work that has been cut to adjacent work.
  - 5. Repair areas adjacent to cuts to required condition.
  - 6. Repair new work damaged by subsequent work.
  - 7. Remove samples of installed work for testing when requested.
  - 8. Remove and replace defective and non-conforming work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Patching:
  - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  - 2. Match color, texture, and appearance.
  - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.06 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

### **3.08 FINAL CLEANING**

- A. Execute final cleaning prior to final project assessment.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Clean filters of operating equipment.
- G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.
- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.09 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
  - 1. Provide copies to Architect.
- B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Architect when work is considered ready for Architect's final inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's final inspection.
- E. Conduct Architect's final inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- G. Notify Architect when work is considered finally complete and ready for Architect and State Construction Office final inspection.
- H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

**END OF SECTION**

**SECTION 01 7800  
CLOSEOUT SUBMITTALS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Project Record Documents.
- B. Warranties and bonds.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Product Sections: Warranties required for specific products or Work.

**1.03 SUBMITTALS**

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Warranties and Bonds:
  - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
  - 2. Make other submittals within 10 days after Date of final acceptance, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of final acceptance, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Addenda.
  - 3. Change Orders and other modifications to the Contract.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Record Drawings : Legibly mark each item to record actual construction including:
  - 1. Field changes of dimension and detail.
  - 2. Details not on original Contract drawings.

**3.02 WARRANTIES AND BONDS**

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Final Acceptance is determined.
- B. Warranty periods do not begin at installation or substantial completion. Warranty periods begin at the date of Final Acceptance by the NC Office of State Construction.
- C. Verify that documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Retain warranties and bonds until time specified for submittal.
- F. All warranties shall be governed by the laws of North Carolina.

- G. The minimum monetary limit on expenditures required to repair the roofing system shall be the Owner's original cost of materials and installation. The limit may be prorated over the warranty period.

**END OF SECTION**

**SECTION 03 3000**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete formwork.
- B. Floors and slabs on grade.
- C. Concrete retaining walls.
- D. Concrete reinforcement.
- E. Joint devices associated with concrete work.
- F. Concrete curing.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 9200 - Joint Sealants: Products and installation for sealants for saw cut joints and isolation joints in slabs.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010.
- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).
- C. ACI 301 - Specifications for Structural Concrete; 2010 (Errata 2012).
- D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; 2004 (Errata 2007).
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.
- F. ACI 305R - Hot Weather Concreting; 2010.
- G. ACI 306R - Cold Weather Concreting; 2010.
- H. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).
- I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2011.
- J. ACI 347R - Guide to Formwork for Concrete; 2014.
- K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2015.
- L. ASTM A775/A775M - Standard Specification for Epoxy-Coated Steel Reinforcing Bars; 2007b (Reapproved 2014).
- M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2015a.
- N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.
- O. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2012.
- P. ASTM C150/C150M - Standard Specification for Portland Cement; 2016.
- Q. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.
- R. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.
- S. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2015.
- T. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2014.
- U. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).



- V. ASTM D3963/D3963M - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Reinforcing Steel Bars; 2001 (Reapproved 2007).

#### **1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- C. Mix Design: Submit proposed concrete mix design.
  - 1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
  - 2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
- D. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

#### **1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

### **PART 2 PRODUCTS**

#### **2.01 FORMWORK**

- A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
  - 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
  - 2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
  - 3. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.
  - 4. Plywood forms with deformation or delamination of the wood plies is not acceptable.
  - 5. Any foreign material present when the forms are removed must be cleaned from the concrete prior to placement of waterproofing or paint.

#### **2.02 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
  - 1. Type: Deformed billet-steel bars.
  - 2. Finish: Unfinished, unless otherwise indicated.
  - 3. Finish: Epoxy coated in accordance with ASTM A775/A775M, unless otherwise indicated.
- B. Reinforcement Accessories:
  - 1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
  - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

#### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
  - 1. Acquire all cement for entire project from same source.
- B. Fine and Coarse Aggregates: ASTM C 33.
  - 1. Acquire all aggregates for entire project from same source.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Water: Clean and not detrimental to concrete.

## **2.04 ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.
- C. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
- D. Water Reducing Admixture: ASTM C494/C494M Type A.

## **2.05 BONDING AND JOINTING PRODUCTS**

- A. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
  - 1. Material: ASTM D1751, cellulose fiber.

## **2.06 CURING MATERIALS**

- A. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.

## **2.07 CONCRETE MIX DESIGN**

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
  - 1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.
- C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- D. Normal Weight Concrete:
  - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
  - 2. Fly Ash Content: Maximum 20 percent of cementitious materials by weight.

## **2.08 MIXING**

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
- B. Transit Mixers: Comply with ASTM C94/C94M.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

### **3.02 PREPARATION**

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

### **3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS**

- A. Fabricate and handle epoxy-coated reinforcing in accordance with ASTM D3963/D3963M.
- B. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

### **3.04 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Architect not less than 24 hours prior to commencement of placement operations.
- D. Ensure reinforcement, inserts, waterstops, and embedded parts will not be disturbed during concrete placement.
- E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

### **3.05 SLAB JOINTING**

- A. Locate joints as indicated on the drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
- D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

### **3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES**

- A. Maximum Variation of Surface Flatness:
  - 1. Exposed Concrete Floors: 1/4 inch in 10 feet.
- B. Correct the slab surface if tolerances are less than specified.
- C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

### **3.07 CONCRETE FINISHING**

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  - 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- C. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
  - 1. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

### **3.08 CURING AND PROTECTION**

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
  - 1. Normal concrete: Not less than 7 days.
- C. Surfaces Not in Contact with Forms:
  - 1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
  - 2. Final Curing: Begin after initial curing but before surface is dry.
    - a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

### **3.09 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- E. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cubic yards or less of each class of concrete placed.
- F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

### **3.10 DEFECTIVE CONCRETE**

- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

### **3.11 PROTECTION**

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**

**SECTION 06 1000  
ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Structural dimension lumber framing.
- B. Sheathing.
- C. Preservative treated wood materials.
- D. Miscellaneous framing and sheathing.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-in-Place Concrete: Setting anchors in concrete.
- B. Section 06 1753 - Shop-Fabricated Wood Trusses.
- C. Section 06 1800 - Glued-Laminated Construction.

**1.03 REFERENCE STANDARDS**

- A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2012.
- B. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.
- C. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; 2010.
- D. PS 20 - American Softwood Lumber Standard; 2010.
- E. SPIB (GR) - Grading Rules; 2014.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

**1.06 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
  - 1. Species: Spruce-Pine-Fir (South), unless otherwise indicated.
  - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
  - 3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee ([www.alsc.org](http://www.alsc.org)) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
  - 4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

**2.02 DIMENSION LUMBER**

- A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Stud Framing (2 by 2 through 2 by 6 ):
  - 1. Grade: No. 2.

- E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16 ):
  - 1. Grade: No. 2.

## **2.03 CONSTRUCTION PANELS**

- A. Roof Sheathing: Oriented strand board wood structural panel; PS 2.
  - 1. Grade: Sheathing.
  - 2. Bond Classification: Exposure 1.
  - 3. Performance Category: 5/8 PERF CAT.
  - 4. Span Rating: 40/20.
  - 5. Edges: Square.
- B. Roof Sheathing: Oriented strand board structural wood panel, PS 2, with factory laminated roofing underlayment layer.
  - 1. Sheathing Panel:
    - a. Grade: Sheathing.
    - b. Performance Category: 5/8 PERF CAT.
    - c. Span Rating: 40/20.
  - 2. Integral Roofing Underlayment Layer: Medium density, phenolic impregnated kraft paper overlay.
  - 3. Seam Tape: Manufacturer's standard pressure-sensitive, self-adhering, cold-applied seam tape consisting of polyolefin film with acrylic adhesive.
  - 4. Warranty: Manufacturer's standard 30 year limited system warranty of:
    - a. Performance: Panel and tape resistance to water penetration; tape adhesion.
    - b. Material: Free from manufacturing defects and panel delamination.
- C. Wall Sheathing: Any PS 2 type.
  - 1. Bond Classification: Exterior.
  - 2. Grade: Sheathing.
  - 3. Span Rating: 24.
  - 4. Performance Category: 7/16 PERF CAT.
  - 5. Edge Profile: Square edge.

## **2.04 ACCESSORIES**

- A. Water-Resistive Barrier: Plastic sheet complying with ICC-ES AC38.

## **2.05 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
  - 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.
- B. Preservative Treatment:
  - 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
    - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    - b. Treat lumber exposed to weather.
    - c. Treat lumber in contact with concrete.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Coordinate installation of rough carpentry members specified in other sections.

### **3.02 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.

- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.03 FRAMING INSTALLATION**

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA (WFCM) Wood Frame Construction Manual.
- E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

### **3.04 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

### **3.05 ROOF-RELATED CARPENTRY**

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

### **3.06 INSTALLATION OF CONSTRUCTION PANELS**

- A. Subflooring/Underlayment Combination: Glue and nail to framing; staples are not permitted.
- B. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
  - 1. At long edges use sheathing clips where joints occur between roof framing members.
  - 2. Nail panels to framing; staples are not permitted.
- C. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
  - 1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

### **3.07 TOLERANCES**

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

**END OF SECTION**

**SECTION 06 1753**  
**SHOP-FABRICATED WOOD TRUSSES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop fabricated wood trusses for roof framing.
- B. Bridging, bracing, and anchorage.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Installation requirements for miscellaneous framing.
- B. Section 06 1000 - Rough Carpentry: Material requirements for blocking, bridging, plates, and miscellaneous framing.

**1.03 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. SPIB (GR) - Grading Rules; 2014.
- C. TPI 1 - National Design Standard for Metal-Plate-Connected Wood Truss Construction; 2007 and errata.
- D. TPI DSB-89 - Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses; 1989.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on plate connectors, bearing plates, and metal bracing components.
- C. Shop Drawings: Show truss configurations, sizes, spacing, size and type of plate connectors, cambers, framed openings, bearing and anchor details, and bridging and bracing.
  - 1. Include identification of engineering software used for design.
  - 2. Provide shop drawings stamped or sealed by design engineer.

**1.05 QUALITY ASSURANCE**

- A. Designer Qualifications: Perform design by or under direct supervision of a Professional Engineer experienced in design of this Work and licensed in North Carolina.
- B. Fabricator Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Handle and erect trusses in accordance with TPI BCSI 1.
- B. Store trusses in vertical position resting on bearing ends.

**PART 2 PRODUCTS**

**2.01 TRUSSES**

- A. Wood Trusses: Designed and fabricated in accordance with TPI 1 and TPI DSB-89 to achieve structural requirements indicated.
  - 1. Species and Grade: Southern Pine, SPIB (GR) Grade 2 or better.
  - 2. Connectors: Steel plate.
  - 3. Structural Design: Comply with applicable code for structural loading criteria.

**2.02 MATERIALS**

- A. Lumber:
  - 1. Moisture Content: Between 7 and 9 percent.



- B. Steel Connectors: Hot-dipped galvanized steel sheet, ASTM A653/A653M Structural Steel (SS) Grade 33/230, with G90/Z275 coating; die stamped with integral teeth; thickness as indicated.
- C. Truss Bridging: Type, size and spacing recommended by truss manufacturer.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that supports and openings are ready to receive trusses.

**3.02 ERECTION**

- A. Install trusses in accordance with manufacturer's instructions and TPI DSB-89 and TPI BCSI 1; maintain a copy of each TPI document on site until installation is complete.
- B. Set members level and plumb, in correct position.
- C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in true alignment until completion of erection and installation of permanent bracing.
- D. Do not field cut or alter structural members without approval of Architect.
- E. Install permanent bridging and bracing.

**3.03 TOLERANCES**

- A. Framing Members: 1/2 inch maximum, from true position.

**END OF SECTION**

**SECTION 06 1800**  
**GLUED-LAMINATED CONSTRUCTION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Glue laminated wood beams and purlins.
- B. Preservative treatment of wood.
- C. Steel hardware and attachment brackets.

**1.02 REFERENCE STANDARDS**

- A. AITC 117 - Standard Specifications for Structural Glued Laminated Timber of Softwood Species; 2010.
- B. AITC A190.1 - American National Standard for Wood Products - Structural Glued Laminated Timber; 2007.
- C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
- E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- F. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.
- G. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric); 2014.
- H. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts; 2007a (Reapproved 2014).
- I. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.
- J. RIS (GR) - Standard Specifications for Grades of California Redwood Lumber; 2000.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide technical data on wood preservative materials, application technique and resultant performance information.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer/Fabricator Qualifications: Company specializing in manufacture of glue laminated structural units with three years of documented experience, and certified by AITC in accordance with AITC A190.1.

**PART 2 PRODUCTS**

**2.01 GLUED-LAMINATED UNITS**

- A. Glued-Laminated Units: Fabricate in accordance with AITC 117 Industrial grade.
  - 1. Verify dimensions and site conditions prior to fabrication.
  - 2. Cut and fit members accurately to length to achieve tight joint fit.
  - 3. Fabricate member with camber built in.
  - 4. Do not splice or join members in locations other than those indicated without permission.
  - 5. After end trimming, seal with penetrating sealer in accordance with AITC requirements.

**2.02 MATERIALS**

- A. Lumber: Softwood lumber conforming to RIS (GR) grading rules with 12 percent maximum moisture content before fabrication. Design for the following values:
  - 1. Bending (Fb): 2400 psi.
  - 2. Horizontal Shear (Fv): 190 psi.

3. Modulus of Elasticity (E): 1,700,000 psi.
- B. Steel Connections and Brackets: ASTM A36/A36M weldable quality, galvanize per ASTM A123/A123M.
- C. Hardware: ASTM A325 (ASTM A325M) Type 1 high strength heavy hex bolts and ASTM A563 (ASTM A563M) nuts, hot-dip galvanized to meet requirements of ASTM A153/A153M, matching washers.
- D. Bearing Plate Anchors: Expansion shield and lag bolt type for anchorage to solid masonry or concrete.

### **2.03 WOOD TREATMENT**

- A. Factory-Treated Lumber: Comply with requirements of AWWPA U1 - Use Category System for pressure impregnated wood treatments determined by use categories, expected service conditions, and specific applications.
- B. Preservative Pressure Treatment:
  1. Preservative Pressure Treatment of Glued-Laminated Structural Units: AWWPA U1, Use Category UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention.
    - a. Kiln dry lumber after treatment and before lamination to maximum moisture content of 19 percent.

### **2.04 FABRICATION**

- A. Fabricate glue laminated structural members in accordance with AITC Industrial grade.
- B. After end trimming, seal with penetrating sealer in accordance with AITC requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that supports are ready to receive units.
- B. Verify sufficient end bearing area.

### **3.02 PREPARATION**

- A. Coordinate placement of bearing items.

### **3.03 ERECTION**

- A. Lift members using protective straps to prevent visible damage.
- B. Set structural members level and plumb, in correct positions or sloped where indicated.
- C. Provide temporary bracing and anchorage to hold members in place until permanently secured.

**END OF SECTION**

**SECTION 07 1400**  
**FLUID-APPLIED WATERPROOFING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fluid applied membrane waterproofing.

**1.02 REFERENCE STANDARDS**

- A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2006a (Reapproved 2013).
- B. ASTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers; 2009.
- C. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for membrane, surface conditioner, flexible flashings, joint cover sheet, and joint and crack sealants.

**PART 2 PRODUCTS**

**2.01 MEMBRANE AND FLASHING MATERIALS**

- A. Water-Based Asphalt Emulsion Waterproofing:
  - 1. Cured Thickness: 60 mils (0.060 inches), minimum.
  - 2. Suitable for installation over concrete substrates.
  - 3. Elongation: 1000 percent, measured in accordance with ASTM D412.
  - 4. Water Vapor Permeability: 0.02 perm inch, measured in accordance with ASTM E96/E96M.
  - 5. Peel Adhesion: According to ASTM D412, for the following substrates.
    - a. Concrete and Concrete Masonry: 14.1 pound-inches.
  - 6. Adhesion: Greater than 150 psi, measured in accordance with ASTM D4541.
  - 7. Products:
    - a. Carlisle Coatings & Waterproofing, Inc.; BarriCoat-R: [www.carlisleccw.com/sle](http://www.carlisleccw.com/sle).
    - b. Epro Waterproofing Systems; ECOLINE-R: [www.eproserv.com](http://www.eproserv.com).
    - c. W.R. Meadows, Inc; MEL-ROL LM: [www.wrmeadows.com](http://www.wrmeadows.com).
    - d. Parex USA, Inc; WeatherSeal BG: [www.parexusa.com](http://www.parexusa.com).

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify substrate surfaces are free of frozen matter, dampness, loose particles, cracks, pits, projections, penetrations, or foreign matter detrimental to adhesion or application of waterproofing system.
- C. Verify that substrate surfaces are smooth, free of honeycomb or pitting, and not detrimental to full contact bond of waterproofing materials.

**3.02 PREPARATION**

- A. Protect adjacent surfaces not designated to receive waterproofing.
- B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions.

**3.03 INSTALLATION**

- A. Apply waterproofing in accordance with manufacturer's instructions to specified minimum thickness.

- B. Apply primer or surface conditioner at a rate recommended by manufacturer. Protect conditioner from rain or frost until dry.
- C. Seal membrane and flashings to adjoining surfaces. Install termination bar at all edges. Install counterflashing over all exposed edges.

**END OF SECTION**

**SECTION 07 3113**  
**ASPHALT SHINGLES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Associated metal flashings and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Roof sheathing.
- B. Section 07 7123 - Manufactured Gutters and Downspouts.

**1.03 REFERENCE STANDARDS**

- A. ASTM D3161/D3161M - Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method); 2014.
- B. ASTM D3462/D3462M - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules; 2010a.
- C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).
- D. ICC-ES AC188 - Acceptance Criteria for Roof Underlayments; 2012.
- E. ICC-ES AC207 - Acceptance Criteria for Polypropylene Roof Underlayments; 2012.
- F. NRCA MS104 - The NRCA Roofing Manual: Steep-slope Roof Systems; 2013.
- G. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating material characteristics.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

**1.05 WARRANTY**

- A. Provide manufacturer's standard thirty (30) year warranty.
- B. The warranty shall be enforceable by the laws of the state of North Carolina.
- C. The minimum monetary limit on expenditures required to repair the roofing system shall be the Owner's original cost of materials and installation, and the limit may be prorated over the warranty period.

**1.06 QUALITY ASSURANCE**

- A. Perform Work in accordance with the recommendations of NRCA MS104.

**1.07 FIELD CONDITIONS**

- A. Do not install shingles or eave protection membrane when surface temperatures are below 45 degrees F.

**PART 2 PRODUCTS**

**2.01 SHINGLES**

- A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462; Class A fire resistance.
  - 1. Wind Resistance: Class F, when tested in accordance with ASTM D3161.
  - 2. Warranted Wind Speed: Not less than tested wind resistance.
  - 3. Self-sealing type.
  - 4. Style: Laminated overlay.

5. Color: Selected by engineer from manufacturer's standard palette.

## **2.02 SHEET MATERIALS**

- A. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
  1. Type: Woven polypropylene with anti-slip polyolefin coating on both sides.
  2. Minimum Requirements: Comply with requirements of ICC-ES AC207 for non-self-adhesive sheet.
  3. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
  4. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
  5. Fasteners: As specified by manufacturer and building code qualification report or approval, if any.
  6. Underlayment shall be compatible with shingle selection and shall not diminish the shingle warranty. Verify with shingle manufacturer.

## **2.03 ACCESSORIES**

- A. Nails: Standard round wire shingle type, of hot-dipped zinc coated steel, 10 wire gage, 0.1019 inch shank diameter, 3/8 inch head diameter, of sufficient length to penetrate through roof sheathing or 3/4 inch into roof sheathing or decking.
- B. Plastic Cement: ASTM D4586/D4586M, asphalt roof cement.

## **2.04 METAL FLASHINGS**

- A. Metal Flashings: Provide sheet metal eave edge, gable edge, and other flashing indicated.
- B. Steel Sheet Metal: Prefinished and galvanized steel sheet, 26 gage, 0.0179 inch minimum thickness, G90/Z275 hot-dipped galvanized; PVC coated, color as selected.
- C. Aluminum Sheet Metal: Prefinished aluminum, 26 gage, 0.017 inch minimum thickness; stucco embossed, PVC coating, color to be selected by Owner.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions prior to beginning work.
- B. Verify deck surfaces are dry, free of ridges, warps, or voids.

### **3.02 PREPARATION**

- A. Install eave edge and gable edge flashings tight with fascia boards. Weather lap joints 2 inches and seal with plastic cement. Secure flange with nails spaced 16 inches on center.

### **3.03 INSTALLATION - UNDERLAYMENT**

- A. Underlayment At Roof Slopes Greater Than 4:12: Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches. Stagger end laps of each consecutive layer. Nail in place. Weather lap minimum 4 inches over eave protection.
- B. Items projecting through or mounted on roof: Weather lap and seal watertight with plastic cement.

### **3.04 INSTALLATION - METAL FLASHING AND ACCESSORIES**

- A. Install flashings in accordance with NRCA requirements.
- B. Weather lap joints minimum 2 inches and seal weather tight with plastic cement.
- C. Secure in place with nails at 12 inches on center. Conceal fastenings.
- D. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.

### **3.05 INSTALLATION - SHINGLES**

- A. Install shingles in accordance with manufacturer's instructions.
  1. Fasten individual shingles using 2 nails per shingle, or as required by code, whichever is greater.

2. Fasten strip shingles using 4 nails per strip, or as required by code, whichever is greater.
- B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area. Provide double course of shingles at eaves.
- C. Project first course of shingles 3/4 inch beyond fascia boards.
- D. Extend shingles 1/2 inch beyond face of gable edge fascia boards.
- E. Complete installation to provide weather tight service.

**END OF SECTION**



**SECTION 07 4646**  
**FIBER CEMENT SIDING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wood-fiber cement siding.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 1000 - Rough Carpentry: Siding substrate.
- B. Section 06 1000 - Rough Carpentry: Water-resistive barrier under siding.
- C. Section 09 9113 - Exterior Painting: Field painting.

**1.03 REFERENCE STANDARDS**

- A. ASTM C1186 - Standard Specification for Flat Fiber Cement Sheets; 2008 (Reapproved 2012).

**PART 2 PRODUCTS**

**2.01 SIDING**

- A. Panel Siding: Vertically oriented panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
  - 1. Length (Height): 96 inches, nominal.
  - 2. Width: 48 inches.
  - 3. Thickness: 5/16 inch, nominal.
  - 4. Finish: Factory applied primer.
  - 5. Warranty: 50 year limited; transferable.
- B. Soffit Panels: Smooth panels of same material and finish.
- C. Soffit Panels: Panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186 Type A Grade II; with machined edges, for nail attachment.
  - 1. Texture: Smooth.
  - 2. Length: 96 inches, nominal.
  - 3. Width: 48 inches.
  - 4. Thickness: 5/16 inch, nominal.
  - 5. Finish: Factory applied primer.
  - 6. Manufacturer: Same as siding.

**2.02 ACCESSORIES**

- A. Trim: Same material and texture as siding.
- B. Fasteners: Galvanized or corrosion resistant; length as required to penetrate minimum 1-1/4 inch.
- C. Sealant: Elastomeric, polyurethane or silyl-terminated polyether/polyurethane, and capable of being painted.

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Examine substrate and clean and repair as required to eliminate conditions that would be detrimental to proper installation.
- B. Verify that water-resistive barrier has been installed over substrate completely and correctly.
- C. Do not begin until unacceptable conditions have been corrected.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### **3.02 PREPARATION**

- A. Install sheet metal flashing:
  - 1. Above horizontal trim in field of siding.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and recommendations.
  - 1. Read warranty and comply with all terms necessary to maintain warranty coverage.
  - 2. Use trim details indicated on drawings.
  - 3. Touch up all field cut edges before installing.
  - 4. Pre-drill nail holes if necessary to prevent breakage.
- B. Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.
- C. Joints in Vertical Siding: Install Z-flashing in horizontal joints between successive courses of vertical siding.
- D. Do not install siding less than 6 inches from surface of ground nor closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.
- E. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.
- F. Finish Painting: Specified in Section 09 9113.

### **3.04 PROTECTION**

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before final acceptance.

**END OF SECTION**

**SECTION 07 7123**  
**MANUFACTURED GUTTERS AND DOWNSPOUTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pre-finished aluminum gutters and downspouts.
- B. Precast concrete splash pads.

**1.02 REFERENCE STANDARDS**

- A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- B. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on prefabricated components.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.
- B. Prevent contact with materials that could cause discoloration, staining, or damage.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M); 0.032 inch thick.
  - 1. Finish: Plain, shop pre-coated with modified silicone coating.
  - 2. Color: As scheduled.

**2.02 COMPONENTS**

- A. Gutters: CDA rectangular style profile.
- B. Downspouts: CDA Rectangular profile.
- C. Anchors and Supports: Profiled to suit gutters and downspouts.
  - 1. Anchoring Devices: In accordance with CDA requirements.
  - 2. Gutter Supports: Brackets.
  - 3. Downspout Supports: Brackets.
- D. Fasteners: Same material and finish as gutters and downspouts, with soft neoprene washers.

**2.03 ACCESSORIES**

- A. Splash Pads: Precast concrete type, size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

**2.04 FABRICATION**

- A. Form gutters and downspouts of profiles and size indicated.
- B. Fabricate with required connection pieces.
- C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- D. Hem exposed edges of metal.
- E. Fabricate gutter and downspout accessories; seal watertight.

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

### **3.02 INSTALLATION**

- A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
- B. Sheet Metal: Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.
- C. Slope gutters 1/8 inch per foot .

**END OF SECTION**

**SECTION 09 9113  
EXTERIOR PAINTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Floors, unless specifically indicated.
  - 5. Concealed pipes, ducts, and conduits.

**1.02 REFERENCE STANDARDS**

- A. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, [www.paintinfo.com](http://www.paintinfo.com).
- C. SSPC V1 (PM1) - Good Painting Practice: Painting Manual, Volume 1; Fourth Edition.
- D. SSPC-SP 13 - Surface Preparation of Concrete; (Reaffirmed 2015); 2003.

**1.03 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
  - 2. MPI product number (e.g. MPI #47).
  - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

**1.04 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years experience.

**1.05 DELIVERY, STORAGE, AND HANDLING**

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

**1.06 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
- B. Paints:
  - 1. Duron, Inc: [www.duron.com](http://www.duron.com).
  - 2. Glidden Professional, a product of PPG Architectural Coatings: [www.gliddenprofessional.com](http://www.gliddenprofessional.com).
  - 3. Benjamin Moore & Co: [www.benjaminmoore.com](http://www.benjaminmoore.com).
  - 4. PPG Architectural Finishes, Inc: [www.ppgaf.com](http://www.ppgaf.com).
  - 5. Sherwin-Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  - 6. Valspar Corporation: [www.valsparpaint.com](http://www.valsparpaint.com).
- C. Primer Sealers: Same manufacturer as top coats.

### **2.02 PAINTS AND FINISHES - GENERAL**

- A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
  - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
  - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- C. Colors: To be selected from manufacturer's full range of available colors.
  - 1. Selection to be made by Architect after award of contract.
  - 2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.

### **2.03 PAINT SYSTEMS - EXTERIOR**

- A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete, concrete masonry units, brick, fiber cement siding, primed wood, and primed metal.
  - 1. Two top coats and one coat primer.
  - 2. Top Coat(s): Exterior Latex.
  - 3. Top Coat Sheen:
    - a. Eggshell: MPI gloss level 3; use this sheen at walls.
    - b. Satin: MPI gloss level 4; use this sheen for soffit, fascia, and trim.
  - 4. Primer: As recommended by top coat manufacturer for specific substrate.
- B. Paint CE-OP-3L - Masonry/Concrete, Opaque, Latex, 3 Coat:
  - 1. One coat of block filler.
  - 2. Semi-gloss: Two coats of latex enamel; .

### **2.04 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Fiber Cement Siding: 12 percent.
  - 2. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
  - 3. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete:
  - 1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
  - 2. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.
- G. Masonry:
- H. Fiber Cement Siding: Remove dirt, dust and other foreign matter with a stiff fiber brush. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- I. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior caulking compound after prime coat has been applied. Back prime concealed surfaces before installation.
- J. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.

### **3.03 APPLICATION**

- A. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

**3.04 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

**3.05 PROTECTION**

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

**END OF SECTION**



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**SECTION 16050 - BASIC MATERIALS AND METHODS**

**PART 1 - GENERAL**

**1.01 SCOPE:**

Work of this Section shall include specification of electrical devices to be used in subsequent sections and shall include the following principal items:

- Raceways
- Wires and Cables
- Outlet and Junction Boxes
- Wiring Devices
- Device Plates
- Mounting Heights
- Identification and Nameplates

**1.02 REFERENCED STANDARDS**

NFPA 70 - National Electrical Code  
NFPA 101 - Life Safety Code

**PART 2 - PRODUCTS**

**2.01 ABOVE GROUND RACEWAYS:**

2.01.1 All wiring indicated including power wiring, emergency systems wiring (NEC Article 700), temperature control wiring, communication wiring where indicated, etc., shall be in separate raceways. All wiring shall be in raceway. BX, MC, AC, NM and other cable assemblies shall not be used.

2.01.2 Flexible liquid-tight non-metallic conduit may be used for final connections to lighting fixtures. Maximum length permitted is 72 inches. Metallic conduits shall not be allowed.

2.01.3 Conduit shall be sized in accordance with the latest edition of the NEC unless shown otherwise, with minimum conduit size being 1/2 inch. Watertight ("sealtite") conduit in sizes 1/2 inch and larger are acceptable for fixture connections provided green wire is installed and NEC is followed.

2.01.4 Conduit, exposed and concealed (except "in slab" conduits), shall be neatly installed parallel to, or at right angles to beams, walls and floors of buildings.

2.01.5 Conduit type shall be Schedule 80 PVC.

2.01.6 The raceway system shall not be relied upon for grounding continuity.

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2.01.7 The use of "LB's" shall be limited where possible. Where necessary to use "LB's" sized above 2 inch, mogul units shall be installed. All shall be non-metallic.

2.01.8 PVC Schedule 40 shall not be used except where indicated.

**2.02 UNDERGROUND RACEWAYS:**

2.02.1 Raceways run external to building foundation walls, with the exception of branch circuit raceways, shall be encased with a minimum of three (3) inches of concrete on all sides. Contractor shall verify utility service requirements. If utility requires conductors to be owned and installed by "owner", Contractor shall provide encasement and install as required.

- a. Encased raceways must have a minimum cover of eighteen (18) inches, except for raceways containing circuits with voltages above 600 volts, which must have a minimum cover of thirty (30) inches.
- b. Encased raceways shall be of a type approved by the NEC as "suitable for concrete encasement."

2.02.2 Branch circuit raceways run underground external to building foundation walls shall be run in raceways installed in accordance with the NEC, and shall be of a type approved by the NEC as "suitable for direct burial." Minimum raceway size shall be 3/4 inch unless otherwise indicated.

2.02.3. All underground raceways shall be identified by underground line marking tape located directly above the raceway at 6 to 8 inches below finished grade. Tape shall be permanent, bright-colored, continuous printed, plastic tape compounded for direct burial not less than 6 inches wide and 4 mils thick. Printed legend shall be indicative of general type of underground line below.

2.02.4. Raceways run underground internal to building foundation walls shall be of a type and installed by a method approved by the NEC.

2.02.5. The raceway system shall not be relied on for grounding continuity.

**2.03 TERMINATION**

2.03.1 All terminations shall be per manufacturers specifications.

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**2.04 CONDUIT COUPLINGS**

2.04.1 Where conduits of any type pass over a building expansion joint, a standard "expansion joint fitting", compatible with the type raceway in use, shall be provided.

2.04.2 Conduit couplings shall be in accordance with NEC.

**2.05 BUILDING WIRES AND CABLES (600 VOLTS AND LESS)**

2.05.1 Provide all wiring as indicated and/or required to each piece of equipment, wiring device, lighting fixture, etc.

2.05.2 All wire sizes specified shall be in accordance with and designated by AWG (American Wire Gauge).

2.05.3 Copper conductors equal to Anaconda, Phelps-Dodge, Southwire or General Electric shall be used throughout unless specifically noted otherwise. The design is based on copper conductors only.

2.05.4 No aluminum conductors may be used on this project.

2.05.6 Color coding of conductor insulation shall be uniform throughout the project. The secondary service, feeders and branch circuits shall be color coded as follows:

	<u>120/240 volts</u>
Phase	Black
Neutral	White
Ground	Green

2.05.7 All wire and cable shall be listed by an approved third party testing agency.

**2.05.8 Conductors**

- a. Power and lighting circuits #10 AWG and smaller shall have solid copper conductors. Conductor sizes #8 AWG and larger shall have Class B stranded conductors.
- b. The minimum conductor size for all power and lighting circuits shall be #12 AWG.

**2.05.9 Insulation**

- a. The insulation type for interior wiring shall be dual-rated THHN/THWN.

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2.05.10 Voltage Drop

- a. Where the conductors length from the panel to the first outlet on a 120v circuit exceeds 50 feet, the branch circuit conductors from the panel to the first outlet shall not be smaller than #10 AWG.

2.05.11 Splicing

- a. Joints in solid conductors shall be spliced using Ideal "wirenuts", 3M Company "Scotchlock" or T&S "Piggy" connectors in junction boxes, outlet boxes and lighting fixtures.
- b. "Sta-kon" or other permanent type crimp connectors shall not be used for branch circuit connections.
- c. Joints in stranded conductors shall be spliced by approved mechanical connectors and gum rubber tape or friction tape. Solderless mechanical connectors for splices and taps, provided with UL-approved insulating covers, may be used instead of mechanical connectors plus tape.
- d. Conductors, in all cases, shall be continuous from outlet to outlet and no splicing shall be made except within outlet or junction boxes, troughs and gutters.

2.06 OUTLET AND JUNCTION BOXES:

2.06.1 Provide weatherproof non-metallic boxes at each outlet location indicated on the drawings or as required. Fiberglass, ABS and PVC type are approved.

2.06.2 Boxes at exterior locations shall be weathertight with gasketed in-use type covers.

2.06.3 The owner reserves the right to make minor adjustments to the locations of outlet boxes prior to rough-in.

2.06.4 Sizes and configuration of boxes shall be as required for the intended service and shall conform to and be applied in accordance with the N.E.C.

2.07 WIRING DEVICES

2.07.1 General: Provide wiring devices as indicated on drawings. Device color shall be ivory unless otherwise indicated. Each type of device on the project shall be of the same manufacturer and catalog number throughout.

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2.07.2 Toggle Switches

- a. Toggle switches shall be single pole, three-way, or four-way as indicated on the drawings. Switches shall be of the grounding type, with hex-head grounding screw, rated 20A, 120/277 volt, heavy duty, specification grade, AC only.
- b. All switches shall have quiet operating mechanisms without the use of mercury switches. The type switch shall be indicated on the drawings.

Single pole                      - Hubbell HBL221

Acceptable manufacturers: Arrow Hart, Bryant, G.E., P & S, Hubbell, Cooper

2.07.3 Duplex receptacles:

- a. Duplex receptacles shall be of the grounding type, arranged for back and side wiring, with separate single or double grounding terminals. Receptacles shall be straight blade, rated 20A, 125 volt and the face configuration shall conform to the NEMA Standard No. WDI.101968. Self-grounding or automatic type grounding receptacles are not acceptable in lieu of receptacles with separate grounding screw lugs and a direct, green insulated conductor connection to the equipment grounding system.
- b. Receptacles shall be industry heavy duty, specification grade, and be mounted vertically. Receptacles mounted over counters, back-splashes, etc., shall be mounted horizontally.
- c. Provide the following and verify mounting height on site with GC & Architect.

Standard                      Hubbell HBL5352  
Ground fault                Hubbell GF5362

Acceptable manufacturers: Arrow Hart, Bryant, G.E., P&S., Hubbell, Cooper

2.08 DEVICE PLATES

2.08.1 Exterior mounted switch and receptacle plates, and those noted to be weatherproof, PVC cover plates, standard size, single or ganged as indicated on the drawings, and shall be "approved" as "raintight while in use".

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**2.09 SUPPORTING DEVICES:**

2.09.1 Conduit shall be supported in a method and at a spacing as approved by the NEC, except as described herein.

2.09.2 Conduit shall be supported by approved stainless steel pipe straps or clamps.

- a. Conduits installed on the interior of exterior building walls shall be spaced off the wall surface a minimum of 1/4 inch using non-metallic spacers.

2.09.3 Pipe straps or clamps shall be secured by means of:

- a. Stainless steel toggle bolts on hollow masonry.
- b. Stainless steel expansion shields and machine screws, or standard pre-set inserts, on concrete or solid masonry.
- c. Stainless steel machine screws, or bolts on metal surfaces.
- d. Stainless steel wood screws on wood construction.

**2.11 GROUNDING AND BONDING:**

2.11.1 Grounding conductors, where insulated, shall be colored solid green. Conductors intended as neutral shall be colored solid white on 120/240 volt circuits.

2.11.2 The raceway system shall not be relied upon for ground continuity. A green grounding conductor, properly sized per NEC Table 250-122, shall be run in ALL raceways.

2.11.3 Boxes with concentric, eccentric or over-sized knockouts shall be provided with bonding bushings and jumpers. The jumper shall be sized per NEC Table 250-122 and lugged to the box.

**PART 3 - EXECUTION**

**3.01 RACEWAYS:**

3.01.1 Raceways shall be installed neatly racked, routed parallel or perpendicular to building lines, securely attached and supported. Installation shall conform to applicable sections of N.E.C. Article 342 through 360.

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Raceway supports shall be spaced per NEC paragraph 352.30

3.01.2 Raceways shall be concealed where possible. .

**3.02 WIRES AND CABLES:**

3.02.1 All splices, taps, connections, terminations, etc., shall be made with appropriate connectors in a workmanlike manner and in compliance with the N.E.C.

3.02.2 All home runs shall be #12 or larger as indicated. No wire smaller than #12 shall be permitted serving lighting or outlets. Also refer to Article 2.05.10 of this section.

**3.03 OUTLET AND JUNCTION BOXES**

3.03.1 Outlet and Junction Boxes shall be installed in a workmanlike manner, rigidly supported and properly aligned. Unless otherwise noted, boxes shall be flush with finished surfaces.

3.03.2 Do not rough-in boxes back-to-back.

**3.04 MOUNTING HEIGHTS:**

Wiring devices & other equipment shall, unless noted otherwise, be mounted as follows:

Receptacles: 18" above floor or 6" above working surface on center unless noted otherwise on plan.

Switches: 4'-0" above floor on center (OC).

Panelboards: 6'-6" to the top of the panelboard above finished floor.

**3.05 IDENTIFICATION AND NAMEPLATES:**

3.05.1 Furnish and install engraved laminated phenolic "bakelite" nameplates for all panelboards, and other electrical equipment supplied for the project. The nameplate shall identify the equipment, how it is controlled, where it is served from, phase, voltage, etc. Nameplates shall be securely attached to equipment with self-tapping stainless steel screws, and shall identify equipment controlled, attached, etc. Letters shall be approximately 1/2 inch high, minimum. Embossed, self-adhesive plastic tape is not acceptable for marking equipment. Nameplate material colors shall be:

Blue surface with white core for 120/240 volt equipment

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3.05.2 All empty conduit runs and conduit with conductors for future use shall be identified for use and shall indicate where they terminate. Identification shall be by tags with string or wire attached to conduit and outlet.

3.05.3 All outlet boxes, junction boxes and pull boxes shall have their covers and exterior visible surfaces painted with colors to match the surface color scheme outlined above. This includes covers on boxes above lift-out and other type accessible ceilings.

**3.06 ELECTRICAL TESTING:**

**3.06.1 FEEDER INSULATION RESISTANCE TESTING**

a. All current carrying phase conductors and neutrals shall be tested as installed, and before connections are made, for insulation resistance and accidental grounds. This shall be done with a 500 volt megger. The procedures listed below shall be followed:

1. Minimum readings shall be one million (1,000,000) or more ohms for #6 wire and smaller, 250,000 ohms or more for #4 wire or larger, between conductors and between conductor and the grounding conductor.
2. After all fixtures, devices and equipment are installed and all connections completed to each panel, the contractor shall disconnect the neutral feeder conductor from the neutral bar and take a megger reading between the neutral bar and the grounded enclosure. If this reading is less than 250,000 ohms, the contractor shall disconnect the branch circuit neutral wires from this neutral bar. He shall then test each one separately to the panel and until the low readings are found. The contractor shall correct troubles, reconnect and retest until at least 250,000 ohms from the neutral bar to the grounded panel can be achieved with only the neutral feeder disconnected.
3. The contractor shall send a letter to the engineer certifying that the above has been done and tabulating the megger readings for each panel. This shall be done at least four (4) days prior to final inspection.
4. At final inspection, the contractor shall furnish a megger and show the engineer that the panels comply with the above requirements. He shall also furnish a hook-on type ammeter and a voltmeter and take current and voltage readings as directed by the representatives.



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**3.06.2 DOCUMENTATION**

- a. All tests specified shall be completely documented indicating time of day, date, temperature and all pertinent test information.
- b. At final inspection, the contractor shall furnish a megger and show the engineer's representative that the panels comply with the above requirements. He shall also furnish a hook-on type ammeter and a voltmeter, taking current and voltage readings as directed by the engineer.
- c. All required documentation of readings indicated above shall be submitted to the engineer prior to, and as one of the prerequisites for, final acceptance of the project.

**END OF SECTION**

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**SECTION 16400 - SERVICE AND DISTRIBUTION**

**PART 1 - GENERAL**

**1.01 SCOPE:**

Work of this Section shall be in accordance with the intent of the Contract Documents and shall include the following principal items:

- Service
- Service Equipment
- Duct Bank
- Panelboards
- Equipment Grounding
- Disconnect

**1.02 REFERENCED STANDARDS:**

NFPA 70 - National Electrical Code

**PART 2 - PRODUCTS**

**2.01 SERVICE**

The new service for the building will be a 60 amp, 120/240 volt, 1-phase, 3-wire delivery. A utility transformer exists that serves an adjacent tower facility and is proposed for connection for the Salt Shed facility. The electrical Contractor shall coordinate with the utility to provide the new service conductors to the Salt Shed facility and shall include all costs; materials, fees, labor or any other item required for a complete installation.

In the event that the utility requires that the service be owned by the "owner", the contractor shall include a complete installation as spelled out above AND shall encase the service in a duct bank.

In either case the contractor shall include all costs in the bid.

**2.02 SERVICE EQUIPMENT <S>**

Acceptable manufacturers: Square D, General Electric and Siemens.

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### **2.02 DUCT BANK**

Heavy-duty, hydraulic-operated compaction equipment shall not be used. Trenches shall be cut neatly and uniformly, sloping uniformly to required pitch. Ducts shall be pitched to drain away from buildings and equipment. Minimum slope shall be 4 inches in 100 feet. Concrete encased nonmetallic ducts shall be supported on plastic separators coordinated with duct size and spacing. Separators shall be spaced close enough to prevent sagging and deforming of ducts. Separators to the earth and to ducts shall be secured to prevent floating during placement of concrete. Steel or tie wires shall not be used in such a way as to form conductive or magnetic loops around ducts or duct groups. Waterproof marking cord shall be installed in all ducts, including spares, after thoroughly rodding, cleaning and swabbing all ducts free of any and all obstructions. The marking cord shall be 130-pound tensile test (marked at least every foot), equivalent to Greenlee No. 435. All ducts shall be sealed at terminations, using sealing compound and plugs, as required to withstand 15-psi minimum hydrostatic pressure. The installation of conduit in ductbanks shall be in accordance with OSHA requirements.

### **2.03 PANELBOARDS <S>**

2.03.1 Provide NEMA 3R ULSE panelboard rated and sized as indicated in the schedule and shown on the plans.

2.03.2 Panelboard shall be of the dead-front safety type. The panelboard shall be provided main circuit breaker as indicated on the drawings, Panelboard shall be provided with the size and number of 1-pole, 2-pole branch circuits as indicated on the drawings. Circuit breakers shall be of the automatic thermal magnetic type, quick-make and quick-break for manual and automatic operation. All multi-pole breakers shall be common trip. Each panelboard shall be provided with a copper grounding terminal busbar bonded to the cabinet or panelboard frame.

2.03.3 All circuit breakers shall be bolt-on, calibrated for 40 degrees C. or be ambient compensating. Circuit breakers shall have UL interruption ratings as indicated on the drawings. Series rating for short circuit rating of panelboards and circuit breakers is not acceptable.

2.03.4 Each panel, as a complete unit, shall have a short circuit current carrying rating equal to or greater than the integrated equipment rating shown on the panel schedule or on the plans. This rating shall be established by testing with the overcurrent devices mounted in the panel Method of testing shall be per UL standard 67. Panels shall be marked with their maximum short circuit current rating at the supply voltage and shall be UL listed and bear the UL label.

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Provide, when scheduled, ground-fault protection type branch circuit breakers (GFI) rated to trip when current leakage to ground exceeds 5 milliamperes. Cabinets for panelboards shall be minimum 20 inches wide, except otherwise noted for oversized gutters, and shall be provided with not less than 4-inch wiring gutters at the sides, top and bottom. Trims shall be fitted with hinged doors having combination lock and latch. One or more directory holders protected with clear plastic and metal frame as required for rendering entire directory visible shall be mounted on the inside of each door. A neatly typed directory properly identifying each circuit shall be mounted under plastic on inside of each door. Each circuit shall be identified by the type of load and the location of the load which is not necessarily what is shown on the contract drawings.

Unless otherwise specifically noted all circuit breakers in a panelboard shall have been built by the same manufacturer who built the panelboard.

Panelboards buswork including neutral and grounding busbars shall be copper. Neutral buses shall not be less than same rating of the panel, but shall be increased in size when so scheduled on drawings. Neutral and ground buses shall have sufficient wiring terminating positions to satisfy oversized feeder neutrals and dedicate branch circuit neutral conductors for each 120 volt circuit and grounding requirements for present and future breakers.

A running directory shall be maintained during construction.

Panelboards used as service equipment shall be UL labeled as "Suitable for use as Service Equipment."

Panelboards shall be provided with mains as scheduled on drawings. If mains are not shown provide main circuit breaker matching the ampere rating of the panelboard.

Acceptable manufacturers: Square D, General Electric and Siemens.

## 2.04 EQUIPMENT GROUNDING

The electrical equipment in the new building shall be grounded per NEC 250.32 and as follows.

- a. To the steel frame of the building, provided the building frame is effectively grounded.
- b. To ground rods (min. of 2). Ground rods shall be 10 feet long and 3/4 inch in diameter, and shall be of copper-clad steel construction. All ground connections shall be accessible.

Ground Rods shall be located a minimum of 15 feet from the facility in a location and at a higher grade than the floor level of the salt shed to prevent salt laden runoff from saturating the area around

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the ground rods. The grounding electrode conductor (#6) shall be run to within 2 feet of the ground rod location(s) in a continuous run of ½" PVC conduit to prevent corrosion conductor corrosion.

- c. To the concrete encased electrode (footing rebar).

Refer also to testing requirements listed in 3.01 of this section.

**3.01 GROUND SYSTEM TESTING:**

Upon completion of installation of the electrical grounding and bonding systems, the ground resistance shall be tested with a ground resistance tester. Where test show resistance to ground is over 25 ohms, appropriate action should be taken to reduce the resistance to 25 ohms, or less, by driving additional ground rods. The grounding and bonding system shall then be retested.

**4.01 ENCLOSED SWITCHES AND CIRCUIT BREAKERS**

**APPLICABLE STANDARDS**

NEMA KS-1 Enclosed and miscellaneous distribution equipment switches (600 volts maximum)

UL 98 Enclosed and dead-front switches

Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

**PRODUCTS:**

**WIRING TEMPERATURE RATING:**

Products specified here shall be UL listed for connection to 75-degree C conductors, or higher, and third party listed.

**SAFETY DISCONNECT SWITCHES:**

Provide NEMA 3R fusible and/or non-fusible heavy duty safety and disconnect switches with ratings and fuse types and sizes as shown on the drawings. Provide horsepower rated switches for use as motor circuit disconnecting means, in accordance with the individual manufacturer's published ratings. For applications in excess of switch ratings

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provide non-automatic molded cast circuit breakers rated not less than 125% of motor full load current. Provide each fused switch with the following:

- . Line terminal shields
- . Visible copper blades
- . ATC chute for each pole
- . Non-fusible, positive, quick-make, quick-break interrupter operating mechanism.
- . Rejection fuse clips sized for specified fuses. Contractor shall provide fuse reducer if so required.
- . Handle whose position is easily recognizable in the 'on' or 'off' position and can be multiple padlocked in the "OFF" position.
- . Defeatable door interlocks that prevent the door from opening when the operating handle is in the "ON" position.
- . Factory installed ground lug.
- . 'R.' type fuse holders — furnish switches completely fused
- . Provide padlocks on switches located in public areas.

**SWITCH ACCESSORIES:**

Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.

Neutral Kit: Internally mounted, insulated, capable of being grounded and bonded, labeled for copper and aluminum neutral conductors.

Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.

Lugs: Suitable for number, size and conductor material.

Service Rated Switches: Labeled for use as service equipment.

**ENCLOSURES**

Outdoor Locations: NEMA 250, Type 3R

**MANUFACTURER:**

Provide circuit breakers and safety/disconnect switches as manufactured by one of the following:

General Electric Company  
Square D Company  
Siemens

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**EXECUTION**

**INSTALLATION OF WORKMANSHIP:**

Enclosure: Mount switch and circuit breaker enclosure rigidly and with proper alignment on the building structure one (1) inch off the wall and with top of enclosure 6'-6" above finished floor. Use stainless steel supports. Install supports in such a manner as to not block the vertical flow of air between enclosure and wall.

Switches and circuit breakers shall be securely fastened to the supporting structuring or wall utilizing four 1/4 inch minimum size stainless steel bolts. Switches shall not be mounted in an inaccessible location or where passageway to the switch may become obstructed. Provide suitable angle stainless steel supporting structure for switches when wall space is not available for support. Supporting structure shall be attached to floor slab or over slab with 3/8 inch expansion shields.

Wiring: Install all incoming and outgoing power circuits.

Fuses: Install fuses, where required, of the proper type and ratings as shown on the drawings.

Locate disconnect switches as close as possible to the equipment being protected, at accessible location.

Provide nameplate identifying equipment served and circuit serving equipment. Refer to Section 26 05 53.

**END OF SECTION**

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**SECTION 16500 - LIGHTING**

**SECTION 26 50 00 - BUILDING LUMINAIRES**

**PART 1 - GENERAL:**

All referenced manufacturer's requirements and specifications and nationally recognized and accepted standards and specifications shall be the latest edition unless specified otherwise and shall be used as they are applicable for products and craftsmanship incorporated in the Contract Drawings and this Section only. The references to these standards and specifications do not imply acceptance of any and all products described in the standards and specifications.

**QUALITY ASSURANCES:**

Warranty:

LED Fixtures:

Special Warranty for products containing Light Emitting Diode (LED): Manufacturer's agrees to repair or replace components of indoor and outdoor luminaires that fail in materials or workmanship, including LED array and driver for a period of five (5) years from the date of shipment from Manufacturer's facilities. The LED arrays in the Product(s) will be considered defective in material or workmanship only if a total of 15% or more of the individual light emitting diodes in the Product(s) fail to illuminate.

Equipment Compatibility:

The contractor shall provide similar luminaires and components fabricated by one manufacturer to simplify maintenance and replacement.

Regulatory Agencies:

The lighting systems shall comply with current -NC State Energy Code,

The contractor shall provide luminaires fabricated, wired and installed in compliance with current edition of applicable city, state, and national codes. Provide luminaires which conform to additional regulations necessary to obtain approval for use of specified luminaires in locations shown.

The contractor shall provide interior luminaires and electrical components listed and labeled by Underwriters Laboratories (UL) or ETL Testing Laboratories. Lighting equipment shall comply with pertinent standards pertaining to interior luminaires, including:



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- . IESNA LM-79-08, Photometric testing standard for LED luminaires
- . IEEE C62.41.1 and IEEE C62.41.2 (Category A or better)
- . ANSI C62.41 (Category A) and ANSI C82.11
- . FCC part 15

The contractor shall provide luminaries which comply with applicable requirements of the National Electrical Manufacturers Association (NEMA) LE 4 pertaining to recessed luminaries and with the National Fire Protection Association (NFPA) NFPA 70 National Electrical Code (NEC), as applicable to construction and installation of interior building luminaries.

**CLEANING:**

Immediately prior to occupancy, clean reflector cones, reflectors, aperture plates, lenses, louvers, lamps and decorative elements. To prevent static buildup on lenses and reflectors, clean with a manufacturer's recommended water-diluted solution of glass cleaner and allow air-drying after installation.

Upon completion of the luminaire installation and at the time of final inspection, luminaries shall be clean and free from marks, dust, spotting or other defects. Replace any broken or defective parts prior to final inspection. Replace or make good all defects revealed by final inspection to the satisfaction of the contracting officer.

**SUBMITTALS:**

Shop drawings, samples, test data, and certificates shall be submitted for approval in accordance with requirements of the contract documents. Luminaire shop drawings shall be submitted in booklet form with a separate sheet for each luminaire type. Each sheet shall clearly indicate proposed luminaire "type" designation, luminaire lamp, and ballast designation. Luminaries or other materials shall not be shipped, stored or installed into the Work until submitted shop drawings, samples, catalogue cuts, test data, certificates, or other materials have been approved. Luminaire modifications shall be made in accordance with the contracting officer's submittal comments. Prior to final inspection, the contractor shall provide a complete set of operating and maintenance manuals. Include technical data sheets and parts ordering information.

**Shop Drawings:**

The contractor shall submit shop drawings for each luminaire type and component, except where specified luminaries are standard, unmodified, "off-the-shelf" units, or fully described by catalogue cuts. The contractor shall submit shop drawings in the form of 4 copies and catalogue cuts in 4 photocopies.

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Shop drawings shall indicate materials, finishes, metal gauges, overall and detail dimensions, sizes, electrical and mechanical connections, fasteners, welds, joints, end conditions, provisions for the work of others, and similar information. Shop drawings shall include pertinent mounting details, including suspended ceiling construction. Indicate the complete details of luminaire, including manufacturer's catalogue numbers, light shields, switches and type of wiring, and targeting and locking devices for adjustable luminaires. Indicate type and extent of approved inert insulating materials to prevent electrolytic corrosion at junctions of dissimilar metals. Standard catalogue cuts shall be supplemented by additional drawings if information or descriptions listed above are not included in the cuts.

LED fixture shop drawings shall include life, output (lumens, CCT, and CRI), and energy-efficiency data for LED sources, Photometric data and adjustment factors based on laboratory tests, complying with IESNA Lighting Measurements Testing & Calculation Guides, of each lighting fixture type. LED luminaires must be based on IESNA Absolute Photometry.

For indicated fixtures, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining fixtures shall be certified by manufacturer. Photometric data shall be certified by a manufacturer's laboratory with a ten-year historical and current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products using IESNA recommended methods.

**Operation and Maintenance Manual:**

The contractor shall assemble and submit, in bound 8.5"x11" format, an operation and maintenance manual including product technical documents and cut sheets, manufacturer and product representative contacts, and operating and calibration instructions for all systems included in the project.

**PART 2 — PRODUCTS:**

**GENERAL:**

Provide materials, equipment, appurtenances, and workmanship as specified and indicated on drawings. Make luminaire parts and components not specifically identified or indicated on the drawings from materials most appropriate to their use or function and resistant to corrosion and to thermal and mechanical stresses encountered in the normal application and function of the luminaires.

Provide luminaires of sizes, types, and ratings indicated, complete with, but not necessarily limited to, housings, lamps, starters and wiring. Provide each luminary with lamps as specified in work order. Specifications for luminaire components such as reflectors, lenses, lamps and ballasts can be found elsewhere in this document.

## **NCDOT 3 BAY SALT STORAGE BUILDING DIVISION 14, CHEROKEE COUNTY, NC**

### **LED:**

The Contractor shall furnish, assemble, install, connect and lamp fixtures for all lighting outlets as shown in schedule on drawings. Continuous-row fixtures shall be supported by the fixture stud in outlet boxes, or fixture units not so supported shall be adequately supported from structural members by means of manufacturer provided mounted systems. Contractor must request mounting systems provided by manufacturer at time of quote and order. All outlet boxes shall be supported from building structure.

Factory-Applied Labels must comply with UL 1598. Include recommended LED and drivers. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

Label shall include the following lamp and ballast characteristics:  
CCT and CRI for all luminaires.

### **DRIVER FOR LED UNITS**

General Requirements for Electronic Drivers:

Must be UL approved for 120-277 VAC 50-60Hz.

Designed to match LED output needed.

Driver shall be designed for full light output unless dimmer, or bi-level control is indicated.

Sound Rating: Class A.

Total Harmonic Distortion Rating at 100% load: Less than 20 percent.

Transient Voltage Protection: IEEE C62.41.1 and IEEE C62.41.2, Category A or better.

Must comply with ANSI C62.41 (Category A), ANSI C82.11.

Must comply with FCC part 15

Current: +/- 5% accuracy.

Power Factor: 0.90 or higher.

Driver shall carry a minimum 5 year warranty.

Driver shall be designed for a 50,000 hour life.

Drivers for Low-Temperature Environments:

Temperatures 0 Deg F and Higher: Electronic type rated for 0 deg F starting and operating temperature with indicated lamp types.

### **LIGHT EMMITTING DIODES**

LED's must be within a 2.5 MacAdam ellipse minimum at 3500K. LED lumen maintenance must be tested per IESNA LM-80-08 and projected per IESNA TM-21-11. The life rating must be a minimum L70 at 100,000 hours and L86 at 60,000 hours in a 30 degrees C environment.

**NCDOT 3 BAY SALT STORAGE BUILDING  
DIVISION 14, CHEROKEE COUNTY, NC**

**ALL LUMINAIRES:**

**Materials and Fabrication:**

Unless otherwise noted, use only completely concealed hardware. Latching of luminaire door frames shall be unobtrusive. Make the luminaire free from light leaks by the inherent design of the body and frame. Bond all gaskets, when used, to the luminaire metal.

Provide housings for luminaries that make electrical components easily accessible and replaceable without removing the luminaire body from its mounting.

**Luminaire Wiring:**

Provide wiring between fluorescent lamp holders and associated operating and starting equipment in compliance with UL 1570 and NEC.

**PART 3 - EXECUTION:**

**GENERAL:**

Refer to Section 26 OS 29 for additional requirements.

**HANGING METHODS:**

All luminaries shall be securely supported in strict accordance with sections 410-15, 410-16 and 370-17 of the National Electrical Code and as specified here. Refer to Section 26 OS 29 for additional requirements.

**Suspended Units:**

Single unit suspended luminaries shall have stainless steel twin stem hanger or direct mounted.

Industrial type shall be chain yoke suspended, unless otherwise noted.

**WIRING:**

Contractor shall provide, as part of the contract, all required wiring to wire the lighting fixtures as specified here and as required by NEC, whether shown on drawings or not. Branch circuit conductors being connected to luminaries shall be heat resistant type as required by UL markings.

**NCDOT 3 BAY SALT STORAGE BUILDING  
DIVISION 14, CHEROKEE COUNTY, NC**

Suspended luminaries shall be connected to an outlet box through the use flexible metal conduit with green grounding conductor in addition to circuit conductors.

END OF SECTION 26 50 00

## SECTION 31 2200

### GRADING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Removal of topsoil.
- B. Rough grading and excavation of the site for site structures and building pads.
- C. Finish grading .

##### 1.02 SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

##### 1.03 QUALITY ASSURANCE

- A. Perform Work in accordance with State of North Carolina, Highway Department standards.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Topsoil: Conforming to State of North Carolina, Highway Department standards.

#### PART 3 EXECUTION

##### 3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

##### 3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.

##### 3.03 ROUGH GRADING

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Do not remove topsoil when wet.

##### 3.04 SOIL REMOVAL

- A. Stockpile excavated topsoil on site.
- B. Stockpile excavated subsoil on site.
- C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

##### 3.05 FINISH GRADING

- A. Before Finish Grading:
  - 1. Verify building and trench backfilling have been inspected.
  - 2. Verify subgrade has been contoured and compacted.
- B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.
- C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.
- D. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

##### 3.06 REPAIR AND RESTORATION

- A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

END OF SECTION

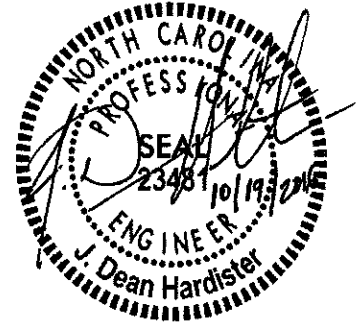
October 19, 2016

MEMORANDUM TO: Adam Dockery  
Cherokee County Maintenance Engineer

FROM: Dean Hardister, P.E.  
Western Regional Operations Engineer

DESCRIPTION: Proposed Cherokee County Salt Storage Shed

SUBJECT: Subsurface Exploration and Geotechnical Recommendations



The Geotechnical Engineering Unit (GEU) has completed the subsurface exploration and engineering evaluation for the proposed salt storage shed to be located south of US 64/US 74, just west of NC 294 in Cherokee County. This memorandum includes our findings and engineering recommendations.

### **Project Information**

The site for the proposed salt storage shed is located south of US 64/US 74, just west of NC 294 in Cherokee County. The site is currently used by County Maintenance to store construction materials. We understand that County Maintenance has performed minor grading operations in the area of the salt storage shed. The proposed salt storage shed will be approximately 40 feet by 70 feet in plan, and will be constructed using a cast-in-place reinforced concrete wall, timber framed roof, and slab-on-grade system. A concrete apron with roughly the same plan dimensions will be constructed in front of the salt shed. Either salt or sand will be piled within the barn. Wall loads will be on the order of 4 to 5 kips per linear foot. Slab loads will be on the order of 850 pounds per square foot.

### **Subsurface Findings**

Artificial fill consisting of Clayey SILT or Silty SAND is present at the ground surface at boring locations B-2 through B-5 and CNTR-1 and extends to a depth of approximately 1 to 8.5 feet below the existing ground surface. Residual soil consisting mainly of Clayey Sandy SILT and Sandy SILT is present from the ground surface at boring location B-1 and is present below the fill in each boring mentioned above and extends to at least the boring termination depths ranging between 9.5 to 29.8 feet below the existing ground surface.

### **Geotechnical Recommendations**

The recommendations below are based upon the subsurface conditions and project information referenced within this report. If any of the information included within this report is incorrect or different subsurface conditions are encountered during construction, please contact us to review of recommendations and make necessary amendments.



Adam Dockery  
October 19, 2016

Poorly Compacted Artificial Fill: Artificial fill materials were encountered within nearly every boring, with the deepest fill encountered along the southern perimeter of the site. Although few blow counts were measured within the fill, the observed blow counts were low. Low SPT N-values indicate the fill was placed in an uncontrolled manner and not subjected to adequate compactive effort during placement.

Site Preparation: Constructing on poorly compacted artificial fills presents an inherent risk of poor performance of the foundations and slabs-on-grade. If the salt shed will be constructed at the location indicated on the attached site plan, complete undercutting of poorly compacted materials 5 feet outside of the building footprint is recommended to provide proper support for the floor slab and foundations, as well as improving the longevity of the structure. If the salt shed can be shifted about 35 feet north, the borings indicate that minimal undercut would be required. Based upon the borings, the estimated undercut quantity is around 350 cubic yards at the currently-proposed shed location. According to the boring information, the undercut soils should be suitable for re-use as structural fill.

Following undercut, prior to filling, and also after the slab-on-grade areas are on-grade, the subgrade soils should be proofrolled with a fully-loaded tandem axle dump truck to determine areas of instability. If the building footprint requires cut to grade, the exposed subgrade should also be proofrolled following excavation to determine areas of instability. Any unstable areas should be undercut and replaced with approved structural fill. To minimize undercut in the apron and pavement areas (if needed), we recommend a contingency of 750 square yards of Type 5 geotextile and 500 tons of ABC stone for partial undercut in these areas. All fill should be compacted to NCDOT Specifications.

Shallow Foundations: Provided the undercut and replacement recommendations are followed, the salt shed wall foundations may be designed for a net allowable bearing pressure of 3000 pounds per square foot (psf). The net allowable bearing pressure is the pressure in excess on the surrounding overburden pressure. Based upon the subsurface conditions and the anticipated slab loading, a total settlement potential for the slab of 1 to 2 inches has been estimated.

Prior to the placement of concrete for foundations, the foundation excavations should be evaluated with regard to the allowable bearing capacity by a qualified geotechnical engineer or their authorized representative. Any areas which fail to meet the required bearing capacity should be undercut and replaced to the satisfaction of the geotechnical engineer.

Floor Slab Support: A modulus of subgrade reaction of 100 pounds per cubic inch (pci) may be used for design of the floor slab supported on stable, newly-compacted fill or undisturbed residual soils.

If any of the provisions mentioned in the conditions above cannot be met, please advise this office promptly. If you have any questions concerning this memorandum, please contact Eric Williams, P.E. or Dean Hardister, P.E. at (704) 455-8902.

EW/DH

Attachments: Site Plan  
Boring Logs

cc: Michael Mountcastle  
File





Electrical Pedestal Box

SOUNDING-1

3 Bay Salt Storage Shed

Pipe Stockpile

CONTRACTOR

B-1

B-2

B-3

Concrete Apron

A.O.

4 16'x20' Stone Stockpile Bays

ABC

57

78

C.P.



# GEOTECHNICAL BORING REPORT BORE LOG

WBS 51210.9		TIP Salt Barn		COUNTY CHEROKEE		GEOLOGIST Elliott, D. C.									
SITE DESCRIPTION Cherokee Co. Salt Barn							GROUND WTR (ft)								
BORING NO. B-2		STATION N/A		OFFSET N/A		ALIGNMENT N/A	0 HR. N/A								
COLLAR ELEV. 1,010.0 ft		TOTAL DEPTH 29.5 ft		NORTHING N/A		EASTING N/A	24 HR. N/A								
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 81% 01/29/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic									
DRILLER Cheek, D. O.		START DATE 09/27/16		COMP. DATE 09/27/16		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1015															
1010														1,010.0	GROUND SURFACE 0.0
	1,008.5	1.5	2	7	8								D	1,008.1	ARTIFICIAL FILL LOOSE BROWN SILTY SAND WITH GRAVEL (A-2-4) 1.9
1005	1,006.0	4.0	9	14	13								D		RESIDUAL VERY STIFF GRAY, RED & TAN FINE SANDY CLAYEY SILT AND FINE SANDY SILT, TRACE TO SLIGHTLY MICACEOUS (A-4)
	1,003.5	6.5	7	8	15								D		
1000	1,001.0	9.0	7	9	11								D		
	997.0	13.0	15	17	13								D		
995	992.0	18.0	8	15	13								M		
	987.0	23.0	10	10	11								M		
985	982.0	28.0	9	12	9								M		
													M	980.5	Boring Terminated at Elevation 980.5 ft in Residual Soil
															BENCHMARK: SPIKE IN BASE OF TREE ~350' SW OF CELL TOWER ASSUMED ELEV. = 1000.00'

NCDOT BORE SINGLE\_CHEROKEE\_SALT.DOME.GPJ NC\_DOT\_GDT\_10/19/16

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 51210.9		TIP Salt Barn		COUNTY CHEROKEE		GEOLOGIST Elliott, D. C.															
SITE DESCRIPTION Cherokee Co. Salt Barn							GROUND WTR (ft)														
BORING NO. B-3		STATION N/A		OFFSET N/A		ALIGNMENT N/A															
COLLAR ELEV. 1,009.8 ft		TOTAL DEPTH 19.7 ft		NORTHING N/A		EASTING N/A															
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 81% 01/29/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic															
DRILLER Cheek, D. O.		START DATE 09/27/16		COMP. DATE 09/27/16		SURFACE WATER DEPTH N/A															
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)							
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					ELEV. (ft)						
1010														1,009.8	GROUND SURFACE	0.0					
1005	1,006.6	3.2	3	2	2								ARTIFICIAL FILL SOFT TO MEDIUM STIFF BROWN AND DARK GRAY FINE SANDY CLAYEY SILT (A-4)								
1000	1,001.6	8.2																1,001.3	RESIDUAL HARD AND VERY STIFF GRAY, ORANGE & TAN SLIGHTLY MICACEOUS CLAYEY FINE SANDY SILT (A-4)	8.5	
995	996.6	13.2																			
	991.6	18.2																			
														990.1	Boring Terminated at Elevation 990.1 ft In Residual Soil	19.7					
BENCHMARK: SPIKE IN BASE OF TREE ~350' SW OF CELL TOWER ASSUMED ELEV. = 1000.00'																					

NCDOT BORE SINGLE\_CHEROKEE\_SALTDOMES.GPJ\_NC\_DOT.GDT\_10/19/16

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 51210.9		TIP Salt Barn		COUNTY CHEROKEE		GEOLOGIST Elliott, D. C.														
SITE DESCRIPTION Cherokee Co. Salt Barn							GROUND WTR (ft)													
BORING NO. B-4		STATION N/A		OFFSET N/A		ALIGNMENT N/A														
COLLAR ELEV. 1,009.9 ft		TOTAL DEPTH 9.5 ft		NORTHING N/A		EASTING N/A														
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 81% 01/29/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic														
DRILLER Cheek, D. O.		START DATE 09/28/16		COMP. DATE 09/28/16		SURFACE WATER DEPTH N/A														
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)						
			0.5ft	0.5ft	0.5ft	0	25	50	75	100										
1010														1,009.9	GROUND SURFACE	0.0				
	1,008.7	1.2	10	24	19								1,008.8	ARTIFICIAL FILL GRADED FILL	1.1					
1005	1,005.9	4.0	12	19	16														RESIDUAL HARD GRAY, ORANGE, RED AND TAN SLIGHTLY MICACEOUS CLAYEY FINE SANDY SILT (A-4)	
	1,001.9	8.0	13	21	17															
														1,000.4	Boring Terminated at Elevation 1,000.4 ft in Residual Soil	9.5				
BENCHMARK: SPIKE IN BASE OF TREE -350' SW OF CELL TOWER ASSUMED ELEV. = 1000.00'																				

NCDOT BORE SINGLE\_CHEROKEE\_SALTDOME.GPJ NC\_DOT\_GDT\_10/19/16

# GEOTECHNICAL BORING REPORT BORE LOG

WBS 51210.9		TIP Salt Barn		COUNTY CHEROKEE		GEOLOGIST Elliott, D. C.									
SITE DESCRIPTION Cherokee Co. Salt Barn							GROUND WTR (ft)								
BORING NO. B-5		STATION N/A		OFFSET N/A		ALIGNMENT N/A									
COLLAR ELEV. 1,009.3 ft		TOTAL DEPTH 14.8 ft		NORTHING N/A		EASTING N/A									
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 81% 01/29/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic									
DRILLER Cheek, D. O.		START DATE 09/28/16		COMP. DATE 09/28/16		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1010														GROUND SURFACE	0.0
	1,006.0	3.3												ARTIFICIAL FILL GRADED FILL	3.7
1005			7	8	14									RESIDUAL VERY STIFF AND HARD GRAY AND ORANGE SLIGHTLY MICACEOUS CLAYEY FINE SANDY SILT (A-4)	
1000	1,001.0	8.3	14	18	20										
995	996.0	13.3	13	16	14										
														Boring Terminated at Elevation 994.5 ft in Residual Soil	14.8
														BENCHMARK: SPIKE IN BASE OF TREE -350' SW OF CELL TOWER ASSUMED ELEV. = 1000.00'	

NCDOT BORE SINGLE\_CHEROKEE\_SALTDOME.GPJ\_NC\_DOT.GDT 10/19/16

# GEOTECHNICAL BORING REPORT BORE LOG

<b>WBS</b> 51210.9			<b>TIP</b> Salt Barn			<b>COUNTY</b> CHEROKEE			<b>GEOLOGIST</b> Elliott, D. C.						
<b>SITE DESCRIPTION</b> Cherokee Co. Salt Barn								<b>GROUND WTR (ft)</b>							
<b>BORING NO.</b> CNTR-1		<b>STATION</b> N/A			<b>OFFSET</b> N/A			<b>ALIGNMENT</b> N/A			0 HR. N/A				
<b>COLLAR ELEV.</b> 1,010.3 ft		<b>TOTAL DEPTH</b> 29.8 ft			<b>NORTHING</b> N/A			<b>EASTING</b> N/A			24 HR. N/A				
<b>DRILL RIG/HAMMER EFF./DATE</b> AFO6744 CME - 45C 81% 01/29/2016						<b>DRILL METHOD</b> NW Casing w/ SPT			<b>HAMMER TYPE</b> Automatic						
<b>DRILLER</b> Cheek, D. O.			<b>START DATE</b> 09/27/16			<b>COMP. DATE</b> 09/27/16			<b>SURFACE WATER DEPTH</b> N/A						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
1015															
1010															
	1,008.8	1.5	4	6	5										
	1,006.3	4.0	4	7	12										
	1,003.8	6.5	7	11	12										
	1,001.3	9.0	9	9	11										
	997.0	13.3	13	26	42										
	992.0	18.3	14	11	18										
	987.0	23.3	13	18	19										
	982.0	28.3	33	28	37										

1,010.3 GROUND SURFACE 0.0

1,009.1 ARTIFICIAL FILL 1.2

1,006.8 GRADED FILL 3.5

RESIDUAL

STIFF GRAY AND ORANGESLIGHTLY MICACEOUS CLAYEY FINE SANDY SILT (A-4)

RESIDUAL

VERY STIFF AND HARD ORANGE, BROWN, GRAY, AND BLUE-GRAY SLIGHTLY MICACEOUS CLAYEY FINE SANDY SILT (A-4)

980.5 Boring Terminated at Elevation 980.5 ft In Residual Soil 29.8

BENCHMARK: SPIKE IN BASE OF TREE  
~350' SW OF CELL TOWER  
ASSUMED ELEV. = 1000.00'

NCDOT BORE SINGLE\_CHEROKEE\_SALTDOME.GPJ\_NC\_DOT.GDT 10/19/16





# BID/ACCEPTANCE FORM

for

New Three-Bay Salt Storage Building, Cherokee County  
ID# 16-16175-01A

This contract is for construction of a new, three-bay salt storage facility. The building is constructed of cast in place concrete walls bearing on a shallow concrete foundation, with wood truss roof. Electrical work is included in this contract.

We are in receipt of Addendum \_\_\_\_\_1 \_\_\_\_\_2 \_\_\_\_\_3

The undersigned, as bidder, proposes and agrees if this bid is accepted to contract with the State of North Carolina through the Department of Transportation for the furnishing of all materials, equipment, and labor necessary to complete the construction of the work described in these documents in full and complete accordance with plans, specifications, and contract documents, and to the full and entire satisfaction of the State of North Carolina and the Department of Transportation, for the sum of:

**BASE BID:** \_\_\_\_\_ **Dollars \$** \_\_\_\_\_

Respectively submitted this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

\_\_\_\_\_  
**(Contractor's Name)**

Federal ID#: \_\_\_\_\_ By: \_\_\_\_\_

Witness: \_\_\_\_\_ Title: \_\_\_\_\_  
(Owner, partner, corp. Pres. Or Vice President)

\_\_\_\_\_  
(Proprietorship or Partnership) Address: \_\_\_\_\_

Attest: (corporation) Email Address: \_\_\_\_\_

**(Corporate Seal)**

By: \_\_\_\_\_ License #: \_\_\_\_\_

Title: \_\_\_\_\_  
(Corporation, Secretary./Ass't Secretary.)

\_\_\_\_\_  
**ACCEPTED by the STATE OF NORTH CAROLINA**  
through the Departement of Transportation

Total amount of accepted by the owner, included base bid and bid alternates: \_\_\_\_\_

\_\_\_\_\_  
(Agency/Institution)

BY: \_\_\_\_\_ TITLE: \_\_\_\_\_



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

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

### **SECTION A: INTENT**

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

### **SECTION B: DEFINITIONS**

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

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

### **SECTION C: RESPONSIBILITIES**

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

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

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

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

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

2. State Construction Office

The State Construction Office will be responsible for the following:

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

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

### 3. Owner

Before awarding a contract, owner shall do the following:

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

### 4. Designer

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

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

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

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

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

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

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

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

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

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

6. Minority Business Responsibilities

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

**SECTION 4: DISPUTE PROCEDURES**

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

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

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

## MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

### APPLICATION:

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

### MINORITY BUSINESS SUBCONTRACT GOALS:

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

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

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

### **OR**

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

### **OR**

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

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



## **MINIMUM COMPLIANCE REQUIREMENTS:**

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

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

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



## **MINORITY BUSINESS PARTICIPATION: ADDITIONAL INFORMATION**

Department of Administration, HUB Office  
Main Office: 919-807-2330  
Fax: 919-807-2335  
Email: [HUBOffice.DOA@doa.nc.gov](mailto:HUBOffice.DOA@doa.nc.gov)

Physical Location:  
Administration Building (Suite 4109)  
116 W. Jones Street, Raleigh, N.C.

Web Site: <http://www.doa.nc.gov/default.aspx>

Certified HUB's are registered with the Division of Purchase and Contract's web-based HUB Vendor Directory (VendorLink). Prime contractors may use the HUB Vendor Directory to identify HUB's in order to send them notification of their subcontracting opportunities.

NC Interactive Purchasing System web site:

<https://www.ips.state.nc.us/ips/>

NC VendorLink web site:

<https://www.ips.state.nc.us/vendor/VendorPubMain.aspx>

To search VendorLink for HUB's:

<https://www.ips.state.nc.us/vendor/SearchVendor.aspx>

Additional resources:

<http://www.doa.nc.gov/hub/OutReach.aspx>



## Identification of HUB Certified/ Minority Business Participation

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

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

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

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

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

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



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

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

(Name of Bidder)

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

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

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

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

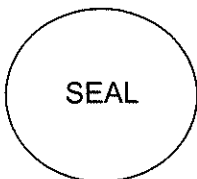
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure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

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

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

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

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



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

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

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

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





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

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

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

(Name of Bidder)

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

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

(Name of Project)

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

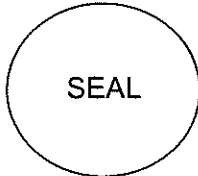
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

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

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

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

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



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

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

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

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



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

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

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

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

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

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

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

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

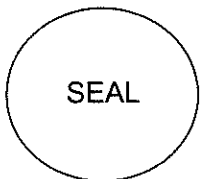
\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

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

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

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

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



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

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

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

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

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

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



# State of North Carolina AFFIDAVIT D – Good Faith Efforts

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

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

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

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

\_\_\_\_\_ (Project 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.



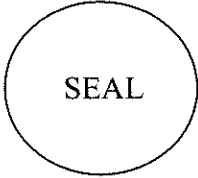
Do not submit with the bid Do not submit with the bid Do not submit with the bid Do not submit with the bid Do not submit with the bid

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 \_\_\_\_\_





**FORM OF PERFORMANCE BOND**

Date of Contract: \_\_\_\_\_

Date of Execution: \_\_\_\_\_

Name of Principal  
(Contractor) \_\_\_\_\_

Name of Surety: \_\_\_\_\_

Name of Contracting  
Body: \_\_\_\_\_

Amount of Bond: \_\_\_\_\_

Project

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

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

NOW, THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the contracting body, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

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

Executed in \_\_\_\_\_ counterparts.



Witness :

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

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

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

Attest: (Corporation)

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

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

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

(Corporate Seal)

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

Witness :

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

\_\_\_\_\_

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

Countersigned :

(Surety Corporate Seal)

\_\_\_\_\_

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

\_\_\_\_\_

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

\_\_\_\_\_

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



**FORM OF PAYMENT BOND**

Date of Contract: \_\_\_\_\_  
Date of Execution: \_\_\_\_\_  
Name of Principal  
(Contractor) \_\_\_\_\_  
Name of Surety: \_\_\_\_\_  
Name of Contracting  
Body: \_\_\_\_\_  
Amount of Bond: \_\_\_\_\_  
Project \_\_\_\_\_

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

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

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

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

Executed in \_\_\_\_\_ counterparts .



Witness :

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

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

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

Attest: (Corporation)

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

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

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

(Corporate Seal)

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

Witness :

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

\_\_\_\_\_

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

Countersigned :

\_\_\_\_\_

(Surety Corporate Seal)

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

\_\_\_\_\_

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

\_\_\_\_\_

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





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 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.







**APPENDIX E**

**MBE DOCUMENTATION FOR CONTRACT PAYMENTS**

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

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

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

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

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

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

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

Date: \_\_\_\_\_ Approved/Certified By: \_\_\_\_\_

Name

\_\_\_\_\_

Title

\_\_\_\_\_

Signature

**SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT**





North Carolina  
State Construction Office

**PROJECT APPROVAL AUTHORIZATION**  
**FINAL INSPECTION FOR OWNER OCCUPANCY:**

Project: CHEROKEE COUNTY THREE-BAY SALT STORAGE BUILDING

SCO Identification Number: 16-16175-01A Contract Completion Date: \_\_\_\_\_

Project Owning Agency: NC Department of Transportation, Division 14

Owning Agency's Requester: NCDOT Facility Design Unit Date: \_\_\_\_\_

Designer's Statement:

Facility Design Unit (Designer of Project) provides information to the owner and the State Construction Office that the project has been evaluated and field inspected to assure that construction meets contract requirements for final inspection to allow occupancy by the owning agency.

\_\_\_\_\_  
Designer's Representative Signature

Project Description: Construction of a new three-bay salt storage building.

**BACK-UP DATA:**  
**CONTRACTORS' APPROVAL DOCUMENTS:**

Contractor's statement of completion with request for designer's inspection: Date \_\_\_\_\_ N/A

Designer's Pre-final Punch List Inspection with copies provided to the Owning Agency and State Construction Office: Date \_\_\_\_\_ N/A

Designer provides the Owning Agency and the State Construction Office verification the punchlist has been completed: Date \_\_\_\_\_ N/A

Scheduled Final Inspection by designer accompanied by the Owning Agency and the State Construction Office Date \_\_\_\_\_ N/A

SCO Electrical Inspection (Certificate of Electrical Completion): Date \_\_\_\_\_ N/A







**North Carolina  
State Construction Office**

Certificate of Occupancy by Local Authority Having Jurisdiction: (Community College)	Date _____	N/A	<input checked="" type="checkbox"/>
Installer's Fire Alarm System Record of Completion (Certification) as required by NFPA 72:	Date _____	N/A	<input checked="" type="checkbox"/>
Installer's Sprinkler System Record of Material and Test Reports as required by:			
NFPA 13-(Sprinkler Systems)	Date _____	N/A	<input checked="" type="checkbox"/>
NFPA 14-(Standpipe and Hose Systems)	Date _____	N/A	<input checked="" type="checkbox"/>
NFPA 20-(Centrifugal Fire Pumps)	Date _____	N/A	<input checked="" type="checkbox"/>
NFPA 22-(Water Tanks for Private Fire Protection)	Date _____	N/A	<input checked="" type="checkbox"/>
NFPA 24-(Private Fire Service Mains)	Date _____	N/A	<input checked="" type="checkbox"/>
Other: SCO Approval Letter Sprinkler System	Date _____	N/A	<input checked="" type="checkbox"/>
Designer's Inspection to Assure Life Safety Construction involving Fire Protection Systems (Fire Alarm, Sprinkler, etc.), egress, fire rated walls and egress travel distances are constructed in accordance with contract documents:	Date _____	N/A	<input checked="" type="checkbox"/>
Dept. of Labor Approval for Elevator:	Date _____	N/A	<input checked="" type="checkbox"/>
Dept. of Labor Approval for Boiler & Pressure Vessels:	Date _____	N/A	<input checked="" type="checkbox"/>
Engr's. Verification Letter Fire Damper Operation	Date _____	N/A	<input checked="" type="checkbox"/>
Health Dept. Inspection and Acceptance for Use:	Date _____	N/A	<input checked="" type="checkbox"/>
Domestic Water Test Report and Acceptance for Use:	Date _____	N/A	<input checked="" type="checkbox"/>
Laboratory Hood Certification:	Date _____	N/A	<input checked="" type="checkbox"/>
Engineer's Approval of Test & Balance Report (TAB)	Date _____	N/A	<input checked="" type="checkbox"/>
Engineer's Approval Battery Powered Emer. Devices	Date _____	N/A	<input checked="" type="checkbox"/>
Engineer's Approval Emergency Generator Load Test	Date _____	N/A	<input checked="" type="checkbox"/>
Engineer's Approval Electrical Svc Grnd Test Rpt	Date _____	N/A	<input type="checkbox"/>
Backflow Preventer Certification	Date _____	N/A	<input checked="" type="checkbox"/>
Engineer's Approval Stair/Ramp Survey	Date _____	N/A	<input checked="" type="checkbox"/>
Engineer's Approval Site Survey (DENR)	Date _____	N/A	<input checked="" type="checkbox"/>
Metal Building Manufacturer's Warranty	Date _____	N/A	<input checked="" type="checkbox"/>
Roofing Manufacturer's Warranty	Date _____	N/A	<input type="checkbox"/>
Commissioning Engineer's Approval	Date _____	N/A	<input checked="" type="checkbox"/>
Lightning Protection UL Master Label	Date _____	N/A	<input checked="" type="checkbox"/>





**North Carolina  
State Construction Office**

Special Inspector's Final Report/Resolutions	Date _____	N/A <input checked="" type="checkbox"/>
Dept. of Agriculture Approval for Fuel Tanks:	Date _____	N/A <input checked="" type="checkbox"/>
Owner's Assumption of Responsibility for Maintenance, Heat, Utilities, and Insurance. Comments: _____	Date _____	N/A <input type="checkbox"/>
Established Date for Guarantees and Warranties. Comments: _____	Date _____	N/A <input type="checkbox"/>
Cancellation of Contractors' Insurance Carriers (Public Liability, Property Damage and Builders' Risk)	Date _____	N/A <input type="checkbox"/>

Designer's Approval:      Date: \_\_\_\_\_      Signature: \_\_\_\_\_

SCO Approval:              Date: \_\_\_\_\_      Signature: \_\_\_\_\_



CONSENT OF SURETY

COMPANY TO FINAL

PAYMENT

For Use with State of North Carolina Projects

Owner

Designer

Contractor  SCO ID # \_\_\_\_\_

Surety

Other

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):



**SECTION 316**

CONTRACTOR'S  
AFFIDAVIT OF  
RELEASE OF LIENS

Owner   
Designer   
Contractor  Code \_\_\_\_\_ Item \_\_\_\_\_  
Surety   
Other

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:





Owner

Designer

Contractor  Code \_\_\_\_\_ Item \_\_\_\_\_

Surety

Other

**CONTRACTOR'S**

**AFFIDAVIT OF PAYMENT**

**OF DEBTS AND CLAIMS**

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:

